City of San Diego

CONTRACTOR'S NAME: Hensel Phelps Construction Co.
ADDRESS: 9404 Genesee Ave., Suite 140, La Jolla, CA 92037
TELEPHONE NO.: (949) 429-9407 **E-Mail.:** rbrienza@henselphelps.com
CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491
J. Alyashai /M. Antwan /Y. Kawai

PROPOSAL DOCUMENTS

RFP 2-Step

e - Bidding

FINAL

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ NO.: **K-25-2318-DB2-3-C**
RFP NO.: **K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC): **L-22000.1, L-22000.3**
CLIENT DEPARTMENT: **2000**
COUNCIL DISTRICT: **7**
PROJECT TYPE: **BN, BT**

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- PROJECT LABOR AGREEMENT
- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- ELIGIBLE FOR JOINT VENTURE PREQUALIFICATION STATUS
- PREVAILING WAGE RATES: STATE ☒ FEDERAL ☐
- APPRENTICESHIP

THIS CONTRACT MAY BE SUBJECT TO THE FOLLOWING:

- PHASE-FUNDING

PROPOSALS DUE:
2:00 PM
OCTOBER 15, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

http://www.sandiego.gov/cip/bidopps/

DEPUTY CITY ENGINEER

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Architect and Registered Engineer:



Edgar Lozano — 08/20/2025 — Seal:

1) For City Engineer — Date:



Joe Mansfield CA 24429 — 08/20/25 — Seal:

2) Registered Architect / Registered Engineer — Date

For: Alvarado Laboratory Improvements Trailer

1. Plans Numbered 0102328-1-D through 0102328-35-D and
2. Alvarado Laboratory Improvements Trailer Technical Specifications

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REQUEST FOR PROPOSAL

1. INTRODUCTION AND PROJECT OVERVIEW

1.1. SOLICITATION

1.1.1. This is the City of San Diego's (City) second step in the two-step solicitation process to acquire Design-Build services for the **ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER** Design-Build project.

1.1.2. This RFP describes the Project, the required Scope of Work and Services, the Design-Builder selection process, the minimum information that shall be included in the Proposal for this Project, and the terms and conditions governing the Work. Failure to submit all requested information in accordance with the requirements of this Request for Proposal (RFP) may be cause for disqualification.

1.1.3. Each Proposal, properly executed as required by this RFP, shall constitute a firm offer which may be accepted by the City within the time specified in the Proposal.

1.1.4. This RFP will not commit the City to award a contract, to defray any costs incurred in the preparation of a Proposal pursuant to this RFP, or to procure or contract for the Work.

1.1.5. Selection announcements, contract awards, and all data provided by the City shall be protected by the Design-Builder from public disclosure. The Design-Builders desiring to release information to the public, shall receive prior written approval from the City.

1.1.6. The Design-Builder, by submitting a response to this RFP, agrees to provide the required services for the terms and conditions noted in this RFP and its exhibits if awarded by the City. The agreement and other terms and conditions are included in the Design-Build Contract and The GREENBOOK, The WHITEBOOK, and the Supplementary Special Provisions (SSP).

1.1.7. Any architectural firms, engineering firms, specialty consultants, or individuals retained by the City to assist in drafting the RFPs or the Project's preliminary design may not be eligible to participate in the competition with any Design-Build Entity. It is the responsibility of the Design-Build entity to obtain the required legal advice necessary to resolve such matters.

1.1.8. This Contract is subject to Stipend Agreement in accordance with **Appendix N – Stipend Agreement**.

1.1.9. This Contract is subject to Partnering in accordance with **Appendix O** – **Partnership Specifications**.

1.1.10. Design-Builders shall sign and submit via email to the Juan E. Espindola, Senior Contract Specialist, at JEEspindola@sandiego.gov, release forms found at the following link:

https://drive.google.com/drive/folders/1TcfDM6nwayfksGxZILLc9jABuWWc3mvy?usp=sharing

These Release forms shall be submitted via email by September 3, 2025 to the Contract Specialist. An Addendum will then be issued and posted to PlanetBids with the Revit files, which are optional to use for the Design of this project.

2. **SUMMARY OF WORK:** This is the City solicitation process to acquire Design-Build services for a Design-Build project. The project includes the phased renovation and reconstruction of the existing Alvarado Laboratory building and the construction of a new laboratory building with office and parking space. It also includes the installation of a temporary office trailer, site and utility improvements, and coordination with adjacent projects. The work shall comply with all applicable codes, permitting requirements, and sustainability standards, including LEED Silver and ELAP accreditation. For additional information, refer to Attachment A.

3. **COMPETITION:** This RFP is being issued only to the shortlisted contractors pursuant to RFQ **K-25-2318-DB2-3-C**.

4. **PROPOSAL DUE DATE AND TIME ARE: OCTOBER 15, 2025 at 2:00 PM**

5. **ESTIMATED PROJECT COST:** The City's estimated cost for this project is **$144,500,000.00.**

6. **LICENSE REQUIREMENT:** To be eligible for award of this contract, Prime contractor must possess the following licensing classification: **B**

7. **PROJECT LABOR AGREEMENT:**

7.1. This work is covered by a Citywide Project Labor Agreement (PLA) entered into by the City of San Diego, the San Diego Building and Construction Trades Council and signatory Craft Unions, included herein as **Attachment J.**

This work will provide many opportunities for local residents and local small business enterprises to participate. It is the City's policy that contractors will cooperate with all efforts of the City, the Project Labor Coordinator, the Jobs Coordinator, and other organizations retained by the City to encourage and assist in the participation of Local, Targeted and/or Veteran workers.

7.2. **LETTER OF ASSENT.** The Contractor and all subcontractors agree to be bound by the PLA by submitting a Letter of Assent (PLA Attachment B) to the City's Project Labor Coordinator. The Contractor shall submit its Letter of Assent as a condition of award and all subcontractors shall submit their Letter of Assent before commencing any Work on the Project.

7.3. **PRE-JOB CONFERENCE.** Each contractor, regardless of tier, is required to conduct a pre-job conference with the Unions not later than ten (10) calendar days prior to commencing work.

The Prime Contractor is responsible for facilitating and scheduling their own pre-job conferences and for facilitating, scheduling, and ensuring that all its subcontractors conduct a pre-job conference.

7.4. JOBS COORDINATOR. The Contractor will be required to hire a Jobs Coordinator, an independent third-party individual, entity or employee with whom the Prime Contractor enters into a contract or employs to assist the Contractor with achieving and exceeding the Local Worker goals set forth in the PLA, Article 4, Section 4.5, to assist with fulfilling the Work Opportunities Program as set forth in Article 22, and to assist with Helmets to Hardhats participation as set forth in Article 23.

Each subcontractor, regardless of tier, shall utilize the Jobs Coordinator retained by the Prime Contractor, pursuant to the PLA, Article 22 Section 22.2 (f). The Contractor shall submit a Jobs Coordinator Designation Form as a condition of award.

8. CONTRACT PERIOD: The Project, including the Plant Establishment Period, shall be completed within **920 Working Days** from the Notice to Proceed (NTP).

9. PREVAILING WAGE RATES APPLY TO THIS CONTRACT: Refer to Attachment D.

10. PHASE FUNDING: This contract may be subject to phase funding, for Conditions, see Attachment B.

11. PRE-PROPOSAL MEETING AND PRE-PROPOSAL SITE VISIT:

11.1. ONLINE PRE-PROPOSAL MEETING:

Prospective Bidders are **Encouraged** to attend the Pre-Proposal Meeting.

The Pre-Proposal Meeting will be held on **Wednesday, September 3, 2025,** at **11:00 AM** (PDT) at:

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 229 062 244 561 4
Passcode: F5DZ3vR9

Dial in by phone

+1 945-468-5511,,3349716# United States, Dallas
Find a local number
Phone conference ID: 334 971 6#
For organizers: Meeting options | Reset dial-in PIN

For organizers: Meeting options | Reset dial-in PIN

The purpose of the meeting is to discuss the scope of the Project, submittal requirements, and any Equal Opportunity Contracting Program requirements and reporting procedures.

11.2. PRE-PROPOSAL SITE VISIT: All those wishing to submit a proposal are **Encouraged** to visit the Work Site with the Engineer. A limit of five (5) people from each Design-Builder

team may attend the site visit. The purpose of the Site Visit is to acquaint Proposers with the Site conditions. To request a sign-language or oral interpreter for this visit, call the Purchasing & Contracting Department, Public Works Division, at (619) 533-3450 at least 5 Working Days prior to the meeting to ensure availability. The Pre-Proposal Site Visit is scheduled as follows:

Time: 10:00 AM
Date: September 10, 2025
Location: 5530 Kiowa Dr. La Mesa. CA 91942.

For those who wish to attend the Pre-Proposal Site Visit, please send your request to SJDowell@sandiego.gov and JAlyashai@sandiego.gov, **no later than September 4, 2025**. Include the following information in your email request:

- Company Name / Affiliation
- Number of personnel attending
- Names of personnel attending

Those who are attending shall check in with security at the entrance gate to provide their name and affiliation. Those who fail to send the information requested above will not be permitted to enter the site. Site meeting attendees shall wear long pants and closed toe shoes.

12. SUBCONTRACTING PARTICIPATION PERCENTAGES: Subcontracting participation percentages apply to this contract.

12.1. The City has incorporated mandatory SLBE-ELBE subcontractor participation percentages to enhance competition and maximize subcontracting opportunities. For the purpose of achieving the mandatory subcontractor participation percentages, a recommended breakdown of the SLBE and ELBE subcontractor participation percentages based upon certified SLBE and ELBE firms has also been provided to achieve the mandatory subcontractor participation percentages:

1.	SLBE participation	**1.4%**
2.	ELBE participation	**2.0%**
3.	Total mandatory participation	**3.4%**

12.2. The current list of Certified SLBE/ELBE Firms to be used for outreach for this project is posted to the Documents tab on PlanetBids.

12.3. The Proposal will be declared non-responsive if the Proposer fails to meet the following mandatory requirements:

12.3.1. Proposer's inclusion of SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document;

OR

12.3.2. Proposer's submission of Good Faith Effort documentation, saved in searchable Portable Document Format (PDF) and stored on Compact Disc (CD) or Digital Video Disc (DVD), demonstrating the Proposer made a good faith effort to outreach to and include SLBE-ELBE Subcontractors required in this document within 3 Working Days of the Proposal due date if the overall mandatory participation percentage is not met.

All submittals in searchable PDF shall be submitted electronically within the prescribed time identified in the contract documents via PlanetBids by invitation to the point of contact named in the bid provided by the Contract Specialist to all bidders

13. SELECTION AND AWARD SCHEDULE:

13.1. The City anticipates that the process for selecting a Design-Builder and awarding the contract will be according to the following tentative schedule. Dates are subject to change:

13.2.	Pre-Proposal Meeting	**SEPTEMBER 3, 2025 at 11:00 AM**
13.3.	Pre-Proposal Site Visit	**SEPTEMBER 10, 2025 at 10:00 AM**
13.4.	Proposal Due Date	**OCTOBER 15, 2025 at 2:00 PM**
13.5.	Presentations or Interviews	**NOVEMBER 2025**
13.6.	Selection and Notification	**DECEMBER 2025**
13.7.	Limited Notice to Proceed	**JANUARY 2026**

INSTRUCTIONS TO PROPOSERS AND GENERAL CONDITIONS

1. PREQUALIFICATION OF CONTRACTORS AND CALIFORNIA STATE LICENSE:

1.1. Contractors submitting a Proposal must be pre-qualified for the total amount proposed, including all alternate items, prior to the date of submittal. Bids from contractors who have not been pre-qualified as applicable and Bids that exceed the maximum dollar amount at which contractors are pre-qualified may be deemed **non-responsive** and ineligible for award.

1.2. If the applicant is a subsidiary of a parent company, the applicant may provide the consolidated audited financial statement of the parent company; provided, however, that the applicant submits a statement signed by a duly authorized representative of the parent company confirming that the parent company will guarantee the performance of any contract awarded to the applicant. The City may also require the parent company to execute a separate agreement with the City to guarantee the subsidiary's performance prior to executing any contract with the subsidiary.

1.3. The completed application must be submitted online no later than 2 weeks prior to the bid opening.

1.4. **Joint Venture Bidders Cumulative Maximum Bidding Capacity:** For projects with an engineer's estimate of $30,000,000 or greater, Joint Ventures submitting bids may be deemed responsive and eligible for award if the cumulative maximum bidding capacity of the individual Joint Venture entities is equal to or greater than the total amount proposed.

1.4.1. Each of the entities of the Joint Venture must have been previously prequalified at a minimum of $15,000,000.

1.4.2. Bids submitted with a total amount proposed of less than $30,000,000 are not eligible for Cumulative Maximum Bidding Capacity prequalification. To be eligible for award in this scenario, the Joint Venture itself or at least one of the Joint Venture entities must have been prequalified for the total amount proposed.

1.4.3. Bids submitted by Joint Ventures with a total amount proposed of $30,000,000 or greater on a project with an engineer's estimate of less than $30,000,000 are not eligible for Cumulative Maximum Bidding Capacity prequalification.

1.4.4. The Joint Venture designated as the Apparent Low Bidder shall provide evidence of its corporate existence and furnish good and approved bonds in the name of the Joint Venture within 14 Calendar Days of receipt by the Bidder of a form of contract for execution.

1.5. Complete information and links to the on-line prequalification application are available at:

http://www.sandiego.gov/cip/bidopps/prequalification

1.6. Due to the City's responsibility to protect the confidentiality of the contractors' information, City staff will not be able to provide information regarding contractors' prequalification status over the telephone. Contractors may access real-time information about their prequalification status via their vendor profile on PlanetBids™.

2. **ELECTRONIC FORMAT RECEIPT AND OPENING OF PROPOSALS: Proposals will be received** in **electronic format (eBids) EXCLUSIVELY** at the City of San Diego's electronic bidding (eBidding) site, at: https://www.sandiego.gov/cip/bidopps/ and are due by the date, and time shown on the cover of this solicitation.

2.1. **PROPOSERS MUST BE PRE-REGISTERED** with the City's bidding system and possess a system-assigned Digital ID in order to submit and electronic proposal.

2.2. The City's bidding system will automatically track information submitted to the site including IP addresses, browsers being used and the URLs from which information was submitted. In addition, the City's bidding system will keep a history of every login instance including the time of login, and other information about the user's computer configuration such as the operating system, browser type, version, and more. Because of these security features, Contractors who disable their browsers' cookies will not be able to log in and use the City's bidding system.

2.3. Upon entry of their proposal, the system will ensure that all required fields are entered. **The system will not accept a proposal for which any required information is missing.** This includes all necessary pricing, subcontractor listing(s) and any other essential documentation and supporting materials and forms requested or contained in these solicitation documents.

2.4. **PROPOSALS REMAIN SEALED UNTIL DUE DATE AND TIME**. eBids and eProposals are transmitted into the City's bidding system via hypertext transfer protocol secure (https) mechanism using SSL 128-256 bit security certificates issued from Verisign/Thawte which encrypts data being transferred from client to server. Proposals submitted prior to the Due Date and Time are not available for review by anyone other than the submitter, who will have until the Due Date and Time to change, rescind or retrieve its proposal should they desire to do so.

2.5. **PROPOSALS MUST BE SUBMITTED BY DUE DATE AND TIME**. Once the deadline is reached, no further submissions are accepted into the system. Once the Due Date and Time has passed, bidders, proposers, the general public, and City staff are able to immediately see the results on line. City staff may then begin reviewing the submissions for responsiveness, Equal Opportunity Contracting Program (EOCP) compliance and other issues.

2.6. **TECHNICAL PROPOSAL AND PRICE PROPOSAL ARE TO BE SEPARATE**. The proposer is to submit two separate files by the due date and time.

1. The Technical proposal, which should contain the items detailed below and in Attachment G. There is to be **NO PRICING** information within this proposal. If a Technical proposal contains pricing information, the submission may be deemed non-responsive and ineligible for further consideration, and

2. The Price proposal, which should detail the cost structure and include any forms as required herein.

2.6. **RECAPITULATION OF THE WORK.** Proposals shall not contain any recapitulation of the Work. Conditional proposals may be rejected as being **non-responsive**. Alternative proposals will not be considered unless called for.

2.7. **PROPOSALS MAY BE WITHDRAWN** by the Proposer prior to, but not after, the time set as Due Date and Time.

2.7.1. **Important Note:** Submission of the electronic proposal into the system may not be instantaneous. Due to the speed and capabilities of the user's internet service provider (ISP), bandwidth, computer hardware and other variables, it may take time for the proposer's submission to upload and be received by the City's eBidding system. It is the proposer's sole responsibility to ensure their proposals are received on time by the City's eBidding system. The City of San Diego is not responsible for proposals that do not arrive by the required date and time.

2.8. **ACCESSIBILITY AND AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE.** To request a copy of this solicitation in an alternative format, contact the Purchasing & Contracting Department, Public Works Division, Contract Specialist listed in the cover of this solicitation at least five (5) working days prior to the Proposal due date to ensure availability.

3. ELECTRONIC SUBMISSIONS CARRY FULL FORCE AND EFFECT

3.1. The proposer, by submitting its electronic proposal, acknowledges that doing so carries the same force and full legal effect as a paper submission with a longhand (wet) signature.

3.2. By submitting an electronic proposal, the proposer certifies that the proposer has thoroughly examined and understands the entire Contract Documents (which consist of the plans and specifications, drawings, forms, affidavits and the solicitation documents), and that by submitting the eBid as its proposal, the proposer acknowledges, agrees to and is bound by the entire Contract Documents, including any addenda issued thereto, and incorporated by reference in the Contract Documents.

3.3. The Proposer, by submitting their electronic proposal, agrees to and certifies under penalty of perjury under the laws of the State of California, that the certification, forms and affidavits submitted as part of this proposal are true and correct.

3.4. Each properly signed Proposal shall constitute a firm offer that may be accepted by the City within the time frame specified herein.

3.5. The Proposer agrees to guarantee the Contract Price for a period of 120 days from the date of Bid opening. The duration of the Contract Price guarantee may be extended, by mutual consent of the parties, by the number of days required for the City to obtain all items necessary to fulfill all contractual conditions.

4. **PROPOSALS ARE PUBLIC RECORDS:** Upon receipt by the City, proposals shall become public records subject to public disclosure. It is the responsibility of the respondent to clearly identify any confidential, proprietary, trade secret or otherwise legally privileged information contained within the proposal's General references to sections of the California Public Records Act (PRA) will not suffice. If the Contractor does not provide applicable case law that clearly establishes that the requested information is exempt from the disclosure requirements of the PRA, the City shall be free to release the information when required in accordance with the PRA, pursuant to any other applicable law, or by order of any court or government agency, and the Contractor will hold the City harmless for release of this information.

5. EQUAL OPPORTUNITY CONTRACTING

5.1. As set forth in this RFP, the City is dedicated to the principles of equal opportunity in the workplace and in subcontracting. It is the City's expectation that firms doing business with the City have, and are able to demonstrate, the same level of commitment.

5.2. The Design-Builders are encouraged to take positive steps to diversify and expand their subcontractor solicitation base and to offer contracting opportunities to all eligible certified Subcontractors in accordance with the City's EOCP requirements included in the Contract Documents.

5.3. Design-Builder's Work Force

5.3.1. The Design-Builders shall submit with its Proposal a Work Force Report (EOC Form BB05) and prior to award of contract, the successful Design-Builder shall submit to the City's EOCP office an updated Work Force Report or an Equal Employment Opportunity (EEO) Plan.

5.3.2. If under representations are noted in the Work Force Report when compared to County Labor Force Availability data, the Design-Builder shall submit an Equal Opportunity Plan. Any Equal Employment Opportunity Plan submitted shall include the elements as outlined in the EOCP Requirements included in The WHITEBOOK.

5.3.3. The specified Equal Opportunity Contracting Program (EOCP) forms are available for download from the City's web site at:

http://www.sandiego.gov/eoc/forms

5.4. Nondiscrimination Ordinance (Municipal Code §§ 22.2701-22.2708)

5.4.1. The Design-Builder shall not discriminate on the basis of race, gender, gender expression, gender identity, religion, national origin, ethnicity, sexual orientation, age or disability in the solicitation, selection, hiring or treatment of the Subcontractors and Suppliers. The Design-Builder shall provide equal opportunity for Subcontractors to participate in subcontracting opportunities.

The Design-Builder understands and agrees that violation of this clause shall be considered a material breach of the contract and may result in contract termination, debarment or other sanctions.

5.4.2. This language shall be in contracts between the Design-Builder and any Subcontractors and Suppliers.

5.4.3. As part of its Proposal, the Design-Builder shall provide to the City a list of all instances within the last 10 years where a complaint was filed or pending against Design-Builder in a legal or administrative proceeding alleging that Design-Builder discriminated against its employees, the Subcontractors, or Suppliers, and a description of the status or resolution of that complaint, including any remedial action taken. If there have not been any complaints filed or pending against Design-Builder, a written statement from the Design-Builder to confirm shall be included in the Proposal.

5.5. Contractor Registration and Electronic Reporting System

5.5.1. Prior to the award of the Contract, the Design-Builder, Subcontractors, and Suppliers must register with the City's web-based vendor registration and bid management system, BidsOnline, hosted by PlanetBids System. For additional information go to:

https://www.sandiego.gov/purchasing/bids-contracts/vendorreg

5.5.2. The City may not award the contract until registration of all subcontractors and suppliers is complete. In the event this requirement is not met within the time frame specified in the Notice of Intent to Award letter, the City reserves the right to rescind the Notice of Award / Intent to Award and to make the award to the next responsive and responsible bidder / proposer

5.5.3. Following the award of the Contract, the Design-Builder will be required to use the City's web-based contract compliance application for EOCP reporting purposes e.g., Weekly Certified Payroll, Monthly Employment Utilization, and Monthly Payments. Online tutorials are available at:

http://stage.prismcompliance.com/etc/vendortutorials.htm

5.5.3.1. The City may retain progress payments if:

5.5.3.2. The non-registered Design-Builder, Subcontractors or Suppliers fail to register.

5.5.3.3. EOCP reporting is delinquent or inadequate.

5.5.3.4. Underpayment has occurred.

6. PRE-PROPOSAL ACTIVITIES

6.1. Submission of Questions

6.1.1. The Director (or designee) of the Purchasing & Contracting Department is the officer responsible for opening, examining, and evaluating the competitive Proposals submitted to the City for the acquisition, construction, and completion of any public improvement except when otherwise set forth in these documents. All questions related to this solicitation shall be submitted to:

Juan E. Espindola, Senior Contract Specialist at JEEspindola@sandiego.gov

6.1.2. Questions received less than 14 Days prior to the Proposal due date may not be considered.

6.1.3. Questions or clarifications deemed by the City to be material shall be answered via issuance of an addendum and posted to the City's online bidding service.

6.1.4. Only questions answered by formal written addenda shall be binding. Oral and other interpretations or clarifications shall be without legal effect. It is the Design-Builder's responsibility to be informed of any Addenda that have been issued and to adjust its Proposal accordingly.

6.2. Revisions to the RFP

The City, at its option, may respond to any or all questions submitted in writing via the City's eBidding web site in the form of an addendum. No other responses to questions, oral or written, shall be of any force or effect with respect to this solicitation.

Any changes to the Contract Documents through addendum are made effective as though originally issued with the Proposal. The Design-Builders shall acknowledge the receipt of Addenda at the time of Proposal submission.

7. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK

7.1. Contract Documents may be obtained by visiting the City's website: http://www.sandiego.gov/cip/. Plans and Specifications for this contract are also available for review in the office of Purchasing & Contracting Department Contracts.

7.2. The Design-Builders shall carefully examine the Project Site, the Plans and Specifications, and other materials as described in or referenced by this RFP. The submission of a Proposal shall be conclusive evidence that the Design-Builder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of work, the quantities of materials to be furnished, local conditions, and as to the requirements of the Contract Documents.

8. CHANGES TO THE SCOPE OF WORK: Once a proposal has been accepted by the City and the award has been made, the Design-Builder shall immediately notify the City in writing of any proposed or anticipated change in the scope, contract amount, or contract time; and shall obtain the City's written consent to the change(s) prior to affecting them. In no event shall the City's consent be construed to relieve the Design-Builder from its duty to render all work and services in accordance with applicable laws and accepted industry standards.

9. **DESIGN SUBMITTALS:** The City's review of the Design-Builder's Design Submittals shall not relieve the Design-Builder from its responsibilities under the Contract, or be deemed to be an acceptance or waiver by City of any deviation from, or of the Design-Builder's failure to comply with, any provision or requirement of the Contract Documents, unless such deviation or failure has been identified as such in writing in the document submitted for acceptance by the Design-Builder and accepted by City. Where approval or acceptance by City is required, it is understood to be general approval only, and does not relieve the Design-Builder of responsibility for complying with all applicable laws and good professional practices as the Design-Builder shall be the Engineer of Record.

10. **BONDS AND INSURANCE:** Prior to the award of the Contract (or Task Order), the Design-Builders shall submit evidence of separate bonds and insurance as specified in Section 5-4, "INSURANCE," of the City's standard specifications for public works constructions unless specified otherwise in the Contract Documents.

11. **SUBMITTAL REQUIREMENTS: PROPOSALS MUST BE RECEIVED NO LATER THAN THE DUE DATE AND TIME.** Proposals may be withdrawn by the Design-Builder only up to the proposal due date and time.

IMPORTANT NOTE: Submission of the electronic proposals into the system may not be instantaneous. Due to the speed and capabilities of the user's internet service provider (ISP), bandwidth, computer hardware and other variables, it may take time for the bidder's submission to upload and be received by the City's eBidding system. It is the bidder's sole responsibility to ensure that their bids / proposals are received on time by the City's eBidding system. The City of San Diego is not responsible for bids / proposals that do not arrive by the required date and time.

11.1. TECHNICAL PROPOSAL REQUIREMENTS: Technical Proposals Submitted in response to this RFP shall be in the following order and shall include:

- Legal name of company.
- Legal form of entity (partnership, corporation, joint venture, or other). If joint venture, identify the members of the joint venture, and provide all information required under this section for each member.
- Year of establishment of entity.
- If company is subsidiary of a parent company, identify the parent company.
- Address of main office.
- Address of San Diego satellite office if applicable.
- Contact information for firm, including name, title, email address and telephone number.
- Number of employees in San Diego County.
- Applicable License(s).
- City of San Diego Business License Number, including expiration date.
- State Contractor's License Number including expiration date, and all classifications. Professional Engineering/Architect License Number, including expiration date.
- Failure to provide all required information may result in the Proposal being considered non-responsive and ineligible for further consideration.

11.1.1. The Technical Proposal shall be concise, well organized, and demonstrate the Design-Builder's qualifications and experience applicable to the Project. The Technical Proposal shall be limited to 50 one-sided pages ($8^{1/2}$" x 11"), exclusive of resumes, graphics, forms, pictures, photographs, dividers, front and back cover, etc., that address the Technical Proposal contents; and of Equal Opportunity Contracting documentation. Font Type shall be Times New Roman in a minimum 12 Point font size, with a minimum 1" margin for text pages. A cover letter may be submitted but shall not contain any information that is a required element of the Technical Proposal.

11.1.2. The Technical Proposals submitted in response to this RFP shall be in accordance with the requirements listed in ATTACHMENT G. The contents of the Technical Proposal shall be organized consistent with the format in Attachment G.

11.1.3. Design elements which deviate from the Scope of Work, City's design guidelines, or material substitutions which differ from the Approved Material List shall be highlighted in accordance with Attachment G.

11.1.4. Failure to comply with this section may render the Design-Builder's submittal non-responsive and ineligible for further consideration.

11.2. PRICE PROPOSAL REQUIREMENTS.

11.2.1. A clearly marked, signed PDF of the TOTAL PRICE FOR DESIGN-BUILD PROPOSAL page is to be submitted within the Cost File in PlanetBids.

11.2.2. A completed Excel Price Proposal Sheet is to be submitted as a General Attachment in PlanetBids.

11.2.3. The Price Proposal shall be signed by an individual or individuals authorized to execute legal documents on behalf of the Design-Builder.

11.2.4. The lowest proposed price is not the determining factor for award of this contract. See Attachment G for the criteria by which the proposals will be evaluated.

11.2.5. In the event of any discrepancies, written numbers will govern over numerical. Also, the sum of all lump sum line items, unit price line items, allowance line items and any other priced items will govern over the "Total Design-Build Proposal" line item.

11.2.6. The required EOCP information such as Subcontractor and Supplier listings shall be submitted as part of the Price Proposal.

11.2.7. These are not to be included with the Technical Proposal. Refer to **Attachment H** of this RFP for any Price Proposal forms required to be used.

12. SELECTION CRITERIA AND SCORING

12.1. An evaluation Panel comprised of representatives from the City will be established for this Project. The Panel may also include other interested parties such as additional participating agencies, representative from the community and other appropriate agencies such as the State Water Resource Control Board.

12.2. Proposals will be ranked according to the selection criteria set forth in Attachment G.

12.3. The Panel will review all proposals received. Interviews or presentations will be conducted as needed in accordance with Attachment G.

12.4. Based upon this technical review, the Panel will rank the Design-Builders' proposals in accordance with the selection criteria set forth in Attachment G of this RFP.

12.5. Once the Technical Proposals have been ranked by the Panel, the Design-Builders' price proposals will be made available to the panel and forwarded to EOCP for review and scoring of subcontractor participation. The EOCP score will then be added to the Design-Builders' cumulative scores.

13. SUBCONTRACTOR INFORMATION:

13.1. **LISTING OF SUBCONTRACTORS**. In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act" of the California Public Contract Code, the Bidder shall provide the **NAME** and **ADDRESS** of each Subcontractor who will perform work, labor, render services or who specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Contractor's total Bid. The Bidder shall also state within the description, whether the subcontractor is a **CONSTRUCTOR**, **CONSULTANT** or **SUPPLIER**. The Bidder shall state the **DIR REGISTRATION NUMBER** for all subcontractors and shall further state within the description, the **PORTION** of the work which will be performed by each subcontractor under this Contract. The Contractor shall list only one Subcontractor for each portion of the Work. The **DOLLAR VALUE** of the total Bid to be performed shall be stated for all subcontractors listed. Failure to comply with this requirement may result in the Bid being rejected as **non-responsive** and ineligible for award. The Bidder's attention is directed to the Special Provisions - General; Paragraph 3-2, "SELF-PERFORMANCE", which stipulates the percent of the Work to be performed with the Bidders' own forces. The Bidder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors for which Bidders are seeking recognition towards achieving any mandatory, voluntary (or both) subcontracting participation goals.

Additionally, pursuant to California Senate Bill 96 and in accordance with the requirements of Labor Code sections 1771.1 and 1725.5, by submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the California Department of Industrial Relations (DIR**). The Bidder shall provide the name, address, license number, DIR registration number of any Subcontractor – regardless of tier** - who will perform work, labor, render services or specially fabricate and install a portion [type] of the work or improvement pursuant to the contract.

13.2. **LISTING OF SUPPLIERS.** Any Bidder seeking the recognition of Suppliers of equipment, materials, or supplies obtained from third party Suppliers towards achieving any mandatory or voluntary (or both) subcontracting participation goals shall provide, at a minimum, the **NAME**, **LOCATION (CITY), DIR REGISTRATION NUMBER** and the **DOLLAR VALUE** of each supplier. The Bidder will be credited up to 60% of the amount to be paid to the Suppliers for materials and supplies unless vendor manufactures or substantially alters materials and supplies, in which case, 100% will be credited. The Bidder is to indicate within the description whether the listed firm is a supplier or manufacturer. If no indication is provided, the listed firm will be credited at 60% of the listed dollar value for purposes of calculating the Subcontractor Participation Percentage.

13.3. **LISTING OF SUBCONTRACTORS OR SUPPLIERS FOR ALTERNATES.** For subcontractors or suppliers to be used on alternate items, bidder shall use the provided **"Subcontractors For Alternates"** form and shall indicate for each alternate subcontract whether it is an additive or deductive alternate; the subcontractor's name, location, phone number, email address, CA license number, and DIR registration number; whether the subcontractor is a designer, constructor or supplier; the type of work the subcontractor will be performing; and the dollar value of the subcontract for that alternate item. Failure to comply with this requirement may result in the bid being rejected as **non-responsive** and ineligible for award.

14. AWARD

14.1. After the Technical Proposals have been evaluated, scored and ranked; the Price proposals will be factored in according to the criteria set forth in Attachment G. A Design-Builder selection will then be made.

14.2. The City will announce in writing to all the RFP participants the selected Design-Builder. The announcement will show the results of the evaluation. This notification to the Design-Builders shall constitute the public announcement of the selected Design-Builder. In the event that the selected Design-Builder is subsequently deemed non-responsive or non-responsible, a new public announcement will be provided to all proposers with the name of the newly designated selected Design-Builder.

14.3. This RFP will not commit the City to award a contract, to defray any costs incurred in the preparation of a Proposal pursuant to this RFP, or to procure or contract for the Work.

14.4. Selection announcements, contract awards, and all data provided by the City shall be protected by the Design-Builder from public disclosure. The Design-Builders desiring to release information to the public shall receive prior written approval from the City.

14.5. Design-Builders who submit a response to this RFP agree to provide the required services in accordance with the terms and conditions noted in this RFP and its attachments upon award by the City. The agreement and other terms and conditions are included in the Design-Build Contract, The GREENBOOK, The WHITEBOOK, and the Supplementary Special Provisions (SSP).

14.6. Any architectural firms, engineering firms, specialty consultants, or individuals retained by the City to assist in drafting the RFPs or the Project's preliminary design may not be eligible to participate in the competition with any Design-Build Entity without the prior written consent of City. Any architectural firms, engineering firms, specialty consultants, or individuals retained by the City to assist in drafting any Reference Documents, such as the Water Department's Master Plan and any other document that was not prepared specifically for this contract, are considered to be eligible to participate.

14.7. To obtain the price Proposal results, view the results on the City's web site, or request the results by U.S. mail and provide a self-addressed, stamped envelope. If requesting by mail, be sure to reference the Proposal name and number. The Proposal tabulations will be mailed to you upon their completion. The results will not be given over the telephone.

15. ADDITIONAL POLICIES, PROCEDURES, TERMS AND CONDITIONS

15.1. The Program's Selection Process is based on the policies, procedures and guidelines set forth in the City Municipal Code Chapter 2, Article 2, Division 33.

15.2. **Protests.** A Design-Builder may protest the award of the Contract to another Design-Builder in accordance with San Diego Municipal Code.

15.3. **Changes to Key Personnel and Substitution of Subcontractors.** The Design-Builder shall not change or substitute any individual that is identified in its proposal as "key personnel" without the written consent of the City. The Design-Builder shall not change or substitute any material, supplier, or subcontractor identified in its Proposal without written consent of the City. The City's consent will not be unreasonably withheld.

15.4. **Project Team.** The Design-Builder shall maintain all representations, team members, and proposed tasks and work elements as valid, except for the schedule which may be adjusted as mutually agreed upon by the City and the Design-Builder.

15.5. **Submittal of "Or Equal" Items.** See 4-6, "TRADE NAMES" in the SSP and as modified by the Scope of Work ATTACHMENT A.

15.6. **Subcontract Limitations.** The Design-Builder's attention is directed to Standard Specification for Public Works Construction, Section 3-2, "SELF-PERFORMANCE", which requires the Design-Builder to perform not less than the specified amount under this RFP. Failure to comply shall render the Proposal non-responsive.

15.7. **San Diego Business Tax Certificate.** All Contractors, including Subcontractors, not already having a City of San Diego Business Tax Certificate for the work contemplated shall secure the appropriate certificate from the City Treasurer, Civic Center Plaza, first floor, before the Contract can be executed.

15.8. **City Standard Provisions.** The work resulting from this RFP is subject to the following standard provisions. See The WHITEBOOK for details. hj

15.8.1. The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.

15.8.2. The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.

15.8.3. The City of San Diego Municipal Code §22.3004 for Pledge of Compliance.

15.8.4. The City of San Diego's Labor Compliance Program and the State of California Labor Code §1776.

15.8.5. Sections 1777.5, 1777.6, and 1777.7 of the State of California Labor Code concerning the employment of apprentices by contractors and subcontractors performing public works contracts.

15.8.6. The City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).

15.8.7. The City's Information Security Policy (ISP) as defined in the City's Administrative Regulation 90.63.

15.9. Prevailing Wage Rates Apply: Refer to Attachment D.

15.10. Reference Standards: Except as otherwise noted or specified, the Work shall be completed in accordance with the following standards:

Title	Edition	Document Number
Standard Specifications for Public Works Construction ("The GREENBOOK") http://www.greenbookspecs.org/	2021	ECPI010122-01
City of San Diego Standard Specifications for Public Works Construction ("The WHITEBOOK")* https://www.sandiego.gov/ecp/edocref/greenbook	2021	ECPI010122-02
City of San Diego Standard Drawings* https://www.sandiego.gov/ecp/edocref/standarddraw	2021	ECPI010122-03
Citywide Computer Aided Design and Drafting (CADD) Standards https://www.sandiego.gov/ecp/edocref/drawings	2018	PWPI010119-04
California Department of Transportation (CALTRANS) Standard Specifications https://dot.ca.gov/programs/design/july-2023-ccs-standard-plans-and-standard-specifications	2023	ECPD092023-05
CALTRANS Standard Plans https://dot.ca.gov/programs/design/july-2023-ccs-standard-plans-and-standard-specifications	2023	ECPD092023-06
California Manual on Uniform Traffic Control Devices Revision 8 (CA MUTCD Rev 8) https://dot.ca.gov/programs/safety-programs/camutcd	2014	ECPD032324-07
NOTE: *Available online under Engineering Documents and References at: https://www.sandiego.gov/ecp/edocref/ *****Electronic updates to the Standard Drawings may also be found in the link above		

CERTIFICATIONS AND FORMS

CERTIFICATIONS AND FORMS

The Proposer, by submitting its electronic proposal, agrees to and certifies under penalty of perjury under the laws of the State of California, that the certifications, forms and affidavits submitted as part of this bid are true and correct**.**

NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID UNDER 23 UNITED STATES CODE 112 AND PUBLIC CONTRACT CODE 7106

State of California

County of San Diego

The bidder, being first duly sworn, deposes and says that he or she is authorized by the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-17 regarding Drug-Free Workplace as outlined in the WHITEBOOK, Section 5-1.3, "Drug-Free Workplace", of the project specifications, and that;

This company has in place a drug-free workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of subdivisions a) through c) of the policy as outlined.

CONTRACTOR CERTIFICATION

AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-4 regarding the Americans With Disabilities Act (ADA) outlined in the WHITEBOOK, Section 5-1.2, "California Building Code, California Code of Regulations Title 24 and Americans with Disabilities Act" of the project specifications, and that:

This company has in place workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of the policy as outlined.

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

I declare under penalty of perjury that I am authorized to make this certification on behalf of the company submitting this bid/proposal, that as Contractor, I am familiar with the requirements of City of San Diego Municipal Code § 22.3004 regarding Contractor Standards as outlined in the WHITEBOOK, Section 5-1.4, ("Contractor Standards and Pledge of Compliance"), of the project specifications, and that Contractor has complied with those requirements.

I further certify that each of the Contractor's subcontractors has completed a Pledge of Compliance attesting under penalty of perjury of having complied with City of San Diego Municipal Code § 22.3004.

CONTRACTOR CERTIFICATION

EQUAL BENEFITS ORDINANCE CERTIFICATION

I declare under penalty of perjury that I am familiar with the requirements of and in compliance with the City of San Diego Municipal Code § 22.4300 regarding Equal Benefits Ordinance.

CONTRACTOR CERTIFICATION

EQUAL PAY ORDINANCE CERTIFICATION

Contractor shall comply with the Equal Pay Ordinance (EPO) codified in the San Diego Municipal Code (SDMC) at section 22.4801 through 22.4809, unless compliance is not required based on an exception listed in SDMC section 22.4804.

Contractor shall require all of its subcontractors to certify compliance with the EPO in their written subcontracts.

Contractor must post a notice informing its employees of their rights under the EPO in the workplace or job site.

By signing this Contract with the City of San Diego, Contractor acknowledges the EPO requirements and pledges ongoing compliance with the requirements of SDMC Division 48, section 22.4801 et seq., throughout the duration of this Contract.

CONTRACTOR CERTIFICATION

IN-USE OFF-ROAD DIESEL FUELED FLEET REGULATION (OFF-ROAD REGULATION) COMPLIANCE

I hereby certify that Contractor is familiar with the requirements 13 CCR 2449, 2449.1, and 2449.2, as well as Attachment F, In-Use Off-Road Diesel Fueled Fleet Regulation (Off-Road Regulation) Compliance (CARB), and that Contractor shall comply with these requirements.

I further certify that each of the Contractor's listed subcontractors is familiar with these requirements and shall also comply.

CONTRACTOR CERTIFICATION

PRODUCT ENDORSEMENT

I declare under penalty of perjury that I acknowledge and agree to comply with the provisions of City of San Diego Administrative Regulation 95.65, concerning product endorsement. Any advertisement identifying or referring to the City as the user of a product or service requires the prior written approval of the City.

AFFIDAVIT OF DISPOSAL

(To be submitted upon completion of Construction pursuant to the contracts Certificate of Completion)

WHEREAS, on the _____ DAY OF _____, 2_____ the undersigned entered into and executed a contract with the City of San Diego, a municipal corporation, for:

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

(Project Title)

as particularly described in said contract and identified as Bid No. **K-26-2318-DB2-3-C**; SAP No. (WBS) **L-22000.1** and **L-22000.3**; and **WHEREAS**, the specification of said contract requires the Contractor to affirm that "all brush, trash, debris, and surplus materials resulting from this project have been disposed of in a legal manner"; and **WHEREAS**, said contract has been completed and all surplus materials disposed of:

_____

_____

NOW, THEREFORE, in consideration of the final payment by the City of San Diego to said Contractor under the terms of said contract, the undersigned Contractor, does hereby affirm that all surplus materials as described in said contract have been disposed of at the following location(s)

_____

_____

and that they have been disposed of according to all applicable laws and regulations.

Dated this _____ DAY OF _____, _____.

By:_____
Contractor

ATTEST:

State of _____ County of _____

On this_____ DAY OF _____, 2_____, before the undersigned, a Notary Public in and for said County and State, duly commissioned and sworn, personally appeared_____ known to me to be the _____ Contractor named in the foregoing Release, and whose name is subscribed thereto, and acknowledged to me that said Contractor executed the said Release.

Notary Public in and for said County and State

ATTACHMENTS

ATTACHMENT A

PROJECT DESCRIPTION, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AND BRIDGING DOCUMENTS

PROJECT DESCRIPTION, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AND BRIDGING DOCUMENTS

1. PROJECT DESCRIPTION:

This project aims to address significant functional and operational challenges within the current Alvarado Laboratory facility. To elevate the lab to a "world-class" standard and ensure its continued role as one of the City's primary water quality laboratories, the project will include a comprehensive interior renovation of the existing lab and office spaces, along with the construction of a substantial new addition for expanded laboratory and office use. This project also aims to address a 72" water pipeline located under the existing laboratory as well as a temporary office trailer with it's own site improvements.

2. SCOPE OF WORK:

Alvarado Laboratory Improvements Trailer (WBS# L-22000.3)

The temporary office trailer scope of work includes but is not limited to improving the site to allow for the purchase and installation of an approximately 5,040 square foot prefabricated office trailer, with its Mechanical, Electrical, Plumbing, fire alarm, infrastructures and security systems as a state approved deferred submittal. The Design-Builder is responsible for pulling all necessary permits for the temporary trailer and pre-engineered ramp from City Development Services Department (DSD). The trailer shall be connected to water, sewer, electric and data utilities within the campus. Install new ADA parking per City Standard. Bio-monitoring shall be included. The trailer scope is subject to WPCP development and implementation. Complete a geotechnical investigation and issue a report to support the trailer foundation. All work shall be code compliant and all needed permits shall be obtained. Coordinate with the adjacent Montezuma PPL / Mid-City Pipeline PH2 Project. This portion of the project shall receive Beneficial Occupancy / Beneficial Use 12 months after LNTP and shall remain open for use throughout the remainder of the project. Contractor shall adhere to Alvarado Laboratory Improvements Trailer Technical Specifications included in Attachment E, and plans numbered 0102328-1-D through 0102328-35-D, inclusive, located in the following link.

https://drive.google.com/drive/folders/1_dQLl4Zbs25tlKAefrdBPPfRVHcJLHgd?usp=drive_link

Alvarado Laboratory Improvements (WBS# L-22000.1)

The proposed improvements include, but is not limited to, the design and construction of a new two-story laboratory building with office space, spanning approximately 31,400 square feet, and 18,000 square feet of parking located beneath the new structure. Additionally, the project involves the retrofit and partial reconstruction of the existing 43,400-square-foot Alvarado Laboratory building, as well as site improvements. Other upgrades include the rehabilitation of a 72-inch pressurized (8 psi) water pipeline with (2) access vaults, valves and fittings.

The Designer-Builder scope of work includes, but is not limited to, Design and Engineering Services, generating the Construction Documents and Project Specifications, obtaining all required permits, and underground utilities, compliances with Best Management Practices (BMPs), Storm Water Standard Manual, Stormwater Pollution Prevention Plan (SWPPP), Site Landscaping, Codes, Regulations and Design Manual standards as applicable. The project is

required to comply with the State of California Environmental Laboratory Accreditation Program (ELAP) standards for lab testing facility, Buildings Codes Compliance, LEED Silver Certification at a minimum, and the new Sustainability 900-03 Zero Emissions Municipal Buildings & Operations Policy. The facility shall be Zero Net Energy (ZNE) verified through the New Building Institute (NBI) or through LEED Zero program. LEED Silver will be required at a minimum, however the Design-Builder is encouraged to obtain LEED Gold or higher. Design-Builder must pursue the LEED enhanced commissioning credit.

Design-Build Team shall include a Certified Access Specialist (CASP) professional who is certified by the State of California and possesses up-to-date credentials. The CASP professional will be responsible for ensuring compliance with all applicable accessibility codes and standards, including but not limited to the Americans with Disabilities Act (ADA) and California Building Code (CBC) requirements. The CASP professional shall issue compliance certification at the following project phases: Design Development Phase, Construction Documentation Phase, Post-Construction Phase. Proposers shall submit the following as part of their proposal; a Proof of CASP certification for the proposed team member, including certificate number and expiration date, a detailed plan outlining how accessibility compliance will be ensured throughout the project life cycle. A commitment letter signed by the CASP professional acknowledging their responsibilities.

The Design-Build Team shall include Lab Planner Specialist. The specialist will be responsible for assisting the Client Department in the creation and selection of the new laboratory equipment list.

The facility must remain operational throughout the duration of construction. The building (existing and new) shall have all necessary systems such as, but not limited to, electrical, fire alarm, security, fire suppression system, data, phone, plumbing, etc.

The project is subject to California Department of Public Health Service's Environmental Laboratory Accreditation Project (ELAP). The Design-Builder in coordination with the Client Department and ELAP, shall design and construct the facility to meet ELAP requirements and receive the necessary certifications.

This facility shall conform with the Facilities Maintenance Guide and Public Utilities Department Water Facilities Design Guide. Refer to the bridging documents located in the bridging documents link, see item 3 of Attachment A.

3. BRIDGING DOCUMENTS, SCOPE OF WORK , TECHNICAL SPECIFICATIONS, AS-BUILTS:

For Bridging Documents, Scope of Work , Technical Specifications, and As-Builts, refer to the following link:
https://drive.google.com/drive/folders/1KJtNPWMoZmtU0cKtU7Vlogflo55rDtzu?usp=sharing

The following is a list of the bridging documents:

1. L-22000.1 Lab and 72-inch Pipeline
    - 1.1 2025-05-14 Alvarado Lab Imp 72in pipe dwgs
    - 1.2 2025-06-13 Alvarado Lab - 100% BD.
    - 1.3 Rehab Data Collection - Water Pipeline Sample Data Template.

2. Facilities Standards and Specifications Guideline for New Construction March 2021 Update - FSD - Final 20210308.
3. IT Telecommunications Specifications.
4. IT Security Standards Guidelines - Redacted.
5. Meters & Solar PV Data Monitoring.
6. Water Facility Design Guidelines - 2021.

4. LOCATION OF WORK: The location of the Work is as follows:

5530 Kiowa Dr, La Mesa, CA 91942.
See **Appendix E – Location Maps**.

5. Office Furniture, Equipment, and Personal Items – Moving/Storage

The Design-Builder will be responsible for moving and/or storing all employees' office items (i.e. files, furniture, computers, chairs, etc.) to the interim housing location, any temporary locations, and to their permanent location and/or final destination. The Design-Builder will be responsible for the planning, logistics, and execution of the office move for all employees, and shall retain a professional Moving and Logistics Company to execute the move. As part of each move, the Moving and Logistics Company shall provide the following at a minimum:

A. Logistics and Moving Company:

- Detailed Timeline and Schedule: Develop a comprehensive timeline outlining tasks before, during, and after the move, including deadlines.
- Open Communication: Keep employees informed throughout the process to manage expectations and address any concerns.
- Move Overview: Share a comprehensive move overview with all team members, outlining logistics and individual responsibilities.
- Phased Move Strategy: Develop a moving and phasing strategy. Consider moving departments or sections in stages to minimize disruption and maintain productivity.
- Inventory Management: Create a detailed inventory list of all items being moved to the new location.
- Packing and Preparation:
    - Use sturdy boxes, crates, or containers and appropriate packing materials.
    - Pack items logically (by room, department, etc.).
    - Disconnect and wrap electronics, disassemble and wrap furniture, and secure and wrap machinery.
    - Label all items to be moved or discarded.

- Moving Day Logistics:
    - Ensure smooth operations by setting up the network infrastructure, installing equipment, and transferring data.
    - Coordinate deliveries, manage traffic congestion, and ensure delicate handling of items.
    - Utilize a professional IT team for installation and configuration of computer equipment. IT Team shall be PMP (Project management Professional) Certified.

6. IT Requirements and Specifications:

Design-Builder shall be responsible for all telecommunications, network, and IT needs for this project and shall conform with IT Telecommunications Specifications, and IT Security Standards Guidelines. Refer to the bridging documents located in the bridging documents link, see item 3 of Attachment A.

7. Meter and Solar Requirements and Specifications:

Design-Builder shall be responsible for all Meter and Solar PV Data Monitoring Needs for this project and will confirm with the Meter & Solar PV Data Monitoring Guide. Refer to the bridging documents located in the bridging documents link, see item 3 of Attachment A.

ATTACHMENT B

PHASE FUNDING PROVISIONS

PHASE FUNDING PROVISIONS

1. PRE-AWARD

1.1. Within 10 Working Days of the Notice of Intent to Award, the Contractor must contact the Project Manager to discuss fund availability for each phase and shall also submit the following:

1.1.1. Construction Cost Loaded Schedule in accordance with 6-1,"CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK" and 7-3, "PAYMENT".

1.2. Contractor's failure to perform any of the following may result cancelling the award of the Contract:

1.2.1. Meeting with the City's Project Manager to discuss the Phase Funding Schedule.

1.2.2. Agreeing to a Phase Funding Schedule within **thirty** days of meeting with the City's Project Manager.

2. POST-AWARD

2.1. Do not start any construction activities for the next phase until the Notice to Proceed (NTP) has been issued by the City. The City will issue a separate NTP for each phase.

2.2. The City may issue the NTP for a subsequent phase before the completion of the preceding phase.

PHASE FUNDING SCHEDULE AGREEMENT

The particulars left blank below, such as the total number of phases and the amounts assigned to each phase, will be completed with funding specific information from the Pre-Award Schedule and Construction Cost Loaded Schedule submitted to and approved by the City.

RFP NUMBER: **K-26-2318-DB2-3-C**

CONTRACT TITLE: **ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER**

CONTRACTOR: Hensel Phelps

Funding Phase	Phase Description	Phase Start	Phase Finish	Not-to-Exceed Amount
1	Design thru Design Development, Trailer permits, Trailers start fabrication	LNTP	09/30/2026	$12,000,000
2	CDs/IFC Drawings, Building Permits, Trailer Installation, Alternates, Demo, Foundations	10/01/2026	09/30/2027	$27,500,000
3	New Building (Inorganic), Site Improvements, parking	10/01/2027	09/30/2028	$70,000,000
4	Organic & Biology Core + Shell	10/01/2028	09/30/2029	$27,500,000
5	TI No. 1 (Organic), TI No. 2 (Biology)	10/01/2029	NOC 02/17/2031	$14,966,015
			Contract Total	$151,966,015

Notes:

1) WHITEBOOK section 7-3.10, "Phased Funding Compensation" applies.
2) The total of all funding phases shall be equal to the TOTAL BID PRICE as shown on BID SCHEDULE 1 - PRICES.
3) This PHASE FUNDING SCHEDULE AGREEMENT will be incorporated into the CONTRACT and shall only be revised by written modifications to the CONTRACT.

CITY OF SAN DIEGO

PRINT NAME: Jeff Soriano

Construction Senior Engineer

Signature: _____

Date: 02/17/2026

CONTRACTOR Hensel Phelps Construction Co.

PRINT NAME: Brian Maximuk

Title: Operations Manager

Signature: _____

Date: 02/10/2026

PRINT NAME: Edgar Lozano

Design Senior Engineer

Signature: _____

Date: 02/12/2026

ATTACHMENT C

EQUAL OPPORTUNITY CONTRACTING PROGRAM

EQUAL OPPORTUNITY CONTRACTING PROGRAM (EOCP)

SECTION A - GENERAL REQUIREMENTS

A. INTRODUCTION.

1. This document sets forth the following specifications:
   a) The City's general EOCP requirements for all Construction Contracts.
   b) Special Provisions for Contracts subject to SLBE and ELBE requirements only.
2. Additional requirements may apply for state or federally funded projects.
3. These requirements shall be included as Contract provisions for all Subcontracts.
4. The City specified forms, instructions, and guides are available for download from the EOCP's web site at: http://www.sandiego.gov/eoc/forms/index.shtml

B. GENERAL.

1. The City of San Diego promotes equal employment and subcontracting opportunities.
2. The City is committed to ensuring that taxpayer dollars spent on public Contracts are not paid to businesses that practice discrimination in employment or subcontracting.
3. The City encourages all companies seeking to do business with the City to share this commitment.

C. DEFINITIONS.

1. For the purpose of these requirements: Terms "Bid" and "Proposal", "Bidder" and "Proposer", "Subcontractor" and "Subconsultant", "Contractor" and "Consultant", "Contractor" and "Prime Contractor", "Consultant" and "Professional Service Provider", "Suppliers" and "Vendors", "Suppliers" and "Dealers", and "Suppliers" and "Manufacturers" may have been used interchangeably.
2. The following definitions apply:
   a) **Emerging Business Enterprise (EBE)** - A for-profit business that is independently owned and operated; that is not a subsidiary or franchise of another business and whose gross annual receipts do not exceed the amount set by the City Manager and that meets all other criteria set forth in regulations implementing Municipal Code Chapter 2, Article 2, Division 36. The City Manager shall review the threshold amount for EBEs on an annual basis and adjust as necessary to reflect changes in the marketplace.

b) **Emerging Local Business Enterprise (ELBE)** - A Local Business Enterprise that is also an Emerging Business Enterprise.

c) **Minority Business Enterprise (MBE)** - A certified business that is at least fifty-one percent (51%) owned by one or more minority individuals, or, in the case of a publicly owned business at least fifty-one percent (51%) of the stock is owned by one or more minority individuals; and (2) whose daily business operations are managed and directed by one or more minorities owners. Minorities include the groups with the following ethnic origins: African, Asian Pacific, Asian Subcontinent, Hispanic, Native Alaskan, Native American, and Native Hawaiian.

d) **Women Business Enterprise (WBE)** - A certified business that is at least fifty-one percent (51%) owned by a woman or women, or, in the case of a publicly owned business at least fifty-one percent (51%) of the stock is owned by one or more women; and (2) whose daily business operations are managed and directed by one or more women owners.

e) **Disadvantaged Business Enterprise (DBE)** - a certified business that is at least fifty-one percent (51%) owned by socially and economically disadvantaged individuals, or, in the case of a publicly owned business at least fifty-one percent (51%) of the stock is owned by one or more socially and economically disadvantaged individuals; and (2) whose daily business operations are managed and directed by one or more socially and economically disadvantaged owners.

f) **Disabled Veteran Business Enterprise (DVBE)** - A certified business that is at least fifty-one percent (51%) owned by one or more disabled veterans; and (2) business operations must be managed and controlled by one or more disabled veterans. Disabled Veteran is a veteran of the U.S. military, naval, or air service; the veteran must have a service-connected disability of at least 10% or more; and the veteran must reside in California.

g) **Other Business Enterprise (OBE)** - Any business which does not otherwise qualify as a Minority, Woman, Disadvantaged, or Disabled Veteran Business Enterprise.

h) **Small Business Enterprise (SBE)** - A for-profit business that is independently owned and operated; that is not a subsidiary or franchise of another business and whose gross annual receipts do not exceed the amount set by the City Manager and that meets all other criteria set forth in regulations implementing Municipal Code Chapter 2, Article 2, Division 36. The City Manager shall review the threshold amount for SBEs on an annual basis and adjust as necessary to reflect

changes in the marketplace. A business certified as a Micro Business (MB) or a Disabled Veteran Business Enterprise (DVBE) by the State of California and that has provided proof of such certification to the City Manager shall be deemed to be an SBE.

i) **Small Local Business Enterprise (SLBE)** - A Local Business Enterprise that is also a Small Business Enterprise.

D. CITY'S EQUAL OPPORTUNITY COMMITMENT.

1. **Nondiscrimination in Contracting Ordinance.**

a) You, your Subcontractors, and Suppliers shall comply with the requirements of the City's Nondiscrimination in Contracting Ordinance, San Diego Municipal Code §§22.3501 through 22.3517.

You shall not discriminate on the basis of race, gender, gender expression, gender identity, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring, or treatment of subcontractors, vendors, or suppliers. You shall provide equal opportunity for Subcontractors to participate in subcontracting opportunities. You understand and agree that the violation of this clause shall be considered a material breach of the Contract and may result in Contract termination, debarment, or other sanctions.

You shall include the foregoing clause in all Contracts between you and your Subcontractors and Suppliers.

b) **Disclosure of Discrimination Complaints.** As part of its Bid or Proposal, you shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against you in a legal or administrative proceeding alleging that you discriminated against your employees, Subcontractors, vendors, or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

c) Upon the City's request, You agree to provide to the City, within 60 Calendar Days, a truthful and complete list of the names of all Subcontractors and Suppliers that you have used in the past 5 years on any of your Contracts that were undertaken within the San Diego County, including the total dollar amount paid by you for each Subcontract or supply Contract.

d) You further agree to fully cooperate in any investigation conducted by the City pursuant to the City's Nondiscrimination in Contracting Ordinance, Municipal Code §§22.3501 through 22.3517. You understand and agree that violation of this clause shall be considered a material breach of the Contract and may result in remedies being ordered against you up to and including contract termination, debarment, and other sanctions for the violation of the provisions of the

Nondiscrimination in Contracting Ordinance. You further understand and agree that the procedures, remedies, and sanctions provided for in the Nondiscrimination in Contracting Ordinance apply only to violations of the Ordinance.

E. EQUAL EMPLOYMENT OPPORTUNITY OUTREACH PROGRAM.

1. You, your Subcontractors, and Suppliers shall comply with the City's Equal Employment Opportunity Outreach Program, San Diego Municipal Code §§22.2701 through 22.2707.

   You shall not discriminate against any employee or applicant for employment on any basis prohibited by law. You shall provide equal opportunity in all employment practices. You shall ensure that your Subcontractors comply with this program. Nothing in this section shall be interpreted to hold you liable for any discriminatory practices of your Subcontractors.

   You shall include the foregoing clause in all Contracts between you and your Subcontractors and Suppliers.

2. If the Contract is competitively solicited, the selected Bidder shall submit a Work Force Report (Form BB05) within 10 Working Days after receipt by the Bidder to the City for approval as specified in the Notice of Intent to Award letter.

3. The selected Bidder shall submit an Equal Employment Opportunity Plan if a Work Force Report is submitted and if the City determines that there are under-representations when compared to County Labor Force Availability data.

4. If the selected Bidder submits an Equal Employment Opportunity Plan, it shall include the following assurances:

   a) You shall maintain a working environment free of discrimination, harassment, intimidation, and coercion at all Sites and in all facilities at which your employees are assigned to Work.

   b) You shall review your EEO Policy annually with all on-Site supervisors involved in employment decisions.

   c) You shall disseminate and review your EEO Policy with all employees at least once a year, post the policy statement and EEO posters on all company bulletin boards and job sites, and document every dissemination, review, and posting with a written record to identify the time, place, employees present, subject matter, and disposition of meetings.

   d) You shall review, at least annually, all supervisors' adherence to and performance under the EEO Policy and maintain written documentation of these reviews.

   e) You shall discuss your EEO Policy Statement with Subcontractors with whom you anticipate doing business, including the EEO Policy

Statement in your Subcontracts, and provide such documentation to the City upon request.

f) You shall document and maintain a record of all Bid solicitations and outreach efforts to and from Subcontractors, contractor associations, and other business associations.

g) You shall disseminate your EEO Policy externally through various media, including the media of people of color and women, in advertisements to recruit. Maintain files documenting these efforts and provide copies of these advertisements to the City upon request.

h) You shall disseminate your EEO Policy to union and community organizations.

i) You shall provide immediate written notification to the City when any union referral process has impeded your efforts to maintain your EEO Policy.

j) You shall maintain a current list of recruitment sources, including those outreaching to people of color and women, and provide written notification of employment opportunities to these recruitment sources with a record of the organizations' responses.

k) You shall maintain a current file of names, addresses and phone numbers of each walk-in applicant, including people of color and women, and referrals from unions, recruitment sources, or community organizations with a description of the employment action taken.

l) You shall encourage all present employees, including people of color and women employees, to recruit others.

m) You shall maintain all employment selection process information with records of all tests and other selection criteria.

n) You shall develop and maintain documentation for on-the-job training opportunities, participate in training programs, or both for all of your employees, including people of color and women, and establish apprenticeship, trainee, and upgrade programs relevant to your employment needs.

o) You shall conduct, at least annually, an inventory and evaluation of all employees for promotional opportunities and encourage all employees to seek and prepare appropriately for such opportunities.

p) You shall ensure that the company's working environment and activities are non-segregated except for providing separate or single-user toilets and necessary changing facilities to assure privacy between the sexes.

F. SUBCONTRACTING.

1. The City encourages all eligible business enterprises to participate in City contracts as a Contractor, Subcontractor, and joint venture partner with you,

your Subcontractors, or your Suppliers. You are encouraged to take positive steps to diversify and expand your Subcontractor solicitation base and to offer subcontracting opportunities to all eligible business firms including SLBEs, ELBEs, MBEs, WBEs, DBEs, DVBEs, and OBEs.

2. For Subcontractor participation level requirements, see the Contract Documents where applicable.

3. For the purposes of achieving the mandatory Subcontractor participation percentages, City percentage calculations will not account for the following:

   a) "Field Orders" and "City Contingency" Bid items.

   b) Alternate Bid items.

   c) Allowance Bid items designated as "EOC Type II".

4. Allowance Bid items designated as "EOC Type I" will be considered as part of the Base Bid and will be included in the percentage calculation.

5. Each joint venture partner shall be responsible for a clearly defined Scope of Work. In addition, an agreement shall be submitted and signed by all parties identifying the extent to which each joint venture partner shares in ownership, control, management, risk, and profits of the joint venture.

G. LISTS OF SUBCONTRACTORS AND SUPPLIERS.

1. You shall comply with the Subletting and Subcontracting Fair Practices Act, Public Contract Code §§4100 through 4113, inclusive.

2. You shall list all Subcontractors who will receive more than 0.5% of the total Bid amount or $10,000, whichever is greater on the form provided in the Contract Documents (Subcontractors list).

3. 3. The Subcontractors list shall include the Subcontractor's name, telephone number including area code, physical address, Scope of Work, the dollar amount of the proposed Subcontract, the California contractor license number, the Public Works contractor registration number issued pursuant to Section 1725.5 of the Labor Code, and the Subcontractor's certification status with the name of the certifying agency.The listed Subcontractor shall be appropriately licensed pursuant to Contractor License Laws.

4. For Design-Build Contracts, refer to the RFQ and RFP for each Project or Task Order.

H. SUBCONTRACTOR AND SUPPLIER SUBSTITUTIONS.

1. Listed Subcontractors and Suppliers shall not be substituted without the Express authorization of the City or its duly authorized agent.

2. Request for Subcontractor or Supplier substitution shall be made in writing to Purchasing & Contracting Department, Public Works Division, Attention Contract Specialist, 1200 3rd Ave., Suite 200, MS 56P, San Diego, CA 92101 with a copy to the Engineer.

3. The request shall include a thorough explanation of the reason(s) for the substitution, including dollar amounts and a letter from each substituted Subcontractor or Supplier stating that they (the Subcontractors or Suppliers) release all interest in working on the Project and written confirmation from the new Subcontractor or Supplier stating that they agree to work on the Project along with the dollar value of the Work to be performed.

4. Written approval of the substitution request shall be received by you or from the City or its authorized officer prior to any unlisted Subcontractor or Supplier performing Work on the Project.

5. Substitution of Subcontractors and Suppliers without authorization shall subject you to those penalties set forth in Public Contract Code §4110.

6. Requests for Supplier substitution shall be made in writing at least 10 Days prior to the provision of materials, supplies, or services by the proposed Supplier and shall include proof of written notice to the originally listed Supplier of the proposed substitution.

7. A Contractor whose Bid is accepted shall not:

    a) Substitute a person as Subcontractor or Supplier in place of the Subcontractor or Supplier listed in the original bid, except that the City, or it's duly authorized officer, may consent to the substitution of another person as a Subcontractor or Supplier in any of the following situations:

        i. When the Subcontractor or Supplier listed in the Bid, after having a reasonable opportunity to do so, fails or refuses to execute a written Contract for the scope of work specified in the subcontractor's bid and at the price specified in the subcontractor's bid, when that written contract, based upon the general terms, conditions, plans, and specifications for the project involved or the terms of the subcontractor's written bid, is presented to the subcontractor by the prime contractor.

        ii. When the listed Subcontractor or Supplier becomes insolvent or the subject of an order for relief in bankruptcy.

        iii. When the listed Subcontractor or Supplier fails or refuses to perform his or her subcontract.

        iv. When the listed Subcontractor fails or refuses to meet bond requirements as set forth in Public Contract Code §4108.

        v. When you demonstrate to the City or it's duly authorized officer, subject to the provisions set forth in Public Contract Code §4107.5, that the name of the Subcontractor was listed as the result of an inadvertent clerical error.

        vi. When the listed Subcontractor is not licensed pursuant to Contractor License Law.

        vii. When the City, or it's duly authorized officer, determines that the Work performed by the listed Subcontractor or that the

materials or supplies provided by the listed Supplier are substantially unsatisfactory and not in substantial accordance with the Plans and specifications or that the Subcontractor or Supplier is substantially delaying or disrupting the progress of the Work.

viii. When the listed Subcontractor is ineligible to work on a public works project pursuant to §§1777.1 or 1777.7 of the Labor Code.

ix. When the City or its duly authorized agent determines that the listed Subcontractor is not a responsible contractor.

b) Permit a Contract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original Subcontractor, Supplier listed in the original Bid without the consent of the City, or it's duly authorized officer.

c) Other than in the performance of "Change Orders" causing changes or deviations from the Contract, sublet or subcontract any portion of the Work, or contract for materials or supplies in excess of 0.5% of your total bid or $10,000, whichever is greater, as to which his or her original Bid did not designate a Subcontractor or Supplier.

8. Following receipt of notice from you of the proposed substitution of a Subcontractor or Supplier, the listed Subcontractor or Supplier who has been so notified shall have 5 Working Days within which to submit written objections to the substitution to the Contract Specialist with a copy to the Engineer. Failure to file these written objections shall constitute the listed Subcontractor or Supplier's consent to the substitution. If written objections are filed, the City shall give notice in writing of at least 5 Working Days to the listed Subcontractor or Supplier of a hearing by the City on your request for substitution.

I. PROMPT PAYMENT.

1. You or your Subcontractors shall pay to any subcontractor, not later than 7 Calendar Days of receipt of each progress payment, unless otherwise agreed to in writing, the respective amounts allowed you on account of the Work performed by the Subcontractors, to the extent of each Subcontractor's interest therein. In cases of Subcontractor performance deficiencies, you shall make written notice of any withholding to the Subcontractor with a copy to the Contracts Specialist. Upon correction of the deficiency, you shall pay the Subcontractor the amount previously withheld within 14 Calendar Days after payment by the City.

2. Any violation of California Business and Professions Code, §7108.5 concerning prompt payment to Subcontractors shall subject the violating Contractor or Subcontractor to the penalties, sanctions, and other remedies of that section. This requirement shall not be construed to limit or impair any contractual,

administrative, or judicial remedies otherwise available to you or your Subcontractor in the event of a dispute involving late payment or nonpayment by the Prime Contractor, deficient subcontract performance, or noncompliance by a Subcontractor.

J. PROMPT PAYMENT OF FUNDS WITHHELD TO SUBCONTRACTORS.

1. The City will hold retention from you and will make prompt and regular incremental acceptances of portions, as determined by the Engineer, of the Work and pay retention to you based on these acceptances.
2. You or your Subcontractors shall return all monies withheld in retention from a Subcontractor within 30 Calendar Days after receiving payment for Work satisfactorily completed and accepted including incremental acceptances of portions of the Work by the City.
3. Federal law (49CFR26.29) requires that any delay or postponement of payment over 30 Calendar Days may take place only for good cause and with the City's prior written approval. Any violation of this provision by you or your Subcontractor shall subject you or your Subcontractor to the penalties, sanctions, and other remedies specified in §7108.5 of the Business and Professions Code.
4. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to you or your Subcontractor in the event of a dispute involving late payment or nonpayment by you, deficient subcontract performance, or noncompliance by a Subcontractor.

K. CERTIFICATION.

1. The City accepts certifications of DBE, DVBE, MBE, SMBE, SWBE, or WBE by any of the following certifying agencies:
    a) Current certification by the State of California Department of Transportation (CALTRANS) as DBE, SMBE, or SWBE.
    b) Current MBE, WBE, or DVBE certification from the California Public Utilities Commission.
    c) DVBE certification is received from the State of California's Department of General Services, Office of Small and Minority Business.
    d) Current certification by the City of Los Angles as DBE, WBE, or MBE.
    e) Subcontractors' valid proof of certification status (copies of MBE, WBE, DBE, or DVBE certifications) shall be submitted as required.

L. CONTRACT RECORDS AND REPORTS.

1. You shall maintain records of all subcontracts and invoices from your Subcontractors and Suppliers for work on this project. Records shall show name, telephone number including area code, and business address of each

Subcontractor, Supplier, and joint venture partner, and the total amount actually paid to each firm. Project relevant records, regardless of tier, may be periodically reviewed by the City.

2. You shall retain all records, books, papers, and documents pertinent to the Contract for a period of not less than 5 years after Notice of Completion and allow access to said records by the City's authorized representatives.

3. You shall submit the following reports using the City's web-based contract compliance (Prism® portal):

    a. **Monthly Payment.** You shall submit Monthly Payment Reporting by the 10th day of the subsequent month. Incomplete and/or delinquent reporting may cause payment delays, non-payment of invoices, or both.

4. The records maintained under item 1, described above, shall be consolidated into a Final Summary Report, certified as correct by an authorized representative of the Contractor. The Final Summary Report shall include all subcontracting activities and be sent to the EOCP Program Manager and Office of Labor Standards & Enforcement (OLSE) Prevailing Wage Unit prior to Acceptance. Failure to comply may result in assessment of liquidated damages or withholding of retention. The City will review and verify 100% of subcontract participation reported in the Final Summary Report prior to approval and release of final retention to you. In the event your Subcontractors are owed money for completed Work, the City may authorize payment to subcontractor via a joint check from the withheld retention.

EQUAL OPPORTUNITY CONTRACTING PROGRAM (EOCP)

SECTION B - SLBE-ELBE SUBCONTRACTING REQUIREMENTS

THESE SPECIAL PROVISIONS SUPPLEMENT THE POLICIES AND REQUIREMENTS ESTABLISHED BY THE CITY OF SAN DIEGO EQUAL OPPORTUNITY CONTRACTING PROGRAM SPECIFIED IN THE CITY'S GENERAL EOCP REQUIREMENTS.

A. GENERAL.

1. It is the City's policy to encourage greater availability, capacity development, and contract participation by SLBE and ELBE firms in City contracts. This policy is, in part, intended to further the City's compelling interest to stimulate economic development through the support and empowerment of the local community, ensure that it is neither an active nor passive participant in marketplace discrimination, and promote equal opportunity for all segments of the contracting community.

2. The City is committed to maximizing subcontracting opportunities for all qualified and available firms.

3. This policy applies to City-funded construction contracts. Bidders shall be fully informed of this policy as set forth in these specifications. Mandatory or voluntary subcontracting percentages, Bid Discounts, and restricted competitions are specified in the Contract Documents.

4. You shall make subcontracting opportunities available to a broad base of qualified Subcontractors and shall achieve the minimum SLBE-ELBE Subcontractor participation identified for your project.

5. Failure to subcontract the specified minimum (mandatory) percentages of the Bid to qualified available SLBE-ELBE Subcontractors will cause a Bid to be rejected as non-responsive unless the Bidder has demonstrated compliance with the affirmative steps as specified in the City's document titled "Small Local Business (SLBE) Program, INSTRUCTIONS FOR BIDDERS COMPLETING THE GOOD FAITH EFFORT SUBMITTAL" and has submitted documentation showing that all required positive efforts were made prior to the Bid submittal due date. The required Good Faith Effort (GFE) documentation shall be submitted to the Contract Specialist. The instructions for completing the good faith effort submittal can be found on the City's website:

   https://www.sandiego.gov/sites/default/files/legacy/eoc/pdf/slbegfeinst.pdf

6. The current list of certified SLBE-ELBE firms and information for completing the GFE submittal can be found on the City's EOC Department website:

   http://www.sandiego.gov/eoc/programs/slbe

7. These requirements may be waived, at the City's sole discretion, on projects deemed inappropriate for subcontracting participation.

B. DEFINITIONS.

1. The following definitions shall be used in conjunction with these specifications:

   a) **Bid Discount** – Additional inducements or enhancements in the bidding process that are designed to increase the chances for the selection of SLBE firms in competition with other firms.

   b) **Commercially Useful Function** – An SLBE-ELBE performs a commercially useful function when it is responsible for the execution of the Work and is carrying out its responsibilities by actually performing, managing, and supervising the Work involved. To perform a commercially useful function, the SLBE-ELBE shall also be responsible, with respect to materials and supplies used on the Contract, for negotiating price, determining quantity and quality, ordering the material, and installing (where applicable) and paying for the material itself.

      To determine whether an SLBE-ELBE is performing a commercially useful function, an evaluation will be performed of the amount of Work subcontracted, normal industry practices, whether the amount the SLBE-ELBE firm is to be paid under the contract is commensurate with the Work it is actually performing and the SLBE-ELBE credit claimed for its performance of the Work, and other relevant factors. Specifically, an SLBE-ELBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of meaningful and useful SLBE-ELBE participation, when in similar transactions in which SLBE-ELBE firms do not participate, there is no such role performed.

   c) **Good Faith Efforts (GFE)** – Documentation of the Bidder's intent to comply with SLBE Program goals and procedures included in the City's SLBE Program, Instructions for Completing Good Faith Effort Submittal available from the City's EOCP website or the Contract Specialist.

   d) **Independently Owned, Managed, and Operated** – Ownership of a SLBE-ELBE firm shall be direct, independent, and by individuals only. Business firms that are owned by other businesses or by the principals or owners of other businesses that cannot themselves qualify under the SLBE-ELBE eligibility requirements shall not be eligible to participate in the Program. Moreover, the day-to-day management of the SLBE-ELBE firm shall be direct and independent of the influence of any other businesses that cannot themselves qualify under the SLBE-ELBE eligibility requirements.

   e) **Joint Venture** – An association of two or more persons or business entities that is formed for the single purpose of carrying out a single defined business enterprise for which purpose they combine their capital, efforts, skills, knowledge, or property. Joint ventures shall be established by written agreement to qualify for this program.

f) **Local Business Enterprise ("LBE")** – A firm having a Principal Place of Business and a Significant Employment Presence in San Diego County, California that has been in operation for 12 consecutive months and a valid business tax certificate. This definition is subsumed within the definition of Small Local Business Enterprise.

g) **Minor Construction Program** – A program developed for bidding exclusively among SLBE-ELBE Construction firms.

h) **Principal Place of Business** – A location wherein a firm maintains a physical office and through which it obtains no less than 50% of its overall customers or sales dollars.

i) **Protégé** – A firm that has been approved and is an active participant in the City's Mentor-Protégé Program and that has signed the required program participation agreement and has been assigned a mentor.

j) **Significant Employee Presence** – No less than 25% of a firm's total number of employees are domiciled in San Diego County.

C. SUBCONTRACTOR PARTICIPATION.

1. For the purpose of satisfying subcontracting participation requirements, only 1st tier SLBE–ELBE Subcontractors will be recognized as participants in the Contract according to the following criteria:

   a) For credit to be allowed toward a respective participation level, all listed SLBE-ELBE firms shall have been certified by the Bid due date.

   b) The Subcontractor shall perform a commercially useful function for credit to be allowed toward subcontractor participation levels. The Subcontractor shall be required by you to be responsible for the execution of a distinct element of the Work and shall carry out its responsibility by actually performing and supervising its own workforce.

   c) If the Bidder is seeking the recognition of materials, supplies, or both towards achieving any mandatory subcontracting participation level, the Bidder shall indicate on Form AA40 – Named Equipment/Material Supplier List with the Bid the following:

      i. If the materials or supplies are obtained from a SLBE-ELBE manufacturer, the Bidder will receive 100% of the cost of the materials or supplies toward SLBE participation. For the purposes of counting SLBE-ELBE participation, a manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the Contract and of the general character described by the specifications.

      ii. If the materials or supplies are obtained from a SLBE-ELBE supplier, the Bidder will receive 60% of the cost of the materials or supplies toward SLBE participation. For the

purposes of counting SLBE-ELBE participation a Supplier is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a supplier, the firm shall be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A person may be a supplier in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business if the person both owns and operates distribution equipment for the products. Any supplementing of the suppliers' own distribution equipment shall be by a long-term lease agreement and shall not be on an ad hoc or contract-by-contract basis.

iii. If the materials or supplies are obtained from a SLBE-ELBE, which is neither a manufacturer nor a supplier, the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, fees or transportation charges for the delivery of materials or supplies required on a job site will be counted toward SLBE-ELBE participation, provided the fees are reasonable and not excessive as compared with fees customarily allowed for similar services. No portion of the cost of the materials and supplies themselves will be counted toward SLBE-ELBE participation.

d) If the Bidder is seeking the recognition of SLBE-ELBE Trucking towards achieving any mandatory subcontracting participation level, the Bidder shall indicate it on Form AA35 – List of Subcontractors with the Bid. The following factors will be evaluated in determining the credit to be allowed toward the respective participation level:

i. The SLBE-ELBE shall be responsible for the management and supervision of the entire trucking operation for which it is getting credit on a particular Contract and there shall not be a contrived arrangement for the purpose of counting SLBE-ELBE participation.

ii. The SLBE-ELBE shall itself own and operate at least 1 fully licensed, insured, and operational truck used on the Contract.

iii. The SLBE-ELBE receives credit for the total value of the transportation services it provides on the Contract using trucks it owns, insures, and operates using drivers it employs.

iv. The SLBE-ELBE may lease trucks from another SLBE-ELBE firm including an owner-operator who is certified as a SLBE-ELBE.

The SLBE-ELBE who leases trucks from another SLBE-ELBE receives credit for the total value of the transportation services the lessee SLBE-ELBE provides on the contract.

v. The SLBE-ELBE may also lease trucks from a non-SLBE-ELBE firm, including an owner-operator. The SLBE-ELBE who leases trucks from a non-SLBE-ELBE is entitled to credit for the total value of transportation services provided by non-SLBE-ELBE lessees not to exceed the value of transportation services provided by SLBE-ELBE owned trucks on the contract. Additional participation by non-SLBE-ELBE lessees receive credit only for the fee or commission it receives as a result of the lease arrangement.

vi. A lease shall indicate that the SLBE-ELBE has exclusive use of and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the SLBE-ELBE so long as the lease gives the SLBE-ELBE absolute priority for use of the leased truck.

D. SLBE-ELBE SUBCONTRACTOR PARTICIPATION PERCENTAGES.

1. Contracts valued at $1,500,000 and above will be considered Major Public Works Contracts and will include a mandatory Subcontractor participation requirement for SLBE–ELBE firms.

   a) The Bidder shall achieve the mandatory Subcontractor participation requirement or demonstrate GFE.

   b) The Bidders shall indicate the participation on Forms AA35 - List of Subcontractors and AA40 - Named Equipment/Material Supplier List as applicable regardless of the dollar value.

   c) An SLBE-ELBE Bidder may count its own participation toward achieving the mandatory goal as long as the SLBE-ELBE Bidder performs 51% of the Contract Price.

2. Contracts Valued over $1,000,000 and under $1,500,000 will also be considered Major Public Works Contracts and will include the mandatory subcontractor participation requirements described above and the following:

   a) 5% bid discount for SLBE-ELBE firms.

   b) Non-certified Contractor will receive 5% bid discount if they achieve the specified mandatory Subcontracting participations.

   c) Bid discounts shall not apply if the award will result in a total contract cost of $50,000 in excess of the apparent lowest Bid.

   d) In the event of a tie bid between a SLBE-ELBE Bidder and a non-SLBE-ELBE Bidder, the SLBE-ELBE Bidder will be awarded the Contract.

e) In the event of a tie bid between a discounted Bid and a non-discounted Bid, the discounted Bid will be awarded the Contract.

3. Contracts valued over $500,000 up to $1,000,000 will be considered Minor Public Works Contracts and will be awarded through a competitive Bid process open only to City certified SLBE-ELBE firms. If there are no bidders or no responsible bidders, the Contract will be made available to all Bidders and will be subject to requirements listed in items 1 and 2 for Major Public Works Contracts above.

4. Contracts valued at $500,000 and below will also be considered Minor Public Works Contracts and will be awarded through a competitive bid process open only to City certified ELBEs unless there are less than 2 firms available at which it will be awarded through a competitive process open only to the City certified SLBE-ELBE firms. If there are no bidders or no responsible bidders, the Contract will be made available to all Bidders and subject to requirements listed in items 1 and 2 for Major Public Works Contracts above.

E. JOINT VENTURES.

1. The City may allow for Joint Venture bid discounts on some Contracts. Contracts that allow for Joint Venture bid discounts will be designated in Bid documents. A firm that is bidding or competing for City Contracts may partner with a certified SLBE or ELBE to compete for Contracts as a Joint Venture.

2. A Joint Venture shall be between two entities with the same discipline or license as required by the City. Joint ventures will receive bid discounts depending on the SLBE or ELBE percentage of participation. To be eligible for a discount, a Joint Venture Agreement shall be approved by the City at the time of Bid submittal. The maximum allowable discount shall be 5%. The parties shall agree to enter in the relationship for the life of the projects.

3. Joint Venture shall submit a Joint Venture Management Plan, a Joint Venture Agreement, or both at least 2 weeks prior to the Bid due date. Copies of the Joint Venture applications are available upon request to the Contract Specialist. Each agreement or management plan shall include the following:

   a) Detailed explanation of the financial contribution for each partner.

   b) List of personnel and equipment used by each partner.

   c) Detailed breakdown of the responsibilities of each partner.

   d) Explanation of how the profits and losses will be distributed.

   e) Description of the bonding capacity of each partner.

   f) Management or incentive fees available for any one of the partners (if any).

4. Each Joint Venture partner shall perform a Commercially Useful Function. An SLBE or ELBE that relies on the resources and personnel of a non-SLBE or ELBE firm will not be deemed to perform a Commercially Useful Function.

5. Each Joint Venture partner shall possess licenses appropriate for the discipline for which a proposal is being submitted. If a Joint Venture is bidding on a single trade project, at the time of bid submittal, each Joint Venture partner shall possess the requisite specialty license for that trade bid.

6. The SLBE or ELBE partner shall clearly define the portion of the Work to be performed. This Work shall be of the similar type of Work the SLBE or ELBE partner performs in the normal course of its business. The Joint Venture Participation Form shall specify the Bid items to be performed by each individual Joint Venture partner. Lump sum Joint Venture participation shall not be acceptable.

7. Responsibilities of the SLBE or ELBE Joint Venture Partner:

   a) The SLBE or ELBE partner shall share in the control, management responsibilities, risks and profits of the Joint Venture in proportion with the level of participation in the project.

   b) The SLBE or ELBE partner shall perform Work that is commensurate with its experience.

   c) The SLBE or ELBE partner shall use its own employees and equipment to perform its portion of the Work.

   d) The Joint Venture as a whole shall perform Bid items that equal or exceed 50% of the Contract Price, excluding the cost of manufactured items, in order to be eligible for a Joint Venture discount.

F. MAINTAINING PARTICIPATION LEVELS.

1. Credit and preference points are earned based on the level of participation proposed prior to the award of the Contract. Once the Project begins you shall achieve and maintain the SLBE-ELBE participation levels for which credit and preference points were earned. You shall maintain the SLBE-ELBE percentages indicated at the Award of Contract and throughout the Contract Time.

2. If the City modifies the original Scope of Work, you shall make reasonable efforts to maintain the SLBE-ELBE participation for which creditor preference points were earned. If participation levels will be reduced, approval shall be received from the City prior to making changes.

3. You shall notify and obtain written approval from the City in advance of any reduction in subcontract scope, termination, or substitution for a designated SLBE-ELBE Subcontractor. Failure to do so shall constitute a material breach of the Contract.

4. If you fail to maintain the SLBE-ELBE participation listed at the time the Contract is awarded and have not received prior approval from the City, the City may declare you in default and will be considered grounds for debarment under Chapter 2, Article 2, Division 8, of the San Diego Municipal Code.

G. SUBCONTRACTING EFFORTS REVIEW AND EVALUATION.

1. Documentation of your subcontracting efforts will be reviewed by EOCP to verify that you made subcontracting opportunities available to a broad base of qualified Subcontractors, negotiated in good faith with interested Subcontractors, and did not reject any bid for unlawful discriminatory reasons. The EOCP review is based on the federal "Six Good Faith Efforts" model.

2. The GFEs are required methods to ensure that all ELBE and SLBE firms have had the opportunity to compete for the City's Public Works procurements. The Six Good Faith Efforts, also known as affirmative steps, attract and utilize ELBE and SLBE firms:

   a) Ensure ELBE firms are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities.

   b) Make information of forthcoming opportunities available to SLBE-ELBE firms and arrange time for Contracts and establish delivery schedules, where requirements permit, in a way that encourages and facilitates participation by SLBE-ELBE firms in the competitive process. This includes posting solicitations for Bids or proposals to SLBE-ELBE firms for a minimum of 10 Working Days before the Bid or Proposal due date.

   c) Consider in the contracting process whether firms competing for large Contracts could subcontract with SLBE-ELBE firms.

   d) Encourage contracting with a consortium of ELBE-SLBE firms when a Contract is too large for one of these firms to handle individually.

   e) Use the services and assistance of the City's EOC Office and the SLBE-ELBE Directory.

   f) If you award subcontracts, require your Subcontractors to take the steps listed above.

H. GOOD FAITH EFFORT DOCUMENTATION.

1. If the specified SLBE-ELBE Subcontractor participation percentages are not met, you shall submit information necessary to establish that adequate GFEs were taken to meet the Contract Subcontractor participation percentages. See the City's document titled "Small Local Business (SLBE) Program, INSTRUCTIONS FOR BIDDERS COMPLETING THE GOOD FAITH EFFORT SUBMITTAL." The instructions for completing the good faith effort submittal can be found on the City's website:

   https://www.sandiego.gov/sites/default/files/legacy/eoc/pdf/slbegfeinst.pdf

I. SUBCONTRACTOR SUBSTITUTION.

1. Evidence of fraud or discrimination in the substitution of Subcontractors will result in sanctions including assessment of penalty fines, termination of Contract, or debarment. This section does not replace applicable California Public Contract Code.

J. FALSIFICATION OF SUB-AGREEMENT AND FRAUD.

1. Falsification or misrepresentation of a sub-agreement as to company name, Contract amount or actual Work performed by Subcontractors, or any falsification or fraud on the part your submission of documentation and forms pursuant to this program, will result in sanctions against you including assessment of penalty fines, termination of the Contract, or debarment. Instances of falsification or fraud which are indicative of an attempt by you to avoid subcontracting with certain categories of Subcontractors on the basis of race, gender, gender expression, gender identity, religion, national origin, ethnicity, sexual orientation, age, or disability shall be referred to the Equal Opportunity Contracting Program's Investigative Unit for possible violations of Article 2, Division 35 of the City Administrative Code, §§22.3501 et seq. (Nondiscrimination in Contracting).

K. RESOURCES.

1. The current list of certified SLBE-ELBE firms and information for completing the GFE submittal can be found on the City's EOC Department website:

   http://www.sandiego.gov/eoc/programs/slbe

ATTACHMENT D

PREVAILING WAGE

ATTACHMENT D

PREVAILING WAGE

1. **PREVAILING WAGE RATES:** Pursuant to San Diego Municipal Code section 22.3019, construction, alteration, demolition, repair and maintenance work performed under this Contract is subject to State prevailing wage laws. For construction work performed under this Contract cumulatively exceeding $25,000 and for alteration, demolition, repair and maintenance work performed under this Contract cumulatively exceeding $15,000, the Contractor and its subcontractors shall comply with State prevailing wage laws including, but not limited to, the requirements listed below.

   1.1. **Compliance with Prevailing Wage Requirements.** Pursuant to sections 1720 through 1861 of the California Labor Code, the Contractor and its subcontractors shall ensure that all workers who perform work under this Contract are paid not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (DIR). This includes work performed during the design and preconstruction phases of construction including, but not limited to, inspection and land surveying work.

      1.1.1. Copies of such prevailing rate of per diem wages are on file at the City and are available for inspection to any interested party on request. Copies of the prevailing rate of per diem wages also may be found at http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm. Contractor and its subcontractors shall post a copy of the prevailing rate of per diem wages determination at each job site and shall make them available to any interested party upon request.

      1.1.2. The wage rates determined by the DIR refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, then the published rate of wage shall be in effect for the life of this Contract. If the published wage rate refers to a predetermined wage rate to become effective upon expiration of the published wage rate and the predetermined wage rate is on file with the DIR, such predetermined wage rate shall become effective on the date following the expiration date and shall apply to this Contract in the same manner as if it had been published in said publication. If the predetermined wage rate refers to one or more additional expiration dates with additional predetermined wage rates, which expiration dates occur during the life of this Contract, each successive predetermined wage rate shall apply to this Contract on the date following the expiration date of the previous wage rate. If the last of such predetermined wage rates expires during the life of this Contract, such wage rate shall apply to the balance of the Contract.

   1.2. **Penalties for Violations.** Contractor and its subcontractors shall comply with California Labor Code section 1775 in the event a worker is paid less than the prevailing wage rate for the work or craft in which the worker is employed. This shall be in addition to any other applicable penalties allowed under Labor Code sections 1720 – 1861.

1.3. **Payroll Records.** Contractor and its subcontractors shall comply with California Labor Code section 1776, which generally requires keeping accurate payroll records, verifying and certifying payroll records, and making them available for inspection. Contractor shall require its subcontractors to also comply with section 1776. Contractor and its subcontractors shall submit weekly certified payroll records online via the City's web-based Labor Compliance Program. Contractor is responsible for ensuring its subcontractors submit certified payroll records to the City.

1.3.1. Contractor and their subcontractors shall also furnish records specified in Labor Code section 1776 directly to the Labor Commissioner in the manner required by Labor Code section 1771.4.

1.4. **Apprentices.** Contractor and its subcontractors shall comply with California Labor Code sections 1777.5, 1777.6 and 1777.7 concerning the employment and wages of apprentices. Contractor is held responsible for the compliance of their subcontractors with sections 1777.5, 1777.6 and 1777.7.

1.5. **Working Hours.** Contractor and their subcontractors shall comply with California Labor Code sections 1810 through 1815, including but not limited to: (i) restrict working hours on public works contracts to eight hours a day and forty hours a week, unless all hours worked in excess of 8 hours per day are compensated at not less than 1½ times the basic rate of pay; and (ii) specify penalties to be imposed on contractors and subcontractors of $25 per worker per day for each day the worker works more than 8 hours per day and 40 hours per week in violation of California Labor Code sections1810 through 1815.

1.6. **Required Provisions for Subcontracts.** Contractor shall include at a minimum a copy of the following provisions in any contract they enter into with a subcontractor: California Labor Code sections 1771, 1771.1, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860 and 1861.

1.7. **Labor Code Section 1861 Certification.** Contractor in accordance with California Labor Code section 3700 is required to secure the payment of compensation of its employees and by signing this Contract, Contractor certifies that "I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract."

1.8. **Labor Compliance Program**. The City has its own Labor Compliance Program authorized in August 2011 by the DIR. The City will withhold contract payments when payroll records are delinquent or deemed inadequate by the City or other governmental entity, or it has been established after an investigation by the City or other governmental entity that underpayment(s) have occurred. For questions or assistance, please contact the City of San Diego's Prevailing Wage Unit at PWDPrevailingWage@sandiego.gov

1.9. Contractor and Subcontractor Registration Requirements. This project is subject to compliance monitoring and enforcement by the DIR. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid or proposal, subject to the requirements of section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, unless currently registered and qualified to perform public work pursuant to Labor Code section 1725.5 It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

1.9.1. A Contractor's inadvertent error in listing a subcontractor who is not registered pursuant to Labor Code section 1725.5 in response to a solicitation shall not be grounds for filing a bid protest or grounds for considering the bid non-responsive provided that any of the following apply: (1) the subcontractor is registered prior to bid opening; (2) within twenty-four hours after the bid opening, the subcontractor is registered and has paid the penalty registration fee specified in Labor Code section 1725.5; or (3) the subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.

1.9.2. By submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the DIR in compliance with Labor Code sections 1771.1 and 1725.5, and Contractor shall provide proof of registration for themselves and all listed subcontractors to the City at the time of bid or proposal due date or upon request.

1.10. Stop Order. For Contractor or its subcontractors engaging in the performance of any public work contract without having been registered in violation of Labor Code sections 1725.5 or 1771.1, the Labor Commissioner shall issue and serve a stop order prohibiting the use of the unregistered contractors or unregistered subcontractor(s) on ALL public works until the unregistered contractor or unregistered subcontractor(s) is registered. Failure to observe a stop order is a misdemeanor.

1.11. List of all Subcontractors. The Contractor shall provide the list of subcontractors (regardless of tier), along with their DIR registration numbers, utilized on this Contract prior to any work being performed; and the Contractor shall provide a complete list of all subcontractors with each invoice. Additionally, Contractor shall provide the City with a complete list of all subcontractors (regardless of tier) utilized on this contract within ten working days of the completion of the contract, along with their DIR registration numbers. The City shall withhold final payment to Construction Management Professional until at least thirty (30) days after this information is provided to the City.

1.12. Exemptions for Small Projects. There are limited exemptions for installation, alteration, demolition, or repair work done on projects of $25,000 or less. The Contractor shall still comply with Labor Code sections 1720 et. seq. The only recognized exemptions are listed below:

1.12.1. Registration. The Contractor will not be required to register with the DIR for small projects. (Labor Code section 1771.1

1.12.2. Certified Payroll Records. The records required in Labor Code section 1776 shall be required to be kept and submitted to the City of San Diego, but will not be required to be submitted online with the DIR directly. The Contractor will need to keep those records for at least three years following the completion of the Contract. (Labor Code section 1771.4).

1.12.3. List of all Subcontractors. The Contractor shall not be required to hire only registered subcontractors and is exempt from submitting the list of all subcontractors that is required in section 1.11. above. (Labor code section 1773.3).

ATTACHMENT E

SUPPLEMENTARY SPECIAL PROVISIONS

SUPPLEMENTARY SPECIAL PROVISIONS

The following Supplementary Special Provisions (SSP) modifies the following documents:

1. The **2021 Edition** of the Standard Specifications for Public Works Construction (The "GREENBOOK").

2. The **2021 Edition** of the City of San Diego Standard Specifications for Public Works Construction (The "WHITEBOOK"), including the following:

   a) General Provisions (A) for all Construction Contracts.

   b) General Provisions (B) for Design-Build and Multiple Award Construction Contracts.

SECTION 1 – GENERAL, TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

1-2 TERMS AND DEFINITIONS. To the "WHITEBOOK":

To Item 47, "Holiday", ADD the following:

Holiday	Observed On
Juneteenth	June 19

To Item 55, "Normal Working Hours", DELETE in its entirety and SUBSTITUTE with the following:

Normal Working Hours: Normal Working Hours shall be **7:00 AM to 3:30 PM, Monday through Friday**, inclusive. Saturdays, Sundays, and City Holidays are excluded. Unless otherwise specified on the Traffic Control Permits.

SECTION 2 - SCOPE OF THE WORK

2-2 PERMITS, FEES, AND NOTICES. To the "WHITEBOOK", ADD the following:

2. The Design-Builder will obtain any and all permits and certifications necessary for the completion of the project, including but not limited to the following permits:

   a) Building Permit

   b) Utility Fees

   c) SWPPP Permit

   d) State Approved Relocatable Trailer Building

   e) State Approved Pre-Engineered Ramp

2-2.3 **Payment.** To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. The allowance item for "**Building Permit (EOC Type I)**" shall include all required permits and any associated fees from the Development Services Department (DSD).

2. The allowance item for "**Utility Fees (EOC Type I)**" shall include costs associated with dry utilities fees but not limited to SDG&E service orders, as well as wet utilities fees including water and sewer connection fees from Development Services Department (DSD).

ADD:

2-10.2.5 Dispute Resolution Board.

1. If mediation is unsuccessful in settling the dispute and if both parties agree, a non-mandatory dispute resolution board process may be used.

2. The parties may impanel a Dispute Resolution Board (DRB) and the DRB process shall be conducted in accordance with the City's alternative dispute resolution process, utilizing board members who are individuals who have expertise in construction. The selection process shall be administered by the American Arbitration Association or any other such neutral organization selected by the City hereinafter called the "Administrator". Claims made for $60,000 or less shall be heard by 1 DRB member and claims for more than $60,000 shall be heard by 3 DRB members.

3. To initiate the DRB procedures, the parties shall jointly execute and file a "Submission to Dispute Resolution Board Procedures" request with the Administrator. Upon receipt by the Administrator of the submission form, the Administrator will furnish to the parties a list of individuals skilled in dispute resolution and that have expertise in construction from which to select for the Dispute Resolution Board.

4. Within 10 Working Days from the date the list is sent to the parties, the parties shall return the list to the Administrator and shall strike out any individuals to which the parties have any factual objections to and shall number the remaining individuals in preference order. The Administrator will appoint the highest mutually preferred individuals to the DRB that are available to serve in the time frame designated above.

SECTION 3 – CONTROL OF THE WORK

3-2 **SELF-PERFORMANCE.** To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. The self performance percentage requirement will be waived for Prime Contractors meeting the Class B License requirement of this Contract.

3-4 AUTHORITY OF THE BOARD AND THE ENGINEER. To the "WHITEBOOK", ADD the following:

4. See **Appendix L - Sample Contractor Performance Evaluation (CPE) Form**.

3-7.6.1 Use of Computer Aided Drafting and Design. To the "WHITEBOOK", Item 1, DELETE in its entirety and SUBSTITUTE the following:

1. Use Autocad for the preparation of Plans and As-Built drawings in accordance with the City's CADD Standards.

To the "WHITEBOOK", ADD the following:

2. Design deliverables during the design process shall include 30%, 60%, 90% and 100% phases. Plans, Specifications and progress packages shall be delivered for review at each phase. Design-Builder to allot 30 Calendar Days for the City's Engineering & Capital Projects Department (E&CP) to review the plans at each phase. The 30 days does not include the time for permitting through Development Services Department (DSD), which is the Design Builder's responsibility.

3. Design-Builder shall use Revit for the development of the plans and Building Information Model (BIM) model. Level of Development shall be LOD 400 or better. Design-Builder shall submit to the City the Revit files and 3D model (Navisworks file) at each stage of design (30%, 60%, 90%, 100%).

4. The Design Builder to create a "5D" model that includes schedule and cost into the BIM model with the utilization of Synchro Project as described in **Appendix R - Construction Progress Scheduling Using Synchro Project Specifications.**

5. Design-Builder shall use AutoCAD Civil 3D for linear/pipeline drawings and provide a 3D model at each stage of design using 3D modeling software such as Revit, Blender, or InRoads.

6. Design-Builder shall create timelapse videos of project site throughout the project, utilizing professional drone technology.

7. Design-Builder shall hire a professional construction photographer to photograph the construction progress throughout the project duration as well as final product.

3-8.4 Supporting Information. To the "WHITEBOOK", ADD the following:

4. You shall collect and submit rehabilitation data spreadsheets along with monthly invoices for the following rehabilitation Work (see bridging documents included in **Attachment A - Project Description, Scope Of Work, Technical Specifications, and Bridging Documents** for Sample Water Pipeline Data Template).

   a) Water Pipeline.

3-9 TECHNICAL STUDIES AND SUBSURFACE DATA. To the "WHITEBOOK", ADD the following:

5. In preparation of the Contract Documents, the designer has relied upon the following reports of explorations and tests at the Work Site:

   a) Geotechnical Investigation Report, dated September 6, 2024 by NV5 West, Inc.

   b) Inspection Report Asbestos and Lead, dated July 11, 2022 by the City of San Diego

   c) Final Assessment Report Structural Evaluation Report for Alvarado Joint Lab Facility, dated May 14, 2019 by Beyaz & Patel, Inc.

   d) Geotechnical Investigation Report, dated May 15, 2024 by NOVA Services.

6. The reports listed above are available for review at the following link:

https://drive.google.com/drive/folders/1NEscwsnjITtFauPoVf80V4c7oDg7dPjX?usp=sharing

3-10 SURVEYING. To the "GREENBOOK" and "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

3-10 SURVEYING (DESIGN-BUILD).

3-10.1 General.

1. You shall provide all required site layout not specified in this section.

2. Unless surveying services are provided by the City, only the Design Firm, not the Contractor, shall be allowed to hire a Licensed Land Surveyor or a Registered Civil Engineer authorized to practice land surveying within the State of California to provide all surveying services needed for the design, and if requested by the City, also for the construction activities required for the completion of the Project. Surveying services include, but are not limited to: land, aerial, topographic and construction.

3. If requested by the City, the Design Firm shall submit a letter to the City's Project Manager identifying the Licensed Land Surveyor or the Registered Civil Engineer authorized to practice land surveying within the State of California that will be performing the design and/or construction phase survey services for the Project.

4. Where applicable, notify the City in writing at least 2 Working Days prior to requesting survey services to be provided by the City.

5. The Design Firm is responsible for performing and meeting the accuracy of surveying standards adequate for design and construction through the Design Firm's Licensed Land Surveyor or Registered Civil Engineer authorized to practice land surveying within the State of California.

6. All Survey Services deliverables shall be submitted per the City's CADD Standards and pertinent Engineering & Capital Projects Department Engineering Deliverable specifications.

   https://www.sandiego.gov/ecp/edocref/drawings

7. All Survey Services and deliverables which reveal non-compliance with the requirements of the Construction Documents and standards shall be corrected as deemed necessary by the City at the Design-Builder's expense.

8. Where Survey Services are provided by the City, all construction survey stakes, control points, and other survey related marks shall be preserved for the duration of the Project. If any construction survey stakes, control points, or other survey related marks are lost or disturbed and need to be replaced, such replacement shall be performed at the Design-Builder's expense.

9. The City's Land Survey Section (LSS) shall be notified a minimum of 2 Working Days (large projects may require more) before any ground is to be disturbed within the City of San Diego (concrete, asphalt, or dirt). The LSS may need to inspect the site and provide monumentation information.

3-10.2 Monument Perpetuation.

1. Monument Perpetuation, including mark-outs, will be performed by the City Public Works Engineering Support & Technical Services Division's (ES&TS), Land Survey Section (LSS), unless otherwise noted. You are responsible for requesting the coordination of these services.

2. If at any time a monument will be destroyed or covered, such monument shall be perpetuated in accordance with state law. Inform the LSS, via project Resident Engineer, if any monument will be destroyed or covered during any construction activity.

3-10.3 Line and Grade.

1. The Work shall conform to the lines, elevations, and grades shown on the Plans. Three consecutive points set on the same slope shall be used together so that any variation from a straight grade can be detected. Any such variation shall be reported to the City's PM. In the absence of such report, the Surveyor shall be responsible for any error in the grade of the Work.

2. Grades for underground conduits will be set at the surface of the ground. The Design-Builder shall transfer them to the bottom of the trench.

3-10.4 Topographic and Monument Survey – Preliminary Design.

1. Topographic field survey shall include all existing ground surface topography, fencing, hardscape, utilities, roadway surface, and curb returns within the delineated mapping limit. Monument survey shall include the sufficient collection of existing record survey monuments to perform right-of-way (ROW) analysis along within subject mapping limits.

2. Unless otherwise specified, the Land Surveyor shall adhere to Section 3 of the Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys (Effective February 23, 2016).

   https://www.nsps.us.com/page/ALTANSPSStandards

3. Horizontal Control shall be based on the CCS83 Zone 6, 1991.35 epoch, U.S. Survey Feet per Record of Survey Map No. 14492 (ROS 14492). It is required to tie into a first order monument per ROS 14492 unless a first order monument no longer exists within a three mile radius. Horizontal control measurements shall be collected in conformance with the local standard of practice.

4. Vertical Control shall be based on NGVD29 per benchmarks in the City of San Diego Bench Book. Non 1970 adjusted and 1970 adjusted benchmarks listed with an asterisk (*) in the City Benchmark book are not to be used together for Vertical Control – common adjustment sets are to be used.

5. All topographic field survey data shall be collected using conventional survey methods utilizing total station instrumentation.

6. Deliverables.

   a) Horizontal and Vertical Control.

      i. Completed Calibration sheet as provided indicating the monuments used to establish the Basis of Bearings and Vertical Benchmark held to control this survey.

   b) Field Data.

      i. Data collected as points and break lines to define a proper DTM if requested outside of aerial mapping.

      ii. Includes utilities collected on surface as required.

      iii. Includes Horizontal control points from ROS 14492 used to define the Basis of Bearings and Vertical control Benchmark(s) to establish elevation.

iv. Includes record monument points.

v. Data collector project files.

vi. Raw (unedited) data file.

vii. Project file.

viii. Point comma delimited text file formatted.

c) Topography.

i. Create and deliver a complete ASCII coordinate list (.txt/.doc etc.) of all field collected survey points.

- The contours produced from the surface digital terrain model (dtm) shall meet or exceed ASPRS 90 standards where 68% (1σ) of the contours tested fall within 1/3 contour interval. Any point tested that is more than 3σ out shall be regarded as a blunder. These standards closely parallel the familiar National Map Accuracy Standards.

d) Records Research.

i. All public or private records acquired to determine the City's ROW in the project area delivered in digital or hardcopy format with any markups and City Records as acquired.

- City records may include but are not limited to GIS scope plots, sewer and water sheets, loose leaf survey notes, Tie Point sheets, dedication or vacation drawings, easement drawings, benchmark list, and etc.

- After initial search of City records by the Surveyor, they may request City assistance to search for hard to find records.

e) Survey Monument Measurements.

i. All found monuments located within, or near, the survey limits shall be searched and measured. Sufficient additional monuments to control all boundaries extending from the survey limits shall be tied (i.e. block corners, Points of Curve etc.) to the next available survey monument past the survey limits.

- All Monuments found shall be described with details as to what was found along with identifying number.

3-10.5 Monument Search, Field Boundary Survey and Boundary Analysis – Right-of-Way (ROW) Mapping.

1. The monument survey, for each designated site, shall be of sufficient coverage and quality for a Right-of-Way boundary analysis performed and provided in conformance with City CADD standards.

2. Surveyor shall deliver to the City all requested survey information and CADD data, as specified below, upon completion of the Monument Survey and Boundary Analysis.

3. Unless otherwise specified, the Land Surveyor shall adhere to Section 3 of the Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys (Effective February 23, 2016).

   https://www.nsps.us.com/page/ALTANSPSStandards

4. Field monument survey to be performed and provided in conformance with City CADD standards.

5. Field Measurements shall be collected in conformance the local standard of practice.

6. Horizontal Control shall be based on the CCS83 Zone 6, 1991.35 epoch, U.S. Survey Feet units, per City of San Diego Record of Survey Map No. 14492 (ROS 14492). All Project survey control shall be based upon field-tied measurements to a Horizontal First Order monument as shown on ROS 14492. Where existing First Order monument cannot be recovered or located within a 3-mile radial distance from the project site a Horizontal Second-Order Monument may be used as Project survey basis. The Project vertical control datum shall be based on NGVD29 per benchmarks identified in the City of San Diego Vertical Control Bench Book (Bench Book). All Project benchmarks shall be selected from a common Bench Book source group:

   a) Benchmarks with elevations updated per U.S.C.G.S adjustment of 1970, identified with an asterisk (*).

   b) Benchmarks not adjusted per the 1970 adjusted values (non-asterisked identifiers).

7. Deliverables.

   a) Horizontal and Vertical Control.

      i. Completed Calibration sheet indicating the monuments used to establish the Basis of Bearings and Vertical Benchmark held to control this survey.

b) Field Data.

i. Complete, Correct CADD file in conformance with City CADD Standards and industry standards.

- Includes Horizontal control points from ROS 14492 used to define the Basis of Bearings and Vertical control Benchmark(s) to establish elevation.
- Includes Monument points covering the area of work.

ii. Data collector project files.

- Raw (unedited) data file.
- Project file.
- Point comma delimited text file.

c) Records Research.

i. If requested, all public or private records acquired to determine the City's ROW in the project area delivered in digital or hardcopy format with any markups and City Records as acquired.

ii. City records may include but are not limited to GIS scope plots, sewer and water sheets, loose leaf survey notes, Tie Point sheets, dedication or vacation drawings, easement drawings, benchmark list, and etc.

d) Boundary Ties

i. All monuments within the survey limits shall be searched and tied if found. Sufficient additional monuments to control all boundaries extending from the survey limits shall be tied (i.e. Block Corners, Points of Curve etc.) to the next available survey monument past the survey limits.

- All Monuments found shall be described details as to what was found along with identifying number.

3-10.6 Field Monument Survey and Topographic Utility Survey.

1. The right-of-way monumentation survey data shall be provided to the City.

2. Surveyor shall perform a right-of-way monument survey and existing utility survey (locating feature centers). Surveyor shall also collect ground surface topography over any aerial obscured areas.

3. Unless otherwise specified, the Land Surveyor shall adhere to Section 3 of the Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys (Effective February 23, 2016).

   https://www.nsps.us.com/page/ALTANSPSStandards

4. Field Measurements shall be collected in conformance with the local standard of practice.

5. Project Horizontal and Vertical Control.

   a) The Horizontal and Vertical Control for this project shall be based on the same datum, basis of bearing, calibration and benchmark as used for the Aerial Survey.

   b) Horizontal Control Shall be based on the CCS83 Zone 6, 1991.35 epoch, U.S. Survey Feet per ROS 14492. It is required to tie into a first order monument per ROS 14492 unless a first order monument no longer exists within a three mile radius.

   c) Vertical Control shall be based on NGVD29 per benchmarks in the City of San Diego Bench Book. Non 1970 adjusted and 1970 adjusted benchmarks listed with an asterisk (*) in the City Benchmark book are not to be used together for Vertical Control – common adjustment sets are to be used.

   d) If adjacent City projects have been found and are included in the research packages, measurements to a minimum of 3 common control or ROW points shall be made for evaluation and consistency between projects. These projects can be used for establishing common horizontal or vertical control, joining or adding to existing data, and/or as an inventory of survey monuments for search purposes.

6. Deliverables.

   a) Horizontal and Vertical Control.

      i. Completed Calibration sheet indicating the monuments used to establish the Basis of Bearings and Vertical Benchmark held to control this survey. The horizontal and vertical control shall be set by the Surveyor that's issued the first Notice to Proceed.

   b) Field Data.

      i. Data collected as points and break lines to define a proper DTM beyond the identified mapping limits if requested.

      ii. Include utilities collected on surface as required.

iii. Include horizontal control points from ROS 14492 to define the Basis of Bearings and Vertical control Benchmark(s) to establish elevation.

iv. Include Monument points covering the area of work.

v. Data collector project files.

- Raw (unedited) data file.
- Project file.
- Point data text file in "comma delimited format".

vi. CADD File.

- A digital design file displaying all field work, existing right-of-way monuments, and utility feature data per City CADD standards. The design file shall be complete, correct, and free of duplicate elements.
- The following data shall be included in the electronic mapping file: Name of Design/Engineering Firm and/or Surveyor doing the project, Company Logo (if available), Name of project, Work order number, Date & Scale.
- Include right-of-way monument elements.
- Use appropriate levels and attributes for all elements to meet City of San Diego CADD Standards.

c) Topography

i. Create and deliver a complete ASCII coordinate list (.txt/.doc etc.) as a result of the geometry report of the final .ALG file.

ii. Use appropriate levels and attributes for all elements to meet City of San Diego CADD Standards.

d) Records Research.

i. If requested, all public or private records acquired to assist with right-of-way monument collection.

ii. City records may include but are not limited to GIS scope plots, sewer and water sheets, loose leaf survey notes, Tie Point sheets, dedication or vacation drawings, easement drawings, benchmark list, and etc.

iii. After initial search of City records by the Surveyor, they may request City assistance to search for hard to find records.

e) Right-of-Way Monument Survey Locations

i. All monuments within the survey limits shall be searched and located if found. Sufficient additional monuments to control all boundaries extending from the survey limits shall be located to facilitate LSS ROW Mapping (i.e. block corners, points of curve, and etc.).

- All found survey monuments shall describe the character and identifying reference marks.
- City survey notes and City drawings can be provided, as applicable.

f) The appropriate City of San Diego cell library (V8 City existing.cel), font resource file (V8 City font.rsc), color table (V8 City color.tbl), line style (V8 City Line style.rsc), level scheme, and seed file parameters are to be used for placement of all elements in the design files, with strict adherence to "Working Units" and seed file "Global Origin". Base map level schemes are attached. A CD containing the most current version of the above seed files, cell libraries and font resource files will be provided, if needed, upon request.

3-10.7 Construction Survey/Staking.

1. Construction staking surveying shall be performed with the standards customarily adhered to by an experienced and competent land surveying firm using the degree of care and skill ordinarily exercised by reputable professionals practicing in the same field of service in the State of California. Where approval by the City is required, it is understood to be general approval only and shall not relieve the Design Firm of their responsibility to comply with all applicable laws, codes, and good consulting practices.

2. Field Measurements shall comply with the local standards of practice. All construction staking with a gradient of less than 1.5% shall be performed by a total station survey instrument. Gradients less than 0.2% shall require a level run prior to construction, and all said services shall be performed by the Surveyor.

3. The following are minimum requirement guidelines for various types of staking:

a) Limits of work 50-foot maximum interval.

b) Limits of Demolition 50-foot maximum interval.

c) Rough grade stakes 50-foot maximum interval.

d) Finish grade stakes 50-foot maximum interval.

e) Slope staking at 50-foot maximum interval.

f) Contour staking @ 50-foot maximum interval.

g) Curb stakes with offset to face of curb, and grade to top of curb with 50-foot maximum interval.

h) Storm drain at 50-foot maximum interval where grade exceeds 1%.

i) Sewer lines at 50-foot maximum interval where grade exceeds 1%.

j) Water lines at 50-foot' maximum interval offset to near curb face (no grades – minimum cover).

k) Dry utilities at 50-foot maximum interval where grade exceeds 1%.

l) Construction staking involving horizontal and vertical curves shall be staked at 25-foot maximum intervals, and further densification for deltas on applicable curb returns and pipe joints.

m) Storm Drain inlet stakes shall be on face of curb produced, and on string line grade.

n) Walls staked at footing breaks, with station interval of 25-foot maximum intervals.

o) Buildings – offsets to outside face of wall.

p) Bridge abutments and bents on opposing sides.

3-12.7 Drinking Water Discharges Requirements. To the "WHITEBOOK", ADD the following:

1. You shall record the results for each discharge event on the City's Drinking Water Discharge Monitoring form included as **Appendix G - Monthly Drinking Water Discharge Monitoring Form.**

3-13.1 Completion. To the "WHITEBOOK", ADD the following:

2. Letters of Conformance – Each Design-Builder consultant and sub-consultant shall inspect the progress of construction periodically. Each consultant for all disciplines will submit a letter directly to the owner (The City) at 50% construction progress and at completion of construction, stating that the construction has been built in conformance with their plans and specs. A letter of acceptance from the City will not be issued until such letters are received.

3. Substantial Completion, in accordance with 3-13.1.1, "Requirements Before Requesting Substantial Completion", shall be completed in phases as agreed upon on the phasing agreement.

3-13.3.1 **Defective Work.** To the "WHITEBOOK", item 6, DELETE in its entirety and SUBSTITUTE with the following:

6. For Building Projects which require a certificate of occupancy, not including sewer and water facilities, if you fail to correct the defective Work listed on the City's Punchlist within 90 Working Days after the Contract Time, you shall reimburse the City for all costs to provide inspection services required to monitor Work beyond the 90 Working Days. The City shall bill you for the additional inspection at the City's established rates.

3-15.3 **Coordination.** To the "WHITEBOOK", ADD the following:

2. Other adjacent City projects are scheduled for construction for the same time period in the vicinity of Navaio. See **Appendix F – Adjacent Projects Map** for the approximate location. Coordinate the Work with the adjacent projects as listed below:

   a) Montezuma PPL/Mid City Pipeline Ph 2; S-11026;
   Contractor: W. A. Rasic Construction Company, Inc
   Project Manager: Ryan Plunk; rplunk@WARasic.com; 310-864-0113
   CoSD CMRE: Christopher Kelley; kellyc@sandiego.gov; 760-224-4800

   b) Alvarado WTP Chemical Piping Replacement; B-23051
   Senior Engineer: Brian Vitelle; BVitelle@sandiego.gov; 619-533-5105
   Project Manager: Melissa Vega; MVega@sandiego.gov; 619-533-5483

   c) Alvarado WTP Disinfection Conversion Project; SAP Number TBD
   Preliminary Associate Engineer: Duy Nguyen; DDNguyen@sandiego.gov; 858-292-6417

SECTION 4 - CONTROL OF MATERIALS

4-3.4 **Specialty Inspection Paid for by the Contractor.** To the "WHITEBOOK", ADD the following:

2. Design-Builder is responsible for all Specialty Inspections including, but not limited to, the following:

   a) Special Material Testing: Structural Welding & Welding Size Type T3 Testing

   b) Special Material Testing: Structural Steel

   c) Special Material Testing: Concrete

d) Special Inspections and Tests: Seismic Resistance

e) Special Inspections: Cold-Formed Steel Light-Frame

f) Special Inspections and Tests: Cast-in-Place Deep Foundation Elements

g) Special Material Testing: Soils

4-3.4.1 **Payment.** To the "WHITEBOOK", ADD the following:

3. The payment for specialty inspection services listed in item 2 of section 4-3.4 shall be included under the following lump sum bid items:

a) **"Special Material Testing: Structural Welding & Welding Size Type T3 Testing"**

b) **Special Material Testing: Structural Steel**

c) **Special Material Testing: Concrete**

d) **Special Inspections and Tests: Seismic Resistance**

e) **Special Inspections: Cold-Formed Steel Light-Frame**

f) **Special Inspections and Tests: Cast-in-Place Deep Foundation Elements**

g) **Special Material Testing: Soils**

4-6 **TRADE NAMES.** To the "WHITEBOOK", ADD the following:

11. You shall submit your list of proposed substitutions for an "equal" item **No Less than 15 Working Days Prior to Proposal Due Date** and on the City's Product Submittal Form available at:

https://www.sandiego.gov/ecp/edocref/

SECTION 5 – LEGAL RELATIONS AND RESPONSIBILITIES

5-3.3 **Payroll Records.** To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. You and your Subcontractors shall submit weekly certified payrolls, including a Statement of Compliance signed under penalty of perjury, reflecting the wages of all employees engaged in the Work, utilizing the City's designated web-based contract and labor compliance software.

2. You and your Subcontractors shall submit the following Labor Compliance required documents to the OLSE;

   a) City of San Diego Labor Compliance Authorized Signatory Form;

   b) City of San Diego List of Trades and Crafts;

   c) Labor Compliance Checklist;

   d) Fringe Benefit Statement;

   e) DAS 140 Form & Transmittal Confirmation;

   f) DAS 142 & Transmittal Confirmation;

   g) State & Federal Apprentice Certifications;

   h) Payroll Confirmations (as requested per CCR 16432); and

   i) Other Deduction Forms (letter or documentation relating to nonstandard deductions);

3. You and your Subcontractors shall submit the following PLA and Labor Compliance required documents utilizing the City's designated web-based contract and labor compliance software program:

   a) Letter of Assent (PLA Attachment B);

   b) Workforce Dispatch Request Form;

   c) Contractor Core Workforce Form [if required];

   d) Monthly Proof of Fringe Benefit Payments to Union Trust;

   e) Certified Payroll Report (Performance Report with Statement of Compliance, Non-Performance Reports);

   f) Jobs Coordinator Designation Form; and

   g) For all dispatched workers, identify the following: race, ethnicity, gender, permanent residence zip code, construction project hours worked, apprenticeship program affiliation, trade classification, and union affiliation.

5-4 **INSURANCE.** To the “GREENBOOK”, DELETE in its entirety and SUBSTITUTE with the following:

5-4 **INSURANCE.**

1. The insurance provisions herein shall not be construed to limit your indemnity and defense duties set forth in the Contract.

5-4.1 Policies and Procedures.

1. You shall procure the insurance described below, at your sole cost and expense, to provide coverage against claims for loss including injuries to persons or damage to property, which may arise out of or in connection with the performance of the Work by you, your agents, representatives, officers, employees or Subcontractors.

2. Insurance coverage for property damage resulting from your operations is on a replacement cost valuation. The market value will not be accepted.

3. You shall maintain this insurance as required by this Contract and at all times thereafter when you are correcting, removing, or replacing Work in accordance with this Contract. Your duties under the Contract, including your indemnity obligations, are not limited to the insurance coverage required by this Contract.

4. If you maintain broader coverage or higher limits than the minimums shown below, City requires and shall be entitled to the broader coverage or the higher limits maintained by you. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to City.

5. Your payment for insurance shall be included in the Contract Price you bid. You are not entitled to any additional payment from the City to cover your insurance, unless the City specifically agrees to payment in writing. Do not begin any Work under this Contract or allow any Subcontractors to begin work, until you have provided, and the City has approved, all required insurance.

6. Policies of insurance shall provide that the City is entitled to 30 days advance written notice of cancellation or non-renewal of the policy or 10 days advance written notice for cancellation due to non-payment of premium. Maintenance of specified insurance coverage is a material element of the Contract. Your failure to maintain or renew coverage and to provide evidence of renewal during the term of the Contract may be treated by the City as a material breach of the Contract.

5-4.2 Types of Insurance.

5-4.2.1 General Liability Insurance.

1. Commercial General Liability Insurance shall be written on the current version of the ISO Occurrence form CG 00 01 07 98 or an equivalent form providing coverage at least as broad.

2. The policy shall cover liability arising from premises and operations, XCU (explosions, underground, and collapse), independent contractors, products/completed operations, personal injury and advertising injury, bodily

injury, property damage, and liability assumed under an insured's contract (including the tort liability of another assumed in a business contract).

3. There shall be no endorsement or modification limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. You shall maintain the same or equivalent insurance for at least 10 years following completion of the Work.

4. All costs of defense shall be outside the policy limits. Policy coverage shall be in liability limits of not less than the following:

General Annual Aggregate Limit	Limits of Liability
Other than Products/Completed Operations	$10,000,000
Products/Completed Operations Aggregate Limit	$10,000,000
Personal Injury Limit	$5,000,000
Each Occurrence	$5,000,000

5-4.2.2 Commercial Automobile Liability Insurance.

1. You shall provide a policy or policies of Commercial Automobile Liability Insurance written on the current version of the ISO form CA 00 01 12 90 or later version or equivalent form providing coverage at least as broad in the amount of $1,000,000 combined single limit per accident, covering bodily injury and property damage for owned, non-owned, and hired automobiles ("Any Auto").

2. All costs of defense shall be outside the limits of the policy.

5-4.2.3 Workers' Compensation Insurance and Employers Liability Insurance.

1. In accordance with the provisions of California Labor Code section 3700, you shall provide, at your expense, Workers' Compensation Insurance and Employers Liability Insurance to protect you against all claims under applicable state workers' compensation laws. The City, its elected officials, and employees will not be responsible for any claims in law or equity occasioned by your failure to comply with this requirement.

2. Statutory Limits shall be provided for Workers' Compensation Insurance as required by the state of California, and Employer's Liability Insurance with limits of no less than $1,000,000 per accident for bodily injury or disease.

3. By signing and returning the Contract, you certify that you are aware of the provisions of California's Workers' Compensation laws, including Labor Code section 3700, which requires every employer to be insured against liability for

workers' compensation or to undertake self-insurance, and that you will comply with these provisions before commencing the Work..

5-4.2.4 Contractors Pollution Liability Insurance.

1. You shall procure and maintain at your expense or require your Subcontractor, as described below, to procure and maintain Contractors Pollution Liability Insurance applicable to the Work being performed, with a limit no less than $2,000,000 per claim or occurrence and $4,000,000 aggregate per policy period of one year.

2. All costs of defense shall be outside the limits of the policy.

3. You shall obtain written approval from the City for any insurance provided by your Subcontractor instead of you.

4. For approval of a substitution of your Subcontractor's insurance, you shall certify that all activities for which the Contractors Pollution Liability Insurance will provide coverage will be performed exclusively by the Subcontractor providing the insurance. The deductible shall not exceed $25,000 per claim unless the City has provided prior, written approval.

5. Occurrence based policies shall be procured before the Work commences. Claims Made policies shall be procured before the Work commences, shall be maintained for the Contract Time, and shall include a 12-month extended Claims Discovery Period applicable to this contract or the existing policy or policies that shall continue to be maintained for 12 months after the completion of the Work without advancing the retroactive date.

5-4.2.5 Contractors Hazardous Transporters Pollution Liability Insurance.

1. You shall procure and maintain at your expense or require your Subcontractor, as described below, to procure and maintain Contractors Hazardous Transporters Pollution Liability Insurance, including contractual liability coverage to cover liability arising out of transportation of hazardous or toxic, materials, substances, or any other pollutants by you or any Subcontractor in an amount no less than $2,000,000 limit per occurrence and $4,000,000 aggregate per policy period of one year.

2. All costs of defense shall be outside the limits of the policy.

3. You shall obtain written approval from the City from any insurance provided by a Subcontractor instead of you..

4. To obtain City approval of a Subcontractor's insurance coverage in lieu of the Contractor's insurance, the Contractor shall certify that all activities under the Contractor's Hazardous Transporters Pollution Liability Insurance will be

performed exclusively by the Subcontractor providing the insurance. The deductible shall not exceed $25,000 per claim without prior approval of the City.

5. Occurrence based policies shall be procured before the Work commences. Claims Made policies shall be procured before the Work commences, shall be maintained for the duration of this contract, and shall include a 12-month extended Claims Discovery Period applicable to this Contract or the existing policy or policies that shall continue to be maintained for 12 months after the completion of the Work under this Contract without advancing the retroactive date.

5-4.2.6 Contractors Builders Risk Property Insurance.

1. You shall provide at your expense, and maintain until Final Acceptance of the Work, a Special Form Builders Risk Policy or Policies. This insurance shall be in an amount equal to the replacement cost of the completed Work (without deduction for depreciation) including the cost of excavations, grading, and filling. The policy or policies limits shall be 100 percent of the value of the Work under this Contract, plus 15 percent to cover administrative costs, design costs, and the costs of inspections and construction management.

2. Insured property shall include material or portions of the Work located away from the Site but intended for use at the Site and shall cover material or portions of the Work in transit. The policy or policies shall include as insured property scaffolding, falsework, and temporary buildings located at the Site. The policy or policies shall cover the cost of removing debris, including demolition.

3. The policy or policies shall provide that all proceeds shall be payable to the City as Trustee for the insured, and shall name the City, the Contractor, Subcontractors, and Suppliers of all tiers as named insured. The City, as Trustee, will collect, adjust, and receive all monies that become due and payable under the policy or policies, may compromise any and all claims , and will apply the proceeds of this insurance to the repair, reconstruction, or replacement of the Work.

4. Any deductible applicable to the insurance shall be identified in the policy or policies documents. The responsibility for paying the part of any loss not covered because of the deductibles shall be apportioned among the parties, except for the City, as follows: if there is more than one claimant for a single occurrence, then each claimant shall pay a pro-rata share of the per occurrence deductible based upon the percentage of their paid claim to the total paid for insured. The City shall be entitled to 100 percent of its loss. You shall pay the City any portion of the loss not covered because of a deductible; at the same time the proceeds of the insurance are paid to the City as Trustee.

5. Any insured, other than the City, making claim to which a deductible applies shall be responsible for 100 percent of the loss not insured because of the deductible.

5-4.2.8 Architects and Engineers Professional Insurance (Errors and Omissions Insurance).

1. For Contracts with required engineering services, including Design-Build and preparation of engineered Traffic Control Plans (TCP) by you, you shall keep or require all of your employees and Subcontractors, who provide professional engineering services under Contract, to provide to the City proof of Professional Liability coverage with a limit of no less than $**3,000,000** per claim and $**3,000,000** aggregate per policy period of one year.

2. You shall ensure the following:

   a) The policy retroactive date is on or before the date of commencement of the Project.

   b) The policy will be maintained in force for a period of three years after completion of the Project or termination of the Contract, whichever occurs last. You agree that, for the time period specified above, there will be no changes or endorsements to the policy that affect the specified coverage.

3. If professional engineering services are to be provided solely by the Subcontractor, you shall:

   a) Certify this to the City in writing, and

   b) Agree in writing to require the Subcontractor to procure Professional Liability coverage in accordance with the requirements set forth here.

5-4.3 Rating Requirements. Except for the State Compensation Insurance Fund, all insurance required by this Contract shall be carried only by responsible insurance companies with a rating of, or equivalent to, at least "A-, VI" by A.M. Best Company, that are authorized by the California Insurance Commissioner to do business in the state of California, and that have been approved by the City.

5-4.3.1 Non-Admitted Carriers. The City will accept insurance provided by non-admitted, "surplus lines" carriers only if the carrier is authorized to do business in the state of California and is included on the List of Approved Surplus Lines Insurers (LASLI list).

All policies of insurance carried by non-admitted carriers shall be subject to all of the requirements for policies of insurance provided by admitted carriers described in this Contract.

5-4.4 Evidence of Insurance. You shall furnish the City with original Certificates of Insurance, including all required amendatory endorsements (or copies of the applicable policy language effecting coverage required by this clause), prior to your

commencement of Work under this Contract. In addition, The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements, required by these specifications, at any time.

5-4.5 Policy Endorsements.

5-4.5.1 Commercial General Liability Insurance.

5-4.5.1.1 Additional Insured. To the fullest extent permitted by law and consistent with the limiting provisions set forth at California Civil Code section 2782, California Insurance Code section 11580.04, and any applicable successor statutes limiting indemnification of public agencies that bind the City, the policy or policies shall be endorsed to include as an Additional Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of:

1. Ongoing operations performed by you or on your behalf,
2. your products,
3. your work, e.g., your completed operations performed by you on your behalf, or
4. premises owned, leased, controlled, or used by you.

5-4.5.1.2 Primary and Non-Contributory Coverage. The policy shall be endorsed to provide that the coverage with respect to operations, including the completed operations, if appropriate, of the Named Insured is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives. Further, it shall provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

5-4.5.1.3 Project General Aggregate Limit. The policy or policies shall be endorsed to provide a Designated Construction Project General Aggregate Limit that will apply only to the Work. Only claims payments which arise from the Work shall reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit shall be in addition to the aggregate limit provided for the products-completed operations hazard.

5-4.5.2 Workers' Compensation Insurance and Employers Liability Insurance.

5-4.5.2.1 Waiver of Subrogation. The policy or policies shall be endorsed to provide that the insurer will waive all rights of subrogation against the City and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from Work performed by the Named Insured for the City.

5-4.5.3 Contractors Pollution Liability Insurance Endorsements.

5-4.5.3.1 Additional Insured. To the fullest extent permitted by law and consistent with the limiting provisions set forth at California Civil Code section 2782, California Insurance Code section 11580.04, and any applicable successor statutes limiting indemnification of public agencies that bind the City, the policy or policies shall be endorsed to include as an Additional Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of:

1. Ongoing operations performed by you or on your behalf,
2. your products,
3. your work, e.g., your completed operations performed by you on your behalf, or
4. premises owned, leased, controlled, or used by you.

5-4.5.3.2 Primary and Non-Contributory Coverage. The policy or policies shall be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

5-4.5.3.3 Severability of Interest. For Contractors Pollution Liability Insurance, the policy or policies shall provide that your insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability and shall provide cross-liability coverage.

5-4.5.4 Contractors Hazardous Transporters Pollution Liability Insurance Endorsements.

5-4.5.4.1 Additional Insured. To the fullest extent permitted by law and consistent with the limiting provisions set forth at California Civil Code section 2782, California Insurance Code section 11580.04, and any applicable successor statutes limiting indemnification of public agencies that bind the City, the policy or policies shall be endorsed to include as an Additional Insured the City and its respective elected officials, officers, employees, agents, and representatives, with respect to liability arising out of:

1. Ongoing operations performed by you or on your behalf,
2. your products,
3. your work, e.g., your completed operations performed by you on your behalf, or
4. premises owned, leased, controlled, or used by you.

5-4.5.4.2 **Primary and Non-Contributory Coverage.** The policy or policies shall be endorsed to provide that the insurance afforded by the Contractors Pollution Liability Insurance policy or policies is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives with respect to operations including the completed operations of the Named Insured. Any insurance maintained by the City and its elected officials, officers, employees, agents and representatives shall be in excess of your insurance and shall not contribute to it.

5-4.5.4.3 **Severability of Interest.** For Contractors Hazardous Transporters Pollution Liability Insurance, the policy or policies shall provide that your insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability, and shall provide cross-liability coverage.

5-4.5.5 **Builders Risk Endorsements.**

5-4.5.5.1 **Waiver of Subrogation.** The policy or policies shall be endorsed to provide that the insurer will waive all rights of subrogation against the City, and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and that arise from Work performed by the Named Insured for the City.

5-4.5.5.2 **Builders Risk – Partial Utilization.** If the City desires to occupy or use a portion or portions of the Work prior to Acceptance,, the City will notify you, and you shall immediately notify your Builder's Risk insurer and obtain an endorsement that the policy or policies shall not be cancelled or lapse on account of any use or occupancy. You shall obtain the endorsement prior to the City's occupation and use.

5-4.6 **Deductibles and Self-Insured Retentions.** You shall disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided. The City may require you to purchase coverage with a lower retention or provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or City.

5-4.7 **Reservation of Rights.** The City reserves the right, from time to time, to review your insurance coverage, limits, deductibles, and self-insured retentions to determine if they are acceptable to the City. The City will reimburse you, without overhead, profit, or any other markup, for the cost of additional premium for any coverage requested by the Engineer, but not required by this Contract.

5-4.8 **Notice of Changes to Insurance.** You shall notify the City, in writing, 30 days prior to any material change to the policies of insurance provided under this Contract. This written notice is in addition to the requirements of paragraph 6 of Section 5-4.1.

5-4.9 **Excess Insurance.** Policies providing excess coverage shall follow the form of the primary policy or policies, including, all endorsements.

5-7.1.4 **Emergency Drills.** To the “WHITEBOOK”, Item 1, ADD the following

1. You shall participate in the City’s initiated emergency drills.

5-10.2.1 **Public Notice by Contractor.** To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

5-10.2.1 **Public Notice by Contractor.**

1. Post Project Identification Signs in accordance with 3-11.2, “Project Identification Signs”.

2. No less than 5 and no more than 10 Working Days in advance of Project construction activities and utility service interruptions, you shall notify all critical facilities, businesses, institutions, property owners, residents, or any other impacted stakeholders within a minimum 300-foot (90 m) radius of the Project i.e., work area and any other affected areas as shown on the “Notification of Planned Water Shutdown” when you perform the Work.

3. The notification process must be repeated for delays and long pauses in construction activities. Verbal and written notifications, such as door hangers, shall be sent to critical facilities (including but not limited to police stations, fire stations, hospitals, and schools). A copy of written notifications sent to any critical facility shall also be sent to the Engineer.

4. You shall keep records of the people contacted, along with the dates of notification, and shall provide the record e.g., time-stamped pictures of the notices, to the Engineer upon request. You shall identify all other critical facilities that need to be notified.

5. Verbal and written notifications shall also include specific impacts from the construction of the City facilities, e.g., fire hydrants, air vacuum and blow-off devices, pedestrian ramps, and sidewalks, e.g., the loss of parking, access, and impact to private property, e.g., landscaping.

6. Furnish and distribute public notices in the form of door hangers using the City’s format to all occupants and/or property owners along streets and all critical facilities such as police stations, fire stations, hospitals, and schools.

7. Where Work is to be performed at least 5 and at most 10 Working Days before starting construction, survey activities, or impacting the community as approved by the Engineer.

8. Within 5 Working Days of the completion or pausing of your construction activities where Work was performed, you shall distribute public notices in the form of door hangers, which outline the anticipated dates of Asphalt Resurfacing, Slurry Seal, Sidewalk, or Curb Ramp Work. Upon resuming construction activities, you shall redistribute door hangers.

9. "No Parking" signs shall be placed 72 hours before the scheduled construction activities and must include the name and phone number of the Contractor. The Contractor shall document the placement of the signs with time-stamped pictures.

10. Leave the door hanger notices on or at the front door of each dwelling and apartment unit and at each commercial building tenant abutting each street block segment.

11. Where the front doors of apartment units are inaccessible or occupants are unavailable, distribute the door hanger notices to the apartment manager or security officer and leave your contact information, such as business cards.

12. Provide time-stamped pictures of the notices to the Engineer.

13. Door Hanger Material: You shall use Blanks/USA brand, Item Number DHJ5B6WH, 1¼ inch (31.8 mm) Holes (removed), 2-up Jumbo Door Hanger in Bristol White, or approved equal.

14. Door hangers shall include the funding source if project is funded in part by State Gas Tax Revenue (SB1).

15. Mailed Notice Material: You shall use Cougar by Domtar, Item Number 2834, or approved equal.

16. For all Work on private property, contact each owner and occupant individually a minimum of 15 Working Days before the Work. If the Work has been delayed, re-notify owners and occupants of the new Work schedule, as directed by the Engineer.

17. A sample of public notices will be included in the Contract.

SECTION 6 – PROSECUTION AND PROGRESS OF THE WORK

6-1.1 Construction Schedule. To the "WHITEBOOK", ADD the following:

3. Refer to the Sample City Invoice in **Appendix D – Sample City Invoice** and use the format shown.

4. The **90 Calendar Day** Plant Establishment Period is included in the stipulated Contract Time and shall begin with the acceptance of installation of the vegetation plan in accordance with Section 801-6, "MAINTENANCE AND PLANT ESTABLISHMENT".

ADD:

6-6.1.1 Environmental Document.

1. The City of San Diego has prepared a **Notice of Exemptions** for the **Alvarado Laboratory Improvements**, Project No. **L-22000.1.02.06**, as referenced in the Contract Appendix. You shall comply with all requirements of the **Notice of Exemptions** as set forth in **Appendix A.**

2. The City of San Diego has prepared a **Notice of Exemption** for the **Alvarado Laboratory Improvements Temporary Trailer**, Project No. **L-22000.3.02.06**, as referenced in the Contract Appendix. You shall comply with all requirements of the **Notice of Exemptions** as set forth in **Appendix A.**

3. Compliance with the City's environmental document shall be included in the Contract Price, unless separate bid items have been provided.

6-9 LIQUIDATED DAMAGES. To the "WHITEBOOK", item 2, DELETE in its entirety and SUBSTITUTE with the following:

2. The execution of the Contract shall constitute agreement between you and the City that the liquidated damage amount described in the table below is the value of the damage caused by your failure to complete the Work within the allotted time. Such sum shall not be construed as a penalty and may be deducted from your payments if such delay occurs.

Contract Value	Liquidated Damages Daily Amount
Less than $200,001	$1,000
$200,001 to $500,000	$1,500
$500,001 to $1,000,000	$2,000
$1,000,001 to $2,000,000	$2,500
$2,000,001 to $5,000,000	$3,000
$5,000,001 to $10,000,000	$5,500
$10,000,001 to $20,000,000	$6,500
Greater Than $20,000,000	$7,000

SECTION 7 – MEASUREMENT AND PAYMENT

7-3.1 **General.** To the "WHITEBOOK", ADD the following:

3. The Lump Sum Bid item for "**Construction of Alvarado Laboratory Improvements"** shall include the scope as specified in the Plans, Contract Documents, and Technical Specifications.

4. The Lump Sum Bid item for "**Construction of Alvarado Laboratory Improvements Trailer"** shall include the scope as specified in the Plans numbered 0102328-1-D through 0102328-35-D, Contract Documents, and Technical Specifications.

5. The Lump Sum Bid item for "**Engineering and Design Services**" shall include the scope as specified in the Plans, Contract Documents, and Technical Specifications.

6. The Allowance Bid items for "**Furniture, Fixtures, and Equipment (FFE) (EOC Type I)**" for Alvarado Laboratory Improvements Trailer shall include non-fixed furniture, non-fixed fixtures, and non-fixed furnishings, as specified in the Plans, Contract Documents, and Technical Specifications. This allowance bid item shall not include associated delivery and labor of installation; associated delivery and labor of installation shall be included in Lump Sum Bid item for "**Construction of Alvarado Laboratory Improvements Trailer**".

7. The Allowance Bid items for "**Furniture, Fixtures, and Equipment (FFE) (EOC Type I)**" for Alvarado Laboratory Improvements shall include non-fixed furniture, non-fixed fixtures, and non-fixed furnishings, as specified in the Plans, Contract Documents, and Technical Specifications. This allowance bid item shall not include associated delivery and labor of installation; associated delivery and labor of installation shall be included in Lump Sum Bid item for "**Construction of Alvarado Laboratory Improvements**".

8. The Allowance Bid Item for "**New Lab Equipment**" shall include purchasing, delivering, installing, and calibrating the non-fixed new lab equipment as specified in the Plans, Contract Documents, and Technical Specifications. Equipment that are permanently fixed shall be part of the "**Construction of Alvarado Laboratory Improvements**" Lump Sum Bid Item.

9. The Allowance Bid item for "**Condition Assessment of the 72" Pipeline**" shall include the scope as specified in the Plans, Contract Documents, and Technical Specifications.

10. The Lump Sum Bid Item for **"Existing Lab Equipment Transport and Calibration**" shall include the hiring of a specialized lab equipment company

for the transportation and calibration of the existing lab equipment as specified in the Plans, Contract Documents, and Technical Specifications.

11. The Linear Foot Bid item for Additive Alternate A, **"72-Inch Pipe Lining**" shall include the scope as specified in the Plans, Contract Documents, and Technical Specifications.

12. The Lump Sum Bid item for "**Geotechnical Survey**" shall include the hiring of geotechnical consultant to complete a geotechnical investigation and report to support the temporary trailer foundation.

7-3.9 **Field Orders**. To the "WHITEBOOK", DELETE in its entirety and SUBSTITUTE with the following:

1. If the cumulative total of Field Order items of Work does not exceed the **"Field Orders"** Bid Item, the City shall pay those Field Orders as shown below:

TABLE 7-3.9
FIELD ORDER LIMITS

Contract Price	Maximum Each Field Order Work Amount
Less than $1,000,001	$10,000
$1,000,001 to $5,000,000	$20,000
$5,000,001 to $10,000,000	$25,000
$10,000,001 to $30,000,000	$40,000
Greater than $30,000,000	$70,000

7-3.11 **Compensation Adjustments for Price Index Fluctuations.** To the "WHITEBOOK", ADD the following:

5. This Contract **is not** subject to the provisions of The "WHITEBOOK" for Compensation Adjustments for Price Index Fluctuations for paving asphalt.

SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

8-2 **FIELD OFFICE FACILITIES.** To the "WHITEBOOK", ADD the following.

2. Provide a Class "A" Field Office.

8-6 **BASIS OF PAYMENT.** To the "GREENBOOK", DELETE in its entirety and SUBSTITUTE with the following:

Payment for furnishing, maintaining, servicing, and removing field offices laboratories, or bathhouse facilities required at the Work site shall be included in the lump sum Bid

item for **"Construction of Alvarado Laboratory Improvements"**. If no Bid item is provided in the Proposal, payment shall be considered as included in other Bid items. Such costs incurred in connection with offices and laboratories at plants shall be borne by the plant owners.

The first progress payment will not be approved until all facilities are in place and fully comply with the Specifications.

SECTION 209 – PRESSURE PIPE

209-1.1.1 General. To the "GREENBOOK", ADD the following:

1. PVC products, specifically type C900 and C905, as manufactured or distributed by J-M Manufacturing Company or JM Eagle shall not be used on the Contract for pressurized pipe.

2. Refer to AWWA C900-16 for all references to AWWA C905.

209-7.2 Requirements. To the "GREENBOOK"**,** Table 209-7.2 DELETE in its entirety and SUBSTITUTE with the following:

TABLE 209-7.2

Function	Type	Materials/Method
Pipe Contents Identification	Pipe Color (Plastic Pipe or Polywrap[1])	Blue for Potable Water. Purple for Recycled Water. Green for Sewage.
	AND	
	Stenciling	Stenciling marked on pipe in contrasting color to background color of pipe stating: "POTABLE WATER", "CAUTION RECYCLED WATER - DO NOT DRINK" or "CAUTION SEWER" as appropriate.
		5/8" (16 mm) high letters.
		Repeated at 1 foot (300 mm) intervals.
	OR	
	Identification Tape	Polyethylene tape 6" (150 mm) wide and 4 mils (100 µm) minimum thickness with 2" (50 mm) high letters stating: "POTABLE WATER", "CAUTION RECYCLED WATER - DO NOT DRINK" or "CAUTION SEWER" as appropriate. For pipe > 12" (300 mm) diameter, use 12" (300 mm) wide tape.
		Color - Blue With white letters for potable water, Purple With white letters for recycled water, Green with white letters for sewage.
		Attached to top of pipe with adhesive tape.
Pipe Warning and Locating	Warning and Locating Tape	Polyethylene tape 6" (150 mm) Wide and 4 mils (100 µm) minimum thickness with 2"(50 mm) high letters stating: "CAUTION: WATERLINE BURIED BELOW", "CAUTION RECLAIMED WATERLINE BURIED BELOW - DO NOT DRINK", or "CAUTION: SEWER BURIED BELOW" as appropriate. For pipe > 12" (300 mm) diameter, use 12" (300 mm) wide tape.
		Color - blue with black or white letters for potable water, Purple With black or white letters for recycled water, Green with black or white letters for sewage.
		Place in pipe trench 18" (450 mm) above pipe.

Function	Type	Materials/Method
		Tape shall contain metallic strip that can be registered by magnetic field locating device.
	OR	
	Locating Wire	In lieu of installing metallic warning tape; non-metallic warning tape 18" (450 mm) above pipe and 10-gauge copper wire attached to top of pipe and accessibly terminated may be used.

[1]Polywrap shall not be used as pipe color identification for plastic pipe.

SECTION 402 – UTILITIES

402-2 PROTECTION. To the "WHITEBOOK", item 2, ADD the following:

g) Refer to **Appendix J** - **Advanced Metering Infrastructure (AMI) Device Protection** for more information on the protection of AMI devices.

402-6 COOPERATION. To the **"**WHITEBOOK**",** DELETE in its entirety and SUBSTITUTE with the following:

1. Notify SDG&E at least **15 Working Days** prior to excavating within 10 feet of SDG&E Underground High Voltage Transmission Power Lines (69 KV and higher).

SECTION 601 - TEMPORARY TRAFFIC CONTROL FOR CONSTRUCTION AND MAINTENANCE WORK ZONES

601-2.1.2 Engineered Traffic Control Plans (TCP). To the "WHITEBOOK", ADD the following:

5. Engineered TCP (2 foot x 3 foot size) shall be required for the following areas:

   a) Lake Murray Blvd

   b) Kiowa Dr

SECTION 800 – MATERIALS

800-1.2.5 Mulch. To the "WHITEBOOK", item 3, subsection "i", ADD the following:

Type 9 Mulch shall be 2 and 3 inches maximum in size.

SECTION 802 – NATIVE HABITAT PROTECTION, INSTALLATION, MAINTENANCE, AND MONITORING

802-2.1 Project Biologist. To the "WHITEBOOK", item 2, DELETE in its entirety and SUBSTITUTE with the following:

2. You shall retain a qualified Project Biologist to perform biological monitoring Work for this Contract. You shall coordinate your activities and Schedule with the activities and schedules of the Project Biologist.

SECTION 1001 – CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs)

1001-1 GENERAL. To the "WHITEBOOK", ADD the following:

8. Based on a preliminary assessment by the City, Alvarado Laboratory Improvements is subject to **SWPPP Traditional Risk Level 2**.

9. Based on a preliminary assessment by the City, Alvarado Laboratory Improvements Trailer is subject to **WPCP.**

1001-2.10 BMP Inspection, Maintenance, and Repair. To the "WHITEBOOK", ADD the following:

5. Maintenance activities shall be documented by the QSP or QSD in the Construction BMP Maintenance Log for projects subject to SWPPP requirements. See **Appendix K - SWPPP Construction BMP Maintenance Log**.

ATTACHMENT E

SUPPLEMENTARY SPECIAL PROVISIONS

TECHNICALS - ALVARADO LABORATORY IMPROVEMENTS TRAILER TECHNICAL SPECIFICATIONS

SPECIFICATIONS

Alvarado Laboratory Improvements Trailer

City of San Diego

July 10, 2025

Prepared by:

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San Diego, California 92101
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SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work under separate contracts.
4. Owner-furnished products.
5. Access to site.
6. Work restrictions.
7. Specification and drawing conventions.

B. Related Requirements:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: Alvarado Temporary Office Lab Improvements

1. Project Location: 5540 Kiowa Drive, La Mesa, CA 91942

B. Owner: City of San Diego.

1. Owner's Representative: Jouliana Alyashai

C. Architect: Joe Mansfield, Roesling Nakamura Terada Architects, Inc.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Work consists of the following:

a. Sitework and preparation for installation of relocatable trailer building and access ramps and landings. Work includes site clearing, grading, concrete retaining wall sloped walkway structure, concrete curbs and paving, asphalt paving, metal fabricated railings, wood-framed walkways, water and sewer utilities, electrical and communications, landscaping and other work indicated on the drawings.

b. Procurement and installation of the relocatable trailer building. Work includes submitting, processing and obtaining the deferred submittal approval from the City of San Diego Development Services department.

c. Connection of water, sewer, condensate drains, electrical and communication utilities to the relocatable building.

d. Temporary power for existing Laboratory Building switchgear as required to facilitate electrical connection for the new relocatable trailer building.

B. Type of Contract:

1. Project will be constructed under a Design-Build contract delivery method through the City of San Diego.

1.5 WORK UNDER SEPARATE CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

B. Concurrent Work: Owner has awarded separate contract(s) for concurrent work at the Project site. Those operations will be conducted simultaneously with work under this Contract.

1.6 ACCESS TO SITE

A. General: Contractor shall have full use of the immediate Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to area as directed by Owner’s Representative.
2. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 3:30 p.m., Monday through Friday, unless otherwise indicated.

1. Weekend Hours: Saturday 7:00 am to 3:30 pm.
2. Early Morning Hours: Not permitted before 7:00 am.
3. Hours for Utility Shutdowns: Not to exceed two hours.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

F. Controlled Substances: Use of tobacco products and other controlled substances within the existing building or on Project site is not permitted.

G. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

Note: The following section does not apply unless not covered in the “Whitebook."

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.

D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required

to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.

3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled date of fabrication.
    h. Scheduled dates for purchasing.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

    a. All structural items.
    b. Casework and finish carpentry.
    c. Aluminum storefront.
    d. Door hardware.
    e. Glazing.
    f. Lath & plaster.
    g. Acoustical ceiling.
    h. All finish flooring.
    i. Paint colors.
    j. Miscellaneous specialties.
    k. Toilet compartment and accessories.
    l. Signage.
    m. HVAC.
    n. Plumbing.
    o. Electrical.
    p. Fire Alarm

5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Name of subcontractor.
    f. Name of supplier.
    g. Name of manufacturer.
    h. Submittal number or other unique identifier, including revision identifier.

        1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).

    i. Number and title of appropriate Specification Section.
    j. Drawing number and detail references, as appropriate.
    k. Location(s) where product is to be installed, as appropriate.
    l. Other necessary identification.

4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return without review submittals received from sources other than Contractor.

a. Transmittal Form for Paper Submittals: Use AIA Document G810 or CSI Form 12.1A.
b. Transmittal Form for Paper Submittals: Provide locations on form for the following information:

1) Project name.
2) Date.
3) Destination (To:).
4) Source (From:).
5) Name and address of Architect.
6) Name of Contractor.
7) Name of firm or entity that prepared submittal.
8) Names of subcontractor, manufacturer, and supplier.
9) Category and type of submittal.
10) Submittal purpose and description.
11) Specification Section number and title.
12) Specification paragraph number or drawing designation and generic name for each of multiple items.
13) Drawing number and detail references, as appropriate.
14) Indication of full or partial submittal.
15) Transmittal number, numbered consecutively.
16) Submittal and transmittal distribution record.
17) Remarks.
18) Signature of transmitter.

E. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software or electronic form acceptable to Owner**,** containing the following information:

a. Project name.
b. Date.
c. Name and address of Architect.
d. Name of Contractor.
e. Name of firm or entity that prepared submittal.

f. Names of subcontractor, manufacturer, and supplier.
g. Category and type of submittal.
h. Submittal purpose and description.
i. Specification Section number and title.
j. Specification paragraph number or drawing designation and generic name for each of multiple items.
k. Drawing number and detail references, as appropriate.
l. Location(s) where product is to be installed, as appropriate.
m. Related physical samples submitted directly.
n. Indication of full or partial submittal.
o. Transmittal number, numbered consecutively.
p. Submittal and transmittal distribution record.
q. Other necessary identification.
r. Remarks.

5. Metadata: Include the following information as keywords in the electronic submittal file metadata:

a. Project name.
b. Number and title of appropriate Specification Section.
c. Manufacturer name.
d. Product name.

F. Options: Identify options requiring selection by Architect.

G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Post electronic submittals as PDF electronic files directly to Architect's FTP site specifically established for Project.

    a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Submit electronic submittals via email as PDF electronic files.

    a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
4. Informational Submittals: Submit two paper copies of each submittal unless otherwise indicated. Architect will not return copies.
5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
    b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.
    c. Operational range diagrams.
    d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

    a. PDF electronic file.

b. Three paper copies of Product Data unless otherwise indicated. Architect will return two copies.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
3. Submit Shop Drawings in the following format:

a. PDF electronic file.
b. Three opaque copies of each submittal. Architect will retain two copies; remainder will be returned.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.
e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three sets of Samples. Architect will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.
5. Submit product schedule in the following format:

a. PDF electronic file.
b. Three paper copies of product schedule or list unless otherwise indicated. Architect will return two copies.

F. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01, Section "Quality Requirements."

G. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01, Section "Closeout Procedures."

H. Maintenance Data: Comply with requirements specified in Division 01, Section "Operation and Maintenance Data."

I. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

J. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure

Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

K. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

L. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

M. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

N. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

O. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

P. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

Q. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

R. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

S. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

T. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

U. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads.

Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Project Closeout and Maintenance Material Submittals: See requirements in Division 01, Section "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, or attach a Submittal Review Form.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

F. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to trades-people of the corresponding generic name.

J. Experienced: When used with an entity, "experienced" means having successfully completed previous projects in similar size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.

4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

C. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and re-inspecting.
14. Test Reports shall be signed by a Registered Civil Engineer licensed in the state of California.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the state of California and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 548; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
3. City of San Diego Development Services approved Testing Agencies list.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.

4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.

    a. Allow seven days for initial review and each re-review of each mockup.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

1.7 PAYMENTS

A. Costs for testing and inspection, except as specifically modified herein, or specified otherwise in technical sections, will be paid for by the Contractor.

B. Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the completed work, the Contractor shall, on request, promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of the Contractor or his subcontractor, he shall be responsible for all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, additional cost of labor and material necessarily involved in the examination and replacement shall be reimbursed to the Contractor.

1.8 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Unless otherwise specified, Contractor shall notify Testing Laboratory a minimum of 10 working days in advance of all required tests, and a minimum of 2 working days in advance of all required inspections. Extra laboratory expenses resulting from a failure to notify the Laboratory will be paid by the Owner and back-charged to the Contractor.
3. Contractor shall give sufficient advance notice to Testing Laboratory in the event of cancellation or time extension of a scheduled test or inspection. Charges due to

insufficient advance notice cancellations or time extension will be paid for by the Owner and backcharged to the Contractor.

4. Contractor shall notify the Testing Agency a minimum of 3 working days in advance of the manufacture or material to be supplied by him under the Contract Documents, which must by terms of the Contract be tested, in order that the Agency may arrange for the testing of such material at the source of supply.

    a. Material shipped by the Contractor from the source of supply before having satisfactorily passed such testing and inspection or before the receipt of notice from the Owner's Representative that such testing and inspection will not be required, shall not be incorporated in the Project.

5. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
6. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
7. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report of each test, inspection, and similar quality-control service to Owner, to Architect, with copy to Contractor and to authority having jurisdiction.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.
7. Reporting test failures: Immediately upon Testing Laboratory determination of a test failure, the Laboratory will telephone the results of test to Architect. On the same day, Laboratory will send written test results to those named on the above distribution list.

F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for the Notice to Proceed.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.9 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency and special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which include a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and reinspection of the corrected work.

1.10 OWNER'S INSPECTION

A. An Inspector employed by the Owner will be assigned to the work.

B. The Contractor shall notify the Inspector a minimum of two working days in advance of execution of all work that requires inspection.

C. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. Inspector shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to be fully informed respecting the progress and manner of the work and the character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to comply with the Contract requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

3.3 TESTS & INSPECTIONS

A. Perform tests and inspections for the following in conformance with the California Building Code, Title 24, Part 2, of the California Code of Regulations, and Interpretations of Regulations of the California State Structural Safety Interpretive Manual.

B. Soils (CBC 1705.6)

1. Placement and compaction of soils - ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.

C. Concrete (Chapter 19A, Chapter 17A)

1. Materials

a. Portland Cement Tests - Section1903A
b. Concrete Aggregates – Section 1903A.6
c. Reinforcing Bars – Section 1913A.2 and ASTM A370
d. Waiver of Testing Rebar - Section 1913A.2
e. Batch Plant Inspection – Section 1705A.3.2

f. Waiver of Batch Plant Inspection and Tests - Section 1705A.3

2. Concrete Quality

a. Proportions of Concrete – Sections 1904A, and 1905A
b. Strength Tests of Concrete – Section 1905A.1

3. Concrete Inspection

a. Job Site Inspection – Section 1705A.3 and Table 1705A.3
b. Batch Plant or Weighmaster Inspection - Section 1705A.3.2
c. Reinforcing Bar Welding Inspection - Table 1705A.3

4. Anchors in Concrete

a. Drilled-In-Expansion Bolts or Epoxy-Type Anchors in Concrete - Table 1705A.3.

D. Wood (Chapter 23A)

1. Materials

a. Lumber and Plywood Grading - 2303

3.4 TESTING OF CONCRETE

A. Concrete Mix Design:

1. Test concrete aggregates for mix design only.
2. Deliver samples of approved aggregate to Project for comparison with material delivered, if job mixed concrete is used.
3. Test suitability of aggregates in accordance with ASTM C88 if material is under suspicion and if so directed by Architect or authority having jurisdiction.

B. If compressive result of test specimens fail to show compressive strength specified, remove and replace concrete or adequately strengthen in a manner acceptable to Architect and authority having jurisdiction.

C. Certification shall be made that tests, whose results shall be shown, were made in accordance with provisions of Rules and Regulations of authority having jurisdiction.

D. Make all tests, take samples, and prepare samples in accordance with the latest standards adopted by American Society for Testing and Materials, referred to as ASTM.

E. Structural concrete mixed at certified approved concrete batch plants shall have quality control as follows:

1. Laboratory designed mixes using adequate cement factors.
2. Continuous batch plant inspection by qualified test technician.
3. Inspection shall comply with CBC requirements.

F. Structural concrete mixed at non-approved batch plants shall have quality control as follows:

1. Laboratory designed mixes using adequate cement factors.
2. Continuous batch plant inspection by qualified test technician.

3. Measure all water, including wash water, so total on truck does not exceed 95 percent maximum allowed in mix design.
4. Legible, certified weighmaster's certificates shall be provided the inspector for all structural and non structural concrete.
5. At end of job, Contractor shall furnish affidavit to authority having jurisdiction, Owner and Architect, certifying that all concrete furnished conforms to requirements of CCR Title 24 Part 2.

G. Waiver of Batch Plan Inspection: Batch plant inspection may be waived if the concrete plant complies fully with the requirements of CBC 1705A.3.3, and has been certified to comply with the requirements of the National Ready Mixed concrete Association. The plant must be equipped with an automatic batcher in which the total batching cycle, except for the measuring and introduction of an admixture, is completed by activating a single starter device.

H. Special Inspector will do the following:

1. Inspect placing of reinforcing steel and concrete at Project.
2. Obtain load ticket and identify mix before accepting each load. Keep daily record of concrete placement, identifying each truckload, time of receipt, and location of concrete in structure. Keep record until completion of Project and make available for inspection by authority having jurisdiction.
3. During progress of work, take code required number of test cylinders, but at least one set of cylinders for each 50 cubic yards or fractional part thereof for each class of concrete and at least one set from each day's pour. Test cylinders need not be made for concrete used in non-structural elements of the work.
4. One set of cylinders shall consist of 4 samples all taken from same batch, one to be tested at age of 7 days and two at 28 days.
5. Make and store cylinders according to ASTM C31.
6. Deliver cylinders to laboratory or store cylinders in a suitable protected environment for pick up by laboratory personnel.
7. Make slump test of wet concrete according to test for slump of Portland cement concrete, ASTM C 143, at least at the same frequency that the cylinders are taken.

3.5 REINFORCING STEEL

A. Tests:

1. Tests shall be performed before the delivery of steel to Project site. Steel not meeting specifications shall be rejected and shall not be shipped to the Project.
2. Testing procedure shall conform to ASTM A 615.
3. Sample at the place of distribution, before shipment: Make one tensile test and one bending test from samples out of 10 tons, or fraction thereof, of each size and kind of reinforcing steel, where taken from bundles as delivered from the mill and properly identified as to heat number. Mill analysis shall accompany report. Where identification number cannot be ascertained, or where random samples are taken, make one series of tests from each 2-1/2 tons, or fraction thereof, of each size and kind of reinforcing steel. Tests on unidentified reinforcing steel will be paid by the Owner and backcharged to the Contractor. Samples shall include not fewer than 2 pieces, each 18 inches long, or each size and kind of reinforcing steel. Inspection of welding of reinforcing steel shall be done by a specially qualified laboratory inspector and tested in accordance with AWS D1.4.
4. All steel shall have testing laboratory tags of approval attached to the steel bundle when shipped to the job site.

B. Inspector will inspect all reinforcement for concrete work for size, dimensions, locations and proper placement. Inspector shall be present during welding of all reinforcing steel.

3.6 Perform additional test that may be required by individual Specification Sections.

3.7 Perform structural tests and inspections in accordance with CBC Chapter 17.

END OF SECTION 01 40 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Division 01, Section "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

D. Telephone and Data Services from Existing Systems: Telephone and data service systems are available for use without payment of use charges.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.

1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.

E. Dust Control Plan: Submit narrative and plan that indicates dust control measures at all times during demolition, clear and grubbing, grading, and other sitework activities that will generate dust.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines, the California Building Code, and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails. Provide visual screening fabric.

B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized-steel bases for supporting posts.

C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

D. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.

E. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Architect, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- square tack and marker boards.
3. Drinking water.
4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service overhead unless otherwise indicated.
2. Connect temporary service to Owner's existing power source.

C. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Install lighting for Project identification sign.

D. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.

1. Provide additional telephone lines for the following:

a. Provide a dedicated telephone line for each facsimile machine in each field office.

2. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.
b. Ambulance service.
c. Contractor's home office.
d. Contractor's emergency after-hours telephone number.
e. Architect's office.
f. Engineers' offices.
g. Owner's office.
h. Principal subcontractors' field and home offices.

3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Provide temporary parking areas for construction personnel.

D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touchup signs so they are legible at all times.

F. Waste Disposal Facilities: Comply with requirements specified in Division 01, Section "Construction Waste Management and Disposal."

G. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Division 01, Section "Summary."

C. Temporary Erosion and Sedimentation Control: Comply with requirements of authorities having jurisdiction, and requirements specified in Division 31, Section "Earth Moving".

D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings or requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

G. Site Enclosure Fence: Before construction operations begin or prior to commencing earthwork, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

K. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.

D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may

have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

B. Related Requirements:

1. Division 01, Section "Summary" for limits on use of Project site.
2. Division 01, Section "Submittal Procedures" for submitting surveys.
3. Division 01, Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
4. Division 02, Section "Selective Structure Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Mechanical systems piping and ducts.
    f. Control systems.
    g. Communication systems.
    h. Fire-detection and -alarm systems.
    i. Electrical wiring systems.
    j. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Equipment supports.
    d. Piping, ductwork, vessels, and equipment.
    e. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect.

E. Surface and Substrate Preparation: Comply with manufacturer's written recommendations for preparation of substrates to receive subsequent work.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name

and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Division 01 Section "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01, Section "Temporary Facilities and Controls" and Division 01, Section "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 23.

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Division 01, Section "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

END OF SECTION 01 73 00

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:

1. Division 02, Section "Selective Structure Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements, and for disposal of hazardous waste.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of total non-hazardous solid waste generated by the Work as required by the City of San Diego. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to

divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:

1. Demolition Waste:

    a. Asphalt paving.
    b. Concrete.
    c. Concrete reinforcing steel.
    d. Concrete masonry units.
    e. Wood studs.
    f. Wood joists.
    g. Plywood and oriented strand board.
    h. Wood paneling.
    i. Wood trim.
    j. Structural and miscellaneous steel.
    k. Rough hardware.
    l. Roofing.
    m. Insulation.
    n. Doors and frames.
    o. Door hardware.
    p. Windows.
    q. Glazing.
    r. Gypsum board.
    s. Acoustical tile and panels.
    t. Carpet.
    u. Equipment.
    v. Cabinets.
    w. Plumbing fixtures.
    x. Piping.
    y. Supports and hangers.
    z. Valves.
    aa. Sprinklers.
    bb. Mechanical equipment.
    cc. Refrigerants.
    dd. Electrical conduit.
    ee. Copper wiring.
    ff. Lighting fixtures.
    gg. Lamps.
    hh. Ballasts.
    ii. Electrical devices.
    jj. Switchgear and panelboards.
    kk. Transformers.

2. Construction Waste:

    a. Lumber.
    b. Wood sheet materials.
    c. Wood trim.
    d. Metals.
    e. Roofing.
    f. Insulation.
    g. Gypsum board.
    h. Piping.
    i. Electrical conduit.

j. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle the following uncontaminated packaging materials as required by the City of San Diego:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Plastic pails.

1.5 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a waste management coordinator.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Division 01, Section "Temporary Facilities and Controls."

B. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
2. Comply with Division 01, Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:

1. Clean salvaged items.

2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale and Donation: Not permitted on Project site.

C. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area on-site.
5. Protect items from damage during transport and storage.

D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

F. Plumbing Fixtures: Separate by type and size.

G. Lighting Fixtures: Separate lamps by type and protect from breakage.

H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:

1. B C Recycling – (619) 281-6092
2. Allan CO – (858) 268-3533
3. American Recycling – (619) 266-8456
4. Cactus Recycling Inc. – (619) 661-1283
5. Cal PAC Recycling – (858) 292-8243
6. EDCO – (760) 744-2700
7. IMS Recycling Services – (619) 702-0247
8. Imperial Recycling – (619) 233-4702
9. J & R Recycling – (619) 235-8010
10. Klein Metals and Recycling – (619) 670-4228
11. Legacy Fibers International Inc. – (619) 557-4681
12. Linda Recycling Center – (858) 277-8820
13. Linda Vista Ecology Center – (858) 565-0911
14. Moor Refuse – (619) 234-2707
15. Old Town Recycling – (619) 543-9961

16. Organic Recycling West – (619) 661-6712
17. Reliable Waste Inc. – (619) 234-8744
18. Resource Management Group – (619) 702-9121
19. Rio Recycling Center – (619) 479-8149
20. San Diego Fibres Corporation – (619) 262-8090
21. San Ysidro Recycling Center – (619) 428-1320
22. Save the Planet Recycling Center – (619) 429-3457
23. Time Recycling Center – (619) 235-8182
24. Tomra Recycling Network – (619) 280-9545

C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall be shared equally by Contractor and Subcontractor.

D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

E. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE (CONTRACTOR'S OPTION OF THE FOLLOWING ITEMS)

A. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch size.

C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 1-1/2-inch size.

D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

E. Metals: Separate metals by type.

F. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.

G. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

H. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.6 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Division 01, Section "Execution" for progress cleaning of Project site.
2. Division 01, Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
3. Division 01, Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Advise Owner of changeover in heat and other utilities.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to District’s pay application procedures requirements.
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed

and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction. Use CSI Form 14.1A.

1. Organize list of spaces in sequential order, starting with exterior areas first.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in one of the following format:

    a. MS Excel electronic file. Architect will return annotated file.
    b. PDF electronic file. Architect will return annotated file.
    c. Three paper copies. Architect will return two copies.

1.9 FINAL PAYMENT REQUIREMENTS

A. Submittals prior to final payment: Provide the following prior to final payment.

1. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, waste disposal receipts, and similar final record information.
2. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.

    a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.

4. Submit test/adjust/balance records.

B. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
2. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
4. Complete final cleaning requirements, including touchup painting.
5. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

1.10 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
g. Sweep concrete floors broom clean in unoccupied spaces.
h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
j. Remove labels that are not permanent.
k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
l. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
n. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.

1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.

o. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
p. Leave Project clean and ready for occupancy.

C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01, Section "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory.
2. Emergency manuals.
3. Operation manuals for systems, subsystems, and equipment.
4. Product maintenance manuals.
5. Systems and equipment maintenance manuals.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operations and maintenance manuals in the following format:

1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.

a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
b. Enable inserted reviewer Comments on draft submittals.

C. Manual Submittal: Submit a copy of each manual before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:

1. List of documents.
2. List of systems.
3. List of equipment.
4. Table of contents.

B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Architect.
7. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.

8. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

F. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf or post-type binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.

2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency shutdown, operation, and maintenance manuals.

B. Emergency Shutdown Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of operation and maintenance manuals.

2. Comply with requirements of newly prepared record Drawings in Division 01, Section "Project Record Documents."

G. Comply with Division 01, Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Division 01, Section "Closeout Procedures" for general closeout procedures.
2. Division 01, Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set of marked-up record prints.
2. Number of Copies: Submit copies of record Drawings as follows:

a. Initial Submittal:

1) Submit one paper-copy set of marked-up record prints.
2) Submit PDF electronic files of scanned record prints and one of file prints.
3) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.
2) Submit PDF electronic files of scanned record prints.

B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one paper copy or annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy or annotated PDF electronic files and directories of each submittal.

E. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Accurately record information in an acceptable drawing technique.
    c. Record data as soon as possible after obtaining it.
    d. Record and check the markup before enclosing concealed installations.
    e. Cross-reference record prints to corresponding archive photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

    a. Dimensional changes to Drawings.
    b. Revisions to details shown on Drawings.
    c. Depths of foundations below first floor.
    d. Locations and depths of underground utilities.
    e. Revisions to routing of piping and conduits.
    f. Revisions to electrical circuitry.
    g. Actual equipment locations.
    h. Duct size and routing.
    i. Locations of concealed internal utilities.
    j. Changes made by Change Order or Construction Change Directive.
    k. Changes made following Architect's written orders.
    l. Details not on the original Contract Drawings.
    m. Field records for variable and concealed conditions.
    n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Annotated PDF electronic file with comment function enabled.
2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
3. Refer instances of uncertainty to Architect for resolution.
4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.

    a. See Division 01, Section "Submittal Procedures" for requirements related to use of Architect's digital data files.
    b. Architect will provide data file layer information. Record markups in separate layers.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file with comment function enabled.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file, paper copy, or scanned PDF electronic file(s) of marked-up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file, paper copy, or scanned PDF electronic file(s) of marked-up paper copy of Product Data.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file, paper copy, or scanned PDF electronic file(s) of marked-up miscellaneous record submittals.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 01 78 39

SECTION 02 41 19 SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.

B. Related Requirements:

1. Section 01 10 00 "Summary" for use of the premises, phasing requirements, interim housing considerations, coordination with occupants, etc.
2. Section 01 50 00 “Temporary Facilities and Controls” for temporary construction and environmental protection measures for selective demolition operations.
3. Section 01 74 19 “Construction Waste Management and Disposal”.
4. Section 01 73 00 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to the City ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects, including cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to the District that may be uncovered during demolition remain the property of the District.

1. Carefully salvage in a manner to prevent damage and promptly return to the District.

1.5 PRE-INSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Engineering Survey: Submit engineering survey of condition of building.

C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and for noise control. Indicate proposed locations and construction of barriers.

D. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure District on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of District continuing occupancy of portions of existing building and of District partial occupancy of completed Work.
6. Locations of proposed dust and noise control temporary partitions and means of egress.
7. Means of protection for items to remain and items in path of waste removal from building.

E. Pre-demolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces that might be misconstrued as damage caused by demolition operations.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. The Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so the Owner operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by the Owner as far as practical.

C. Notify the District Construction Manager of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify the District Construction Manager. Remove hazardous materials in accordance with all Local, State and Federal regulations.

E. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
3. Hazardous materials and locations are shown in the Drawings. The mitigation of this material is included in the Base Bid.
4. If hazardous materials are encountered that are not shown in the Drawings, do not disturb: immediately notify the District Construction Manager. Remove hazardous materials in accordance with all Local, State and Federal regulations.

F. Termite Infestation: It is not expected that active termite infestations will be encountered in the Work.

1. If active termite infestations are encountered, do not disturb; immediately notify the Construction Manager who will have the infestations investigated. Allow three days when no work will be permitted on those portions of the Work suspected of having active termite infestations.

G. Storage or sale of removed items or materials on-site is not permitted.

H. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.10 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with the District operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI / ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing conditions information provided by the City. The City does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

D. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs or video.

E. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Construction Manager.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.

2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to the District.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

    a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

    1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied buildings.
    2. Comply with requirements for temporary enclosures and dust control specified in Section 01 50 00 "Temporary Facilities and Controls."

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

    1. Strengthen or add new supports when required during progress of selective demolition.

C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch and portable fire-suppression devices during and for at least 2 hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
10. Dispose of demolished items and materials promptly. Comply with requirements in Section 01 74 19 "Construction Waste Management and Disposal."

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until reinstallation or delivery to the District.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by District Construction Manager, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.

B. Concrete and Asphalt Paving: Saw-cut perimeter of area to be demolished, and then break up and remove.

C. Chain Link Fencing: Roll back fence fabric and cut back at length necessary for reattachment. Remove and dispose of fence posts, complete with foundations.

D. Electrical: Remove conduit and wiring back to nearest junction box that will remain. Where electrical is feeding a dedicated circuit, remove wiring back to the electrical panel complete and relabel circuit card noting the breaker as ”spare”.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Comply with requirements specified in Section 01 74 19 "Construction Waste Management and Disposal."

B. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

1. Site walls and foundations.

1.3 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Architect.

E. Samples: For vapor retarder.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories.
5. Curing compounds.
6. Floor and slab treatments.
7. Bonding agents.
8. Adhesives.
9. Vapor retarders.
10. Semirigid joint filler.
11. Joint-filler strips.
12. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:

1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

D. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

F. Preinstallation Conference: Conduct conference at Project site.

1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:

a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Concrete subcontractor.

2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.
2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

a. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed. Use at all locations exposed to view.
b. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed. Use at concealed locations.

B. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

C. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

D. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.

C. Steel Bar Mats: ASTM A 184/A 184M, fabricated from ASTM A 615/A 615M, Grade 60 or ASTM A 706/A 706M, deformed bars, assembled with clips.

D. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.

E. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

2.3 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete.

2.4 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:

1. Portland Cement: ASTM C 150, Type II or Type V if required by the geotechnical report for corrosive soil conditions, gray. Supplement with the following:

    a. Fly Ash: ASTM C 618, Class F.

B. Normal-Weight Aggregates: ASTM C 33, coarse aggregate or better, graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 1 inchnominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

A. Air-Entraining Admixture: ASTM C 260.

B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.

3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.

2.6 VAPOR BARRIERS

A. Sheet Vapor Retarder: ASTM E 1745, Class A, except with maximum perm rating of 0.01. Include manufacturer's recommended adhesive or pressure-sensitive tape.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Raven Industries Inc.; Vapor Block 15.
b. Stego Industries, LLC; Stego Wrap 15 mil Class A.
c. Or approved equal.

B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a 3/8-inch sieve, 10 to 30 percent passing a No. 100 sieve, and at least 5 percent passing No. 200 sieve; complying with deleterious substance limits of ASTM C 33 for fine aggregates.

2.7 LIQUID FLOOR TREATMENTS

A. VOC Content: Liquid floor treatments shall have a VOC content of 200 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

1. Products: Subject to compliance with requirements, provide one of the following:

a. ChemMasters; Chemisil Plus.
b. ChemTec Int'l; ChemTec One.
c. Conspec by Dayton Superior; Intraseal.
d. Curecrete Distribution Inc.; Ashford Formula.
e. Dayton Superior Corporation; Day-Chem Sure Hard (J-17).
f. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
g. Kaufman Products, Inc.; SureHard.
h. L&M Construction Chemicals, Inc.; Seal Hard.
i. Meadows, W. R., Inc.; LIQUI-HARD.
j. Metalcrete Industries; Floorsaver.
k. Nox-Crete Products Group; Duro-Nox.
l. Symons by Dayton Superior; Buff Hard.
m. US SPEC, Division of US Mix Products Company; US SPEC Industraseal.
n. Vexcon Chemicals, Inc.; Vexcon StarSeal PS Clear.
o. Or approved equal.

2.8 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Products: Subject to compliance with requirements, provide one of the following:

a. ChemMasters; SprayFilm.
b. Conspec by Dayton Superior; Aquafilm.
c. Dayton Superior Corporation; Sure Film (J-74).
d. Edoco by Dayton Superior; BurkeFilm.
e. Euclid Chemical Company (The), an RPM company; Eucobar.
f. Kaufman Products, Inc.; Vapor-Aid.
g. Lambert Corporation; LAMBCO Skin.
h. L&M Construction Chemicals, Inc.; E-CON.
i. Meadows, W. R., Inc.; EVAPRE.
j. Sika Corporation; SikaFilm.
k. Symons by Dayton Superior; Finishing Aid.
l. Unitex; PRO-FILM.
m. Or approved equal.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Anti-Hydro International, Inc.; AH Curing Compound #2 DR WB.
b. ChemMasters; Safe-Cure Clear.
c. Conspec by Dayton Superior; W.B. Resin Cure.
d. Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
e. Edoco by Dayton Superior; Res X Cure WB.
f. Euclid Chemical Company (The), an RPM company; Kurez W VOX; TAMMSCURE WB 30C.
g. Kaufman Products, Inc.; Thinfilm 420.
h. Lambert Corporation; AQUA KURE - CLEAR.
i. L&M Construction Chemicals, Inc.; L&M Cure R.
j. Meadows, W. R., Inc.; 1100-CLEAR.
k. Symons by Dayton Superior; Resi-Chem Clear.
l. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.
m. Or approved equal.

2.9 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.

C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.10 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109/C 109M.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 15 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
2. Use water-reducing admixture in pumped concrete, concrete for concrete with a water-cementitious materials ratio below 0.50.

2.12 CONCRETE MIXTURES FOR PROJECT ELEMENTS

A. Foundations and Site Retaining Walls: Proportion normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000psi at 28 days.
2. Maximum Water-Cementitious Materials Ratio: 0.45
3. Slump Limit: 4 inches, plus or minus 1 inch.

2.13 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:

1. Class A, 1/8 inch for smooth-formed finished surfaces.
2. Class B, 1/4 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.

1. Install keyways, reglets, recesses, and the like, for easy removal.
2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 REMOVING AND REUSING FORMS

A. General: Formwork that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 VAPOR RETARDERS

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

B. Granular Course: Cover vapor retarder with fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch.

1. Place and compact a 1/2-inch- thick layer of fine-graded granular material over granular fill.

3.5 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.6 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.7 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.

3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

G. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.8 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete.

C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.9 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish

3.10 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

3.11 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture and Absorptive Cover Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

   a. Water. Do not use for slab-on-grade construction.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
   d. Cure all building slab-on-grade surfaces with absorptive cover.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven

days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.12 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.

1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
2. Do not apply to concrete that is less than 28 days' old.
3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing. Rinse with water; remove excess material until surface is dry. Apply a second coat in a similar manner if surface is rough or porous.

3.13 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.14 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of one-part Portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
2. After concrete has cured at least 14 days, correct high areas by grinding.
3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.15 FIELD QUALITY CONTROL

A. Testing and Inspecting: Engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Inspections:

1. Steel reinforcement placement.
2. Headed bolts and studs.
3. Verification of use of required design mixture.
4. Concrete placement, including conveying and depositing.
5. Curing procedures and maintenance of curing temperature.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.

    a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
6. Compression Test Specimens: ASTM C 31/C 31M.

    a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.

7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
10. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
13. Additional testing and inspecting, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48hours of finishing.

3.16 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03 30 00

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Metal guard railing.
2. Miscellaneous fabrications.

B. Products furnished, but not installed, under this Section include the following:

1. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

1.3 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Paint products.
2. ICBO Reports for wedge anchors and other fastening devices.

B. Shop Drawings: Show fabrication and installation details for metal fabrications.

1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
2. Provide templates for anchors and bolts specified for installation under other Sections.

C. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to the following:

1. AWS D1.1, "Structural Welding Code--Steel."
2. AWS D1.3, "Structural Welding Code--Sheet Steel."

1.6 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
2. Field survey site at guardrail locations to establish horizontal and vertical control.
3. Provide allowance for trimming and fitting at site.

1.7 COORDINATION

A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.

2.2 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.3 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Steel Tubing: ASTM A 500, cold-formed steel tubing.

C. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.

D. Cable Railing: 3/16-inch diameter, 7-19 stainless steel aircraft cable T316.

1. Connecting Hardware: T316 stainless steel swage threaded stud tension end fitting, and terminal fitting on opposite end. Manufacturer: Blika, or approved equal.

E. Slotted Channel Framing Uni-Strut: Cold-formed metal channels with continuous slot complying with MFMA-3.

1. Size of Channels: 1-5/8 by 1-5/8 inches.
2. Material: Galvanized steel complying with ASTM A 653/A 653M, commercial steel, Type B, with G90 coating.

2.4 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1.

D. Anchor Bolts: ASTM F 1554, Grade 36.

1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.

E. Machine Screws: ASME B18.6.3.

F. Lag Bolts: ASME B18.2.1.

G. Wood Screws: Flat head, ASME B18.6.1.

H. Plain Washers: Round, ASME B18.22.1.

I. Lock Washers: Helical, spring type, ASME B18.21.1.

J. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.

K. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material for Anchors in Exterior Locations: Alloy Group 1 stainless-steel bolts complying with ASTM F 593 and nuts complying with ASTM F 594.

2.5 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Primer: Rustop 6000, distributed by FSC Coatings, or approved equal.

C. Galvanizing Repair Paint: Rustop 6000, distributed by FSC Coatings, or approved equal.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

E. Concrete Materials and Properties: Comply with requirements in Division 3 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.

2.6 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.7 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.

1. Fabricate units from slotted channel framing where indicated.
2. Furnish inserts if units are installed after concrete is placed.

C. Galvanize miscellaneous framing and supports where indicated.

D. Prime miscellaneous framing and supports with primer where indicated.

2.8 GUARDRAILS

A. Fabricate supports from stee plate and bar stock of sizes indicated. Where radius bends are indicated, heat bend to clean, uniform and constant radius profiles. Grind all welds smooth and hot-dip galvanize after fabrication. Drill precise holes for cable pass-throughs. De-burr for smooth holes edges prior to galvanization.

2.9 BOLLARDS

A. Fabricate from galvanized schedule 40 steel pipe. Grind expose edges smooth.

2.10 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

2.13 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:

1. ASTM A 123/A 123M, for galvanizing steel and iron products.

2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
5. Repair galvanizing with Rustop 6000, or approved equal.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

B. Verify backing has been installed in wood or metal stud walls or ceilings where required for wall-mounted or ceiling-mounted items.

3.3 INSTALLING METAL BOLLARDS

A. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.

B. Fill bollards solidly with concrete, mounding top surface to shed water.

3.4 GUARDRAILS

A. Coordinate layout of guardrail supports for uniform spacing. Coordinate location of guardrail supports with rebar at concrete. Identify support locations at placement of rebar to miss cores.

B. Core concrete a minimum of seven days after placement of concrete.

C. Set supports true and plumb with uniform spacing. Fill annular space between steel supports and concrete with non-shrink grout. Slope top of grout to shed water.

D. Install stainless steel cables between supports at 80-feet on-center maximum spacing. Attach cabling to stainless steel swage threaded stud tension end fitting, and terminal fitting on opposite ends. Verify cables are tight and snug within their fittings. Set up cables and fittings to allow for tensioning. Tension cables to remove any slack.

3.5 SLOTTED CHANNEL FRAMING

A. Install with manufacturer's clamping devices for attachment to steel wide flange beams.

B. Mount items to slotted channel framing with manufacturer's standard mounting hardware.

C. Connect separate pieces of slotted channel together with manufacturer's standard connectors. Bolt together with manufacturer's standard hardware.

3.6 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Division 9 painting Sections.

C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 05 50 00

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Framing with dimension lumber.
2. Wood blocking, cants, and nailers.
3. Sheathing.

1.3 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise indicated.

B. Lumber grading agencies, and the abbreviations used to reference them, include the following:

1. NLGA - National Lumber Grades Authority.
2. WCLIB - West Coast Lumber Inspection Bureau.
3. WWPA - Western Wood Products Association.

1.4 SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

B. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Metal Framing Anchors:

a. KC Metals Products, Inc.
b. Simpson Strong-Tie Company, Inc.
c. United Steel Products Company, Inc.
d. Or approved equal.

2.2 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
3. Provide dressed lumber, S4S, unless otherwise indicated.
4. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
5. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.

B. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

C. Wood Structural Panels:

1. Plywood: DOC PS 1.

2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
3. Comply with "Code Plus" provisions in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial."
4. Factory mark panels according to indicated standard.

2.3 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA C2 (lumber) and AWPA C9 (plywood), except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and [one of] the following:

a. Chromated copper arsenate (CCA).
b. Ammoniacal copper zinc arsenate (ACZA).
c. Ammoniacal, or amine, copper quat (ACQ).
d. Copper bis (dimethyldithiocarbamate) (CDDC).
e. Ammoniacal copper citrate (CC).
f. Copper azole, Type A (CBA-A).
g. Oxine copper (copper-8-quinolinolate) in a light petroleum solvent.

B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
3. Wood floor plates that are installed over concrete slabs directly in contact with earth.

2.4 DIMENSION LUMBER

A. General: Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.

B. Framing: Provide No. 1 grade lumber with 19 percent maximum moisture content and any of the following species:

1. Douglas fir-larch; WCLIB or WWPA.

2.5 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Cants.
3. Nailers.
4. Furring.
5. Grounds.

B. For items of dimension lumber size, provide No. 2 grade lumber with 19 percent maximum moisture content and any of the following species:

1. Hem-fir or Hem-fir (north); NLGA, WCLIB, or WWPA.
2. Northern species; NLGA.
3. Western woods; WCLIB or WWPA.

C. For concealed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:

1. Hem-fir or Hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
2. Northern species, No. 2 Common grade; NLGA.
3. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

D. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 SHEATHING

A. Plywood Floor Sheathing: Exterior, Structural I sheathing.

1. Span Rating: 32/16 unless noted otherwise.
2. Thickness: 3/4-inch.

2.7 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Lag Bolts: ASME B18.2.1.

G. Bolts: Steel bolts complying with ASTM A 307, Grade A ; with ASTM A 563 hex nuts and, where indicated, flat washers.

H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 .

2.8 METAL FRAMING ANCHORS

A. General: Provide framing anchors made from metal indicated, of structural capacity, type, and size indicated, and as follows:

1. Research/Evaluation Reports: Provide products acceptable to authorities having jurisdiction and for which model code research/evaluation reports exist that show compliance of metal framing anchors, for application indicated, with building code in effect for Project.
2. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

B. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

2.9 MISCELLANEOUS MATERIALS

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

B. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

C. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. CABO NER-272 for power-driven fasteners.
2. Published requirements of metal framing anchor manufacturer.

3. Table 2304.10.2, Fastening Schedule," Revise paragraph below to include other kinds of nails if required.

E. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.

F. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

3.2 WOOD GROUND, SLEEPER, BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FRAMING INSTALLATION, GENERAL

A. Framing Standard: Comply with AFPA's "Manual for Wood Frame Construction," unless otherwise indicated.

B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

C. Do not splice structural members between supports.

3.4 JOIST FRAMING INSTALLATION

A. General: Install joists with crown edge up and support ends of each member with not less than 1-1/2 inches of bearing on wood or metal. Attach floor joists as follows:

1. Where supported on wood members, by toe nailing or by using metal framing anchors.
2. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.

B. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 48 inches .

C. Do not notch in middle third of joists; limit notches to one-sixth depth of joist, one-third at ends. Do not bore holes larger than 1/3 depth of joist; do not locate closer than 2 inches from top or bottom.

D. Provide solid blocking of 2-inch nominal thickness by depth of joist at ends of joists unless nailed to header or band.

E. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches or securely tie opposing members together. Provide solid blocking of 2-inch nominal thickness by depth of joist over supports.

F. Provide solid blocking between joists under jamb studs for openings.

G. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions, if any.

3.5 TIMBER FRAMING INSTALLATION

A. Install timber with crown edge up and provide not less than 4 inches of bearing on supports. Provide continuous members, unless otherwise indicated; tie together over supports if not continuous.

B. Where beams or girders are framed into pockets of exterior concrete or masonry walls, provide 1/2-inch air space at sides and ends of wood members.

C. Install wood posts using metal anchors indicated.

D. Treat ends of timber beams and posts exposed to weather by dipping in water-repellent preservative for 15 minutes.

3.6 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.

1. Comply with "Code Plus" provisions in above-referenced guide.

B. Fastening Methods: Fasten panels as indicated below:

1. Sheathing:

a. Nail or screw to wood framing.
b. Space panels 1/8 inch apart at edges and ends.

END OF SECTION 06 10 00

SECTION 07 13 26 - SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Modified bituminous sheet waterproofing, protection course and drainage panels.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.

B. Shop Drawings: Show locations and extent of waterproofing and details of substrate joints and cracks, expansion joints, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions. C. Samples: Submit the following products:

1. 8-by-8-inch square of waterproofing and flashing sheet.
2. 4-by-4-inch square of drainage panel.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

C. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

B. Mockup/Progress Observation: Build mockup of initial installation for progress observation, to verify selections made under Sample submittals and to set quality standards for installation.

1. Build for each typical waterproofing installation including accessories to demonstrate surface preparation, crack and joint treatments, inside and outside corner treatments, and protection.

    a. Size: 100 sq. ft. in area.
    b. Description: Each type of wall and floor installation.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups will become part of the completed Work.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.

1. Do not apply waterproofing in snow, rain, fog, or mist.

B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.8 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

B. Installer's Special Warranty: Specified form, signed by Installer, covering Work of this Section, for warranty period of two years.

1. Warranty includes removing and reinstalling protection board, drainage panels, and tiles on floors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Waterproofing System: Obtain waterproofing materials, protection course, and molded-sheet drainage panels from single source from single manufacturer.

2.2 MODIFIED BITUMINOUS SHEET WATERPROOFING

A. Modified Bituminous Sheet: Minimum 60-mil nominal thickness, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated on one side to a 4-mil- thick, polyethylene-film reinforcement, and with release liner on adhesive side; formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Carlisle Coatings & Waterproofing Inc.
    b. GCP Applied Technologies Inc. (formerly Grace Construction Products).
    c. Polyguard Products, Inc.
    d. Protecto Wrap Company.
    e. Or approved equal.

2. Physical Properties:

    a. Tensile Strength, Membrane: 250 psi minimum; ASTM D 412, Die C, modified.
    b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.
    c. Low-Temperature Flexibility: Pass at minus 20 deg F; ASTM D 1970/D 1970M.
    d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C 836/C 836M.
    e. Puncture Resistance: 40 lbf minimum; ASTM E 154/E 154M.
    f. Water Absorption: 0.2 percent weight-gain maximum after 48-hour immersion at 70 deg F; ASTM D 570.
    g. Water Vapor Permeance: 0.05 perm maximum; ASTM E 96/E 96M, Water Method.
    h. Hydrostatic-Head Resistance: **200 feet** minimum; ASTM D 5385.

3. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

2.3 AUXILIARY MATERIALS

A. Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.

1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.

B. Primer: Liquid waterborne or solvent-borne primer recommended for substrate by sheetwaterproofing material manufacturer.

C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by sheet-waterproofing material manufacturer.

D. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, of trowel grade or low viscosity.

E. Substrate Patching Membrane: Low-viscosity, two-component, modified asphalt coating.

F. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch, predrilled at 9-inch centers.

G. Protection Course: ASTM D 6506, semirigid sheets of fiberglass or mineral-reinforced-asphaltic core, pressure laminated between two asphalt-saturated fibrous liners and as follows:

1. Thickness: Nominal 1/8 inch.
2. Adhesive: Rubber-based solvent type recommended by waterproofing manufacturer for protection course type.

2.4 MOLDED-SHEET DRAINAGE PANELS

A. Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel with Polymeric Film: Composite subsurface drainage panel acceptable to waterproofing manufacturer and consisting of a studded, nonbiodegradable, molded-plastic-sheet drainage core; with a nonwoven, needlepunched geotextile facing with an apparent opening size not exceeding No. 70 sieve laminated to one side of the core and a polymeric film bonded to the other side; and with a vertical flow rate through the core of 9 to 21 gpm per ft.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Carlisle Coatings & Waterproofing Inc.
b. GCP Applied Technologies Inc. (formerly Grace Construction Products).
c. Polyguard Products, Inc.
d. Or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of waterproofing.

1. Verify that concrete has cured and aged for minimum time period recommended in writing by waterproofing manufacturer.
2. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
3. Verify that compacted subgrade is dry, smooth, sound, and ready to receive waterproofing sheet.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.

B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.

C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.

D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.

E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.

1. Install sheet strips of width according to manufacturer's written instructions and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch.

F. Bridge and cover isolation joints, expansion joints, and discontinuous deck-to-wall and deck-todeck joints with overlapping sheet strips of widths according to manufacturer's written instructions.

1. Invert and loosely lay first sheet strip over center of joint. Firmly adhere second sheet strip to first and overlap to substrate.

G. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.

1. Install membrane strips centered over vertical inside corners. Install 3/4-inch fillets of liquid membrane on horizontal inside corners and as follows:

a. At footing-to-wall intersections, extend liquid membrane in each direction from corner or install membrane strip centered over corner.

H. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM D 6135.

3.3 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION

A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and per recommendations in ASTM D 6135.

B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.

C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch- minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.

1. When ambient and substrate temperatures range between 25 and 40 deg F, install selfadhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F.

D. Two-Ply Application: Install sheets to form a membrane with lap widths not less than 50 percent of sheet widths, to provide a minimum of two thicknesses of sheet membrane over areas to receive waterproofing.

E. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.

F. Seal edges of sheet-waterproofing terminations with mastic.

G. Install sheet-waterproofing and auxiliary materials to tie into adjacent waterproofing.

H. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches beyond repaired areas in all directions.

I. Immediately install protection course with butted joints over waterproofing membrane.

3.4 MOLDED-SHEET DRAINAGE-PANEL INSTALLATION

A. Place and secure molded-sheet drainage panels, with geotextile facing away from wall or deck substrate, according to manufacturer's written instructions. Use adhesive or another method that does not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.

1. For vertical applications, install protection course before installing drainage panels.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests.

B. Manufacturer's Field Service: Engage a site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components; and to furnish daily reports to Architect.

C. Waterproofing will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.6 PROTECTION, REPAIR, AND CLEANING

A. Do not permit foot or vehicular traffic on unprotected membrane.

B. Protect waterproofing from damage and wear during remainder of construction period.

C. Protect installed insulation drainage panels from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

D. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

E. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 07 13 26

SECTION 07 18 00 - ELASTOMERIC DECK COATING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Documents affecting work of this Section include, but are not necessarily limited to, the Agreement, General Conditions, Supplementary Conditions, Sections in Division 1 of these Specifications, and the Drawings.

1.02 SUBMITTALS

A. Comply with pertinent provisions of the project General Conditions.

B. Product Data: Submit the following:

1. Materials list of items proposed to be provided under this Section.

2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

3. Manufacturer's recommended installation procedures which will become the basis for accepting or rejecting actual installation procedures used on the Work.

4. Color charts showing colors and finishes available from the proposed manufacturer in the specified products.

5. Samples of each item, color, pattern and finish available in specified grades from the proposed manufacturers.

1.03 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1. Elastomeric deck coating system applicator shall have experience in the application of waterproofing and deck coating products, including fiberglass and acrylic resin deck coating systems.

2. Submit written approval of manufacturer certifying applicator is acceptable and trained in the application of elastomeric traffic membrane.

1.04 DELIVERY, STORAGE AND HANDLING

A. Comply with pertinent provisions of manufacturer’s recommendations.

B. Deliver materials to job site in sealed, undamaged containers. Each container shall be clearly marked with manufacturer's label showing color, date of manufacture and lot number.

1.05 WARRANTY

A. Provide a warranty to the Owner against material or workmanship failure for a period of two years.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Manufacturers: Excel-Coat Pedestrian Traffic Membrane, by Excellent Coatings, Inc. (Basis of Design), Miracote Miraflex Decking System, by Crossfield Products Corp., or approved equal. For convenience, the products of Excel-Coat are specified.

B. Membrane: Excel-Coat Pedestrian Traffic Membrane, or approved equal.

1. Primer: Excel-Coat Primer No. 107, or approved equal.

2. Fiberglass: 3/4 ounce, random chop, fiberglass mat.

3. Base coat: Excel-Coat #1, or approved equal.

4. Texture Coat: Excel-Coat #200 Excel-Crete K/D and Excel-Crete Tinted Additive, or approved equal.

5. Top Coat: Excel-Coat #300, or approved equal.

C. Leveling Fill (where required): "Excel-Crete", or approved equal

2.02 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the District Representative.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS - CONCRETE

A. General:

1. Concrete surface shall be free of excess roughness, voids, protrusions, loose particles, dust, debris or anything that would impair the adhesion of the Excel-Coat Pedestrian Traffic Membrane System.

2. Concrete surface must be free from curing agents, bondbreakers, hardeners, oils, grease or foreign matter that may affect the adhesion of Excel-Coat Pedestrian Traffic Membrane System.

3. Concrete substrate shall be designed and constructed as to freely drain and eliminate the ponding of water. Slope: 1/8" per foot.

B. Plywood:

1. Verify plywood is flush from panel to panel, with all fasteners screwed flush to plywood surface per manufacturer’s recommendations.

2. Verify plywood is sufficiently dry with a moisture content in compliance with manufacturer’s recommendations.

3. Treat all joints in plywood panels per manufacturer’s recommendations.

3.03 INSTALLATION

A. Coordinate as required with other work to assure proper and adequate provision in other work for interface with the work of this Section.

B. Install the work of this Section in strict accordance with the original design, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures.

C. No coating shall be applied when water is present in any form (i.e. rain or dew) on the surfaces to be coated.

D. Ambient temperatures during application shall be between 55^{o} F and 100^{o} F.

E. All cracks, joints, flashings, etc., shall be filled smooth and flush with surface with acrylic patching compound, or approved equal.

F. Prime surfaces as recommended by manufacturer.

G. Fiberglass mat shall be cut and coved to fit entire deck area, with butt edges (without overlapping).

H. Acrylic resin bond coat shall be applied with roller over the fiberglass mat at the rate of 1 gallon per 50 square feet. Let dry a minimum of two hours before application of next coat, longer if necessary.

I. Acrylic resin texture coat shall be sprayed or rolled at the rate of 1 gallon per 100 square feet. Let dry a minimum of two hours before application of next coat, longer if necessary.

J. Acrylic resin final coat shall be applied at the rate of 1 gallon per 100 square feet. Let dry a minimum of 24 hours before heavy traffic is allowed on deck surfaces.

END OF SECTION

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Urethane joint sealants.
3. Latex joint sealants.
4. Solvent-release-curing joint sealants.
5. Preformed joint sealants.

1.3 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Use ASTM C 1087 and manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Submit not fewer than eight pieces of each kind of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:

    a. Each kind of sealant and joint substrate indicated.

3. Notify Architect seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.

a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.4 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

1. For sealants and sealant primers used inside the weatherproofing system, including printed statement of VOC content.

B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

E. Qualification Data: For qualified Installer and testing agency.

F. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

G. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

I. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.

2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

J. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

K. Field-Adhesion Test Reports: For each sealant application tested.

L. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

E. Preinstallation Conference: Conduct conference at Project site.

1.6 PROJECT CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from natural causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):

1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.

D. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

E. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.

F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

A. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; 790 or NS Parking Structure Sealant.
b. GE Advanced Materials - Silicones; SilPruf LM SCS2700.
c. Pecora Corporation; 890 or 890FTS.
d. Sika Corporation, Construction Products Division; SikaSil-C990.
e. Tremco Incorporated; Spectrem 1 or Spectrem 800.
f. Or approved equal.

B. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF Building Systems; Omniseal 50.
b. Dow Corning Corporation; 791 or 795.
c. GE Advanced Materials - Silicones; SilPruf SCS2000.
d. Pecora Corporation; 895.
e. Polymeric Systems, Inc.; PSI-641.
f. Sika Corporation, Construction Products Division; SikaSil-C995.
g. Tremco Incorporated; Spectrem 2 or Spectrem 3.
h. Or approved equal.

C. Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; 799.
b. GE Advanced Materials - Silicones; UltraGlaze SSG4000.
c. Polymeric Systems, Inc.; PSI-631.
d. Tremco Incorporated; Proglaze SSG or Tremsil 600.
e. Or approved equal.

D. Single-Component, Nonsag, Acid-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; 999-A.
b. GE Advanced Materials - Silicones; Sanitary SCS 1700 .
c. Pecora Corporation; 860.
d. Tremco Incorporated; Proglaze or Tremsil 200.
e. Or approved equal.

E. Single-Component, Nonsag, Traffic-Grade, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use T.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; 790 or NS Parking Structure Sealant.
b. Pecora Corporation; 301 NS or 311 NS.
c. Tremco Incorporated; Spectrem 800.
d. Or approved equal.

F. Single-Component, Pourable, Traffic-Grade, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade P, Class 100/50, for Use T.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; 890-SL.
b. Pecora Corporation; 300 SL or 310 SL.
c. Tremco Incorporated; Spectrem 900 SL..
d. Or approved equal

G. Mildew-Resistant, Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Pecora Corporation; 898.
b. Tremco; Tremsil 600 White
c. Or Approved Equal.

H. Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF Building Systems; Omniplus.
b. Dow Corning Corporation; 786 Mildew Resistant.
c. GE Advanced Materials - Silicones; Sanitary SCS1700.
d. Tremco Incorporated; Tremsil 200 Sanitary.
e. Or approved equal.

2.3 URETHANE JOINT SEALANTS

A. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Sika Corporation, Construction Products Division; Sikaflex - 15LM.
b. Tremco Incorporated; Vulkem 921.
c. Or approved equal.

B. Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF Building Systems; Sonolastic NP1.
b. Pecora Corporation; Dynatrol I-XL.

c. Sika Corporation, Construction Products Division; Sikaflex - 1a.
d. Tremco Incorporated; Dymonic or Vulkem 116.
e. Or approved equal.

C. Single-Component, Nonsag, Traffic-Grade, Urethane Joint Sealant: ASTM C 920. Type S, Grade NS, Class 25, for Use T.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF Building Systems; Sonolastic NP1.
b. Sika Corporation, Construction Products Division; Sikaflex - 1a.
c. Tremco Incorporated; Vulkem 116.
d. Or approved equal.

2.4 LATEX JOINT SEALANTS

A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF Building Systems; Sonolac.
b. Pecora Corporation; AC-20+.
c. Schnee-Morehead, Inc.; SM 8200.
d. Tremco Incorporated; Tremflex 834.
e. Or approved equal.

2.5 SOLVENT-RELEASE-CURING JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealant: ASTM C 1311.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Bostik, Inc.; Chem-Calk 300.
b. Pecora Corporation; BC-158.
c. Tremco Incorporated; Tremco Butyl Sealant. Or approved equal.
d. Or approved equal.

2.6 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Type B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.
    b. Glass.
    c. Porcelain enamel.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
4. Provide flush joint profile where indicated per Figure 8B in ASTM C 1193.
5. Provide recessed joint configuration of recess depth and at locations indicated per Figure 8C in ASTM C 1193.

    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:

   a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
   b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

   a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

3. Inspect tested joints and report on the following:

   a. Whether sealants filled joint cavities and are free of voids.
   b. Whether sealant dimensions and configurations comply with specified requirements.
   c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.

4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.7 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.

1. Joint Locations:
   a. Isolation and contraction joints in cast-in-place concrete slabs.
   b. Joints between different materials listed above.
   c. Other joints as indicated.

2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing or Single component, pourable, traffic grade, neutral curing.
3. Urethane Joint Sealant: Single component, nonsag, traffic grade or Single component, pourable, traffic grade.
4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

   a. Construction joints in cast-in-place concrete.
   b. Perimeter joints between materials listed above and frames of doors, windows and louvers.
   c. Other joints as indicated.

2. Silicone Joint Sealant: Single component, nonsag, neutral curing, Class 100/50 or Single component, nonsag, neutral curing, Class 50.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.

1. Joint Locations:

   a. Isolation joints in cast-in-place concrete slabs.
   b. Other joints as indicated.

2. Silicone Joint Sealant: Single component, nonsag, traffic grade, neutral curing or Single component, pourable, traffic grade, neutral curing.
3. Urethane Joint Sealant: Single component, nonsag, traffic grade or Single component, pourable, traffic grade.
4. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
b. Perimeter joints of exterior openings where indicated.
c. Vertical joints on exposed surfaces of interior walls, and partitions.
d. Perimeter joints between interior wall surfaces and frames of interior doors and windows .
e. Other joints as indicated.

2. Joint Sealant: Latex or Butyl rubber based.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Sealant Location:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Other joints as indicated.

2. Joint Sealant: Mildew resistant, single component, nonsag, neutral curing, Silicone or Single component, nonsag, mildew resistant, acid curing.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

F. Joint-Sealant Application: Interior acoustical joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Location:

a. Acoustical joints where indicated.
b. Other joints as indicated.

2. Joint Sealant: Acoustical.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range.

END OF SECTION 07 92 00

SECTION 09 91 13 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:

1. Galvanized metal.
2. Exterior wood framing (Solid-body stain).

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For paints and coatings, including printed statement of VOC content.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.5 PROJECT CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.6 EXTRA MATERIALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

1.7 DEFINITIONS

A. MPI - Master Painters Institute

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Specified Manufacturers: First quality finishes of Frazee, ICI, and are indicated. Subject to compliance with requirements and review and approval from architect, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers (Solid-Body Stain):

1. Dunn-Edwards Corporation
2. Frazee
3. ICI
4. Sherwin Williams
5. Or approved equal.

C. Manufacturer for primer and paint at exposed steel and metal fabrications:

1. Rustop 6000 by Performance Polymers Inc., distributed by FCS Coatings, or approved equal.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

B. Colors: as selected by Architect from manufacturer's full range.

2.3 WOOD FILLERS

A. Wood Filler Paste: MPI #91.

2.4 WOOD PRIMERS AND SEALERS

A. Primer, Latex for Exterior Wood: MPI #6.

2.5 METAL PRIMERS

A. Galvanized Primer at Exposed Structural Steel and Metal Fabrications.

1. Rustop 6000 by Performance Polymers Inc., distributed by FCS Coatings, or approved equal.

2.6 EXTERIOR SOLID BODY STAIN

A. Stain, Exterior, Water Based, Solid Hide: MPI #16.

2.7 EXTERIOR GALVANIZED STEEL FABRICATIONS

A. Rustop 6000 by Performance Polymers Inc., distributed by FCS Coatings, or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.

E. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. For exposed structural steel and metal fabrications, including guardrails and handrails, install primer coat of Rustop 6000 by Performance Polymers Inc., or approved equal, with an additional top coat of the same product.

3.4 FIELD QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:

1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance of paint materials with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINTING SCHEDULE

A. Galvanized Steel Fabrications (Guardrail supports and miscellaneous fabrications)

1. Primer Coat: Rustop 6000 by Performance Polymers Inc., or approved equal.
2. Top Coat: Rustop 6000 by Performance Polymers Inc., or approved equal.

B. Solid-Color Latex Stain System (Exterior Wood Facias and Wood Trim):
1. Prime Coat: Primer, latex for exterior wood, MPI #6.
2. Intermediate Coat: Stain, exterior, water based, solid hide, matching topcoat.
3. Topcoat: Stain, exterior, water based, solid hide, MPI #16

END OF SECTION 09 91 13

SECTION 260010 - SUPPLEMENTAL REQUIREMENTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Supplemental requirements applicable to Work specified in Division 26.

1.2 REFERENCES

A. Abbreviations and Acronyms for Electrical Terms and Units of Measure:

1. A: Ampere, unit of electrical current.
2. AC or ac: Alternating current.
3. AFCI: Arc-fault circuit interrupter.
4. AIC: Ampere interrupting capacity.
5. AWG: American wire gauge; see ASTM B258.
6. BAS: Building automation system.
7. BIM: Building information modeling.
8. CAD: Computer-aided design or drafting.
9. CB: Circuit breaker.
10. CU or Cu: Copper.
11. dB: Decibel, a unitless logarithmic ratio of two electrical, acoustical, or optical power values.
12. dB(A-weighted) or dB(A): Decibel acoustical sound pressure level with A-weighting applied in accordance with IEC 61672-1.
13. dB(adjusted) or dBa: Decibel weighted absolute noise power with respect to 3.16 pW (minus 85 dBm).
14. dBm: Decibel absolute power with respect to 1 mW.
15. DC or dc: Direct current.
16. EMF: Electromotive force.
17. EMI: Electromagnetic interference.
18. EPM: Electrical preventive maintenance.
19. EPS: Emergency power supply.
20. EPSS: Emergency power supply system.
21. ESS: Energy storage system.
22. EVPE: Electric vehicle power export equipment.
23. EVSE: Electric vehicle supply equipment.
24. fc: Footcandle, a unit of illuminance equal to one lumen per square foot.
25. FLC: Full-load current.
26. ft: Foot.
27. GEC: Grounding electrode conductor.
28. GFCI: Ground-fault circuit interrupter.
29. GFPE: Ground-fault protection of equipment.
30. GND: Ground.
31. HP or hp: Horsepower.

32. HVAC: Heating, ventilating, and air conditioning.
33. Hz: Hertz.
34. IBT: Intersystem bonding termination.
35. inch: Inch. To avoid confusion, the abbreviation "in." is not used.
36. IR: Infrared.
37. IS: Intrinsically safe.
38. IT&R: Inspecting, testing, and repair.
39. ITE: Information technology equipment.
40. kAIC: Kiloampere interrupting capacity.
41. kcmil or MCM: One thousand circular mils.
42. kV: Kilovolt.
43. kVA: Kilovolt-ampere.
44. kVAr or kVAR: Kilovolt-ampere reactive.
45. kW: Kilowatt.
46. kWh: Kilowatt-hour.
47. LAN: Local area network.
48. lb: Pound (weight).
49. LED: Light-emitting diode.
50. LRC: Locked-rotor current.
51. MCC: Motor-control center.
52. MDC: Modular data center.
53. MLO: Main lugs only.
54. MVA: Megavolt-ampere.
55. mW: Milliwatt.
56. MW: Megawatt.
57. MWh: Megawatt-hour.
58. NC: Normally closed.
59. NO: Normally open.
60.
61. OCPD: Overcurrent protective device.
62. PC: Personal computer.
63. PCS: Power conversion system.
64. PCU: Power-conditioning unit.
65. PF or pf: Power factor.
66. PLC: Programmable logic controller.
67. PLFA: Power-limited fire alarm.
68. PoE: Power over Ethernet.
69. PV: Photovoltaic.
70. RFI: Radio-frequency interference (electrical); Request for interpretation (contract).
71. RMS or rms: Root-mean-square.
72. RPM or rpm: Revolutions per minute.
73. SPD: Surge protective device.
74. sq.: Square.
75. SWD: Switching duty.
76. TR: Tamper resistant.
77. UL: Underwriters Laboratories, Inc. (standards) or UL LLC (services).
78. UL CCN: UL Category Control Number.
79. UPS: Uninterruptible power supply.
80. UV: Ultraviolet.
81. V: Volt, unit of electromotive force.
82. V(ac): Volt, alternating current.

83. V(dc): Volt, direct current.
84. VA: Volt-ampere, unit of complex electrical power.
85. VAr: Volt-ampere reactive, unit of reactive electrical power.
86. VFC: Variable-frequency controller.
87. VOM: Volt-ohm-multimeter.
88. VPN: Virtual private network.
89. VRLA: Valve-regulated lead acid.
90. W: Watt, unit of real electrical power.
91. Wh: Watt-hour, unit of electrical energy usage.
92. WPT: Wireless power transfer.
93. WPTE: Wireless power transfer equipment.
94. WR: Weather resistant.

B. Abbreviations and Acronyms for Electrical Raceway Types:

1. EMT: Electrical metallic tubing.
2. EMT-A: Aluminum electrical metallic tubing.
3. EMT-S: Steel electrical metallic tubing.
4. EMT-SS: Stainless steel electrical metallic tubing.
5. ENT: Electrical nonmetallic tubing.
6. EPEC: Electrical HDPE underground conduit.
7. EPEC-40: Schedule 40 electrical HDPE underground conduit.
8. EPEC-80: Schedule 80 electrical HDPE underground conduit.
9. EPEC-A: Type A electrical HDPE underground conduit.
10. EPEC-B: Type B electrical HDPE underground conduit.
11. ERMC: Electrical rigid metal conduit.
12. ERMC-A: Aluminum electrical rigid metal conduit.
13. ERMC-S: Steel electrical rigid metal conduit.
14. ERMC-S-G: Galvanized-steel electrical rigid metal conduit.
15. ERMC-S-PVC: PVC-coated-steel electrical rigid metal conduit.
16. ERMC-SS: Stainless steel electrical rigid metal conduit.
17. FMC: Flexible metal conduit.
18. FMC-A: Aluminum flexible metal conduit.
19. FMC-S: Steel flexible metal conduit.
20. FMT: Steel flexible metallic tubing.
21. FNMC: Flexible nonmetallic conduit. See LFNC.
22. HDPE: See EPEC.
23. IMC: Steel electrical intermediate metal conduit.
24. LFMC: Liquidtight flexible metal conduit.
25. LFMC-A: Aluminum liquidtight flexible metal conduit.
26. LFMC-S: Steel liquidtight flexible metal conduit.
27. LFMC-SS: Stainless steel liquidtight flexible metal conduit.
28. LFNC: Liquidtight flexible nonmetallic conduit.
29. LFNC-A: Layered (Type A) liquidtight flexible nonmetallic conduit.
30. LFNC-B: Integral (Type B) liquidtight flexible nonmetallic conduit.
31. LFNC-C: Corrugated (Type C) liquidtight flexible nonmetallic conduit.
32. PVC: Rigid PVC conduit.
33. PVC-40: Schedule 40 rigid PVC conduit.
34. PVC-80: Schedule 80 rigid PVC Conduit.
35. PVC-A: Type A rigid PVC concrete-encased conduit.
36. PVC-EB: Type EB rigid PVC concrete-encased underground conduit.

37. RGS: See ERMC-S-G.
38. RMC: See ERMC.
39. RTRC: Reinforced thermosetting resin conduit.
40. RTRC-AG: Low-halogen, aboveground reinforced thermosetting resin conduit.
41. RTRC-AG-HW: Heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
42. RTRC-AG-SW: Standard wall, low-halogen, aboveground reinforced thermosetting resin conduit.
43. RTRC-AG-XW: Extra heavy wall, low-halogen, aboveground reinforced thermosetting resin conduit.
44. RTRC-BG: Low-halogen, belowground reinforced thermosetting resin conduit.

C. Abbreviations and Acronyms for Electrical Cable Types:

1. AC: Armored cable.
2. CATV: Coaxial general-purpose cable.
3. CATVP: Coaxial plenum cable.
4. CATVR: Coaxial riser cable.
5. CI: Circuit integrity cable.
6. CL2: Class 2 cable.
7. CL2P: Class 2 plenum cable.
8. CL2R: Class 2 riser cable.
9. CL2X: Class 2 cable, limited use.
10. CL3: Class 3 cable.
11. CL3P: Class 3 plenum cable.
12. CL3R: Class 3 riser cable.
13. CL3X: Class 3 cable, limited use.
14. CM: Communications general-purpose cable.
15. CMG: Communications general-purpose cable.
16. CMP: Communications plenum cable.
17. CMR: Communications riser cable.
18. CMUC: Under-carpet communications wire and cable.
19. CMX: Communications cable, limited use.
20. DG: Distributed generation cable.
21. FC: Flat cable.
22. FCC: Flat conductor cable.
23. FPL: Power-limited fire-alarm cable.
24. FPLP: Power-limited fire-alarm plenum cable.
25. FPLR: Power-limited fire-alarm riser cable.
26. IGS: Integrated gas spacer cable.
27. ITC: Instrumentation tray cable.
28. ITC-ER: Instrumentation tray cable, exposed run.
29. MC: Metal-clad cable.
30. MC-HL: Metal-clad cable, hazardous location.
31. MI: Mineral-insulated, metal-sheathed cable.
32. MTW: Moisture-, heat-, and oil-resistant thermoplastic cable (machine tool wiring).
33. MV: Medium-voltage cable.
34. NM: Nonmetallic sheathed cable.
35. NMC: Nonmetallic sheathed cable with corrosion-resistant nonmetallic jacket.
36. NMS: Nonmetallic sheathed cable with signaling, data, and communications conductors, plus power or control conductors.

37. NPLF: Non-power-limited fire-alarm circuit cable.
38. NPLFP: Non-power-limited fire-alarm circuit cable for environmental air spaces.
39. NPLFR: Non-power-limited fire-alarm circuit riser cable.
40. NUCC: Nonmetallic underground conduit with conductors.
41. OFC: Conductive optical fiber general-purpose cable.
42. OFCG: Conductive optical fiber general-purpose cable.
43. OFCP: Conductive optical fiber plenum cable.
44. OFCR: Conductive optical fiber riser cable.
45. OFN: Nonconductive optical fiber general-purpose cable.
46. OFNG: Nonconductive optical fiber general-purpose cable.
47. OFNP: Nonconductive optical fiber plenum cable.
48. OFNR: Nonconductive optical fiber riser cable.
49. P: Marine shipboard cable.
50. PLTC: Power-limited tray cable.
51. PLTC-ER: Power-limited tray cable, exposed run.
52. PV: Photovoltaic cable.
53. RHH: Thermoset rubber, heat-resistant cable (high heat).
54. RHW: Thermoset rubber, moisture-resistant cable.
55. SA: Silicone rubber cable.
56. SE: Service-entrance cable.
57. SER: Service-entrance cable, round.
58. SEU: Service-entrance cable, flat.
59. SIS: Thermoset cable for switchboard and switchgear wiring.
60. TBS: Thermoplastic cable with outer braid.
61. TC: Tray cable.
62. TC-ER: Tray cable, exposed run.
63. TC-ER-HL: Tray cable, exposed run, hazardous location.
64. THW: Thermoplastic, heat- and moisture-resistant cable.
65. THHN: Thermoplastic, heat-resistant cable with nylon jacket outer sheath.
66. THHW: Thermoplastic, heat- and moisture-resistant cable.
67. THWN: Thermoplastic, moisture- and heat-resistant cable with nylon jacket outer sheath.
68. TW: Thermoplastic, moisture-resistant cable.
69. UF: Underground feeder and branch-circuit cable.
70. USE: Underground service-entrance cable.
71. XHH: Cross-linked polyethylene, heat-resistant cable.
72. XHHW: Cross-linked polyethylene, heat- and moisture-resistant cable.

D. Definitions:

1. Basic Impulse Insulation Level: Reference insulation level expressed in impulse crest voltage with a standard wave not longer than 1.5 times 50 microseconds and 1.5 times 40 microseconds.
2. Communications Jack: A fixed connecting device designed for insertion of a communications cable plug.
3. Communications Outlet: One or more communications jacks, or cables and plugs, mounted in a box or ring, with a suitable protective cover.
4. Direct Buried: Installed underground without encasement in concrete or other protective material.
5. Enclosure: The case or housing of an apparatus, or the fence or wall(s) surrounding an installation, to prevent personnel from accidentally contacting energized parts or to

protect the equipment from physical damage. Types of enclosures and enclosure covers include the following:

a. Cabinet: An enclosure that is designed for either surface mounting or flush mounting and is provided with a frame, mat, or trim in which a swinging door or doors are or can be hung.
b. Concrete Box: A box intended for use in poured concrete.
c. Conduit Body: A means for providing access to the interior of a conduit or tubing system through one or more removable covers at a junction or terminal point. In the United States, conduit bodies are listed in accordance with outlet box requirements.
d. Conduit Box: A box having threaded openings or knockouts for conduit, EMT, or fittings.
e. Cutout Box: An enclosure designed for surface mounting that has swinging doors or covers secured directly to and telescoping with the walls of the enclosure.
f. Device Box: A box with provisions for mounting a wiring device directly to the box.
g. Extension Ring: A ring intended to extend the sides of an outlet box or device box to increase the box depth, volume, or both.
h. Junction Box: A box with a blank cover that joins different runs of raceway or cable and provides space for connection and branching of the enclosed conductors.
i. Outlet Box: A box that provides access to a wiring system having pryout openings, knockouts, threaded entries, or hubs in either the sides or the back, or both, for the entrance of conduit, conduit or cable fittings, or cables, with provisions for mounting an outlet box cover, but without provisions for mounting a wiring device directly to the box.
j. Pull Box: A box with a blank cover that joins different runs of raceway and provides access for pulling or replacing the enclosed cables or conductors.
k. Ring: A sleeve, which is not necessarily round, used for positioning a recessed wiring device flush with the plaster, concrete, drywall, or other wall surface.
l. Ring Cover: A box cover, with raised center portion to accommodate a specific wall or ceiling thickness, for mounting wiring devices or luminaires flush with the surface.
m. Termination Box: An enclosure designed for installation of termination base assemblies consisting of bus bars, terminal strips, or terminal blocks with provision for wire connectors to accommodate incoming or outgoing conductors, or both.

6. Jacket: A continuous nonmetallic outer covering for conductors or cables.
7. Luminaire: A complete lighting unit consisting of a light source such as a lamp, together with the parts designed to position the light source and connect it to the power supply. It may also include parts to protect the light source or the ballast or to distribute the light.
8. Mode: The terms "Active Mode," "Off Mode," and "Standby Mode" are used as defined in the Energy Independence and Security Act (EISA) of 2007.
9. Multi-Outlet Assembly: A type of surface, flush, or freestanding raceway designed to hold conductors, receptacles, and switches, assembled in the field or at the factory.
10. Plenum: A compartment or chamber to which one or more air ducts are connected and that forms part of the air distribution system.
11. Receptacle: A fixed connecting device arranged for insertion of a power cord plug. Also called a power jack.
12. Receptacle Outlet: One or more receptacles mounted in a box with a suitable protective cover.

13. Sheath: A continuous metallic covering for conductors or cables.
14. UL Category Control Number: An alphabetic or alphanumeric code used to identify product categories covered by UL's Listing, Classification, and Recognition Services.
15. Voltage Class: For specified circuits and equipment, voltage classes are defined as follows:

    a. Control Voltage: Having electromotive force between any two conductors, or between a single conductor and ground, that is supplied from a battery or other Class 2 or Class 3 power-limited source.
    b. Line Voltage: (1) (controls) Designed to operate using the supplied low-voltage power without transformation. (2) (transmission lines, transformers, SPDs) The line-to-line voltage of the supplying power system.
    c. Extra-Low Voltage: Not having electromotive force between any two conductors, or between a single conductor and ground, exceeding 30 V(ac rms), 42 V(ac peak), or 60 V(dc).
    d. Low Voltage: Having electromotive force between any two conductors, or between a single conductor and ground, that is rated above 30 V but not exceeding 1000 V.
    e. Medium Voltage: Having electromotive force between any two conductors, or between a single conductor and ground, that is rated about 1 kV but not exceeding 69 kV.
    f. High Voltage: (1) (circuits) Having electromotive force between any two conductors, or between a single conductor and ground, that is rated above 69 kV but not exceeding 230 kV. (2) (safety) Having sufficient electromotive force to inflict bodily harm or injury.

1.3 COORDINATION

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions:

1. Notify Owner no fewer than seven days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Owner's written permission.
3. Coordinate interruption with systems impacted by outage including, but not limited to, the following:

    a. Exercising generators.
    b. Emergency lighting.
    c. Elevators.
    d. Fire-alarm systems.

B. Arrange to provide temporary electrical power in accordance with requirements specified in Division 01.

1.4 PREINSTALLATION MEETINGS

A. Electrical Preconstruction Conference: Schedule conference with Architect and Owner, not later than 10 days after notice to proceed. Agenda topics include, but are not limited to, the following:

1. Electrical installation schedule.
2. Status of power system studies.

3. Value analysis proposals and requests for substitution of electrical equipment.
4. Utility work coordination and class of service requests.
5. Commissioning activities.

1.5 SEQUENCING

A. Conduct and submit results of power system studies before submitting Product Data and Shop Drawings for electrical equipment.

1.6 ACTION SUBMITTALS

A. Coordination Drawings for Structural Supports: Show coordination of structural supports for equipment and devices, including restraints and bracing for control of seismic and wind loads, with other systems, equipment, and structural supports in the vicinity.

B. Coordination Drawings for Conduit Routing: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:

1. Structural members in paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

C. Coordination Drawings for Large Equipment Outdoor Installations:

1. Utilities site plan, drawn to scale, showing heavy equipment or truck access paths for maintenance and replacement, with the following items shown and coordinated with each other, based on input from installers of the items involved:

a. Fences and walls, dimensioned concrete bases, outlines of equipment, conduit entries, and grounding and bonding locations.
b. Indicate clear dimensions for fence gates and wall openings.
c. Indicate depth and type of ground cover, and locations of trees, shrubbery, and other obstructions in access path.
d. Indicate clear height below tree branches, overhead lines, bridges, and other overhead obstructions in access path, or where cranes and hoists will be needed to handle large electrical equipment.
e. Support locations, type of support, and weight on each support. Locate structural supports for structure-supported raceways, busways, and seismic bracing.

f. Dimensioned working clearances and dedicated areas around electrical equipment.

D. Coordination Drawings for Duct Banks: Signed and sealed by qualified professional engineer.

1. Show duct profiles and coordination with other utilities and underground structures.
2. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.

1.7 INFORMATIONAL SUBMITTALS

A. Electrical Installation Schedule: At preconstruction meeting, and periodically thereafter as dates change, provide schedule for electrical installation Work to Owner and Architect including, but not limited to, milestone dates for the following activities:

1. Submission of power system studies.
2. Submission of specified coordination drawings.
3. Submission of action submittals specified in Division 26.
4. Orders placed for major electrical equipment.
5. Arrival of major electrical equipment on-site.
6. Preinstallation meetings specified in Division 26.
7. Utility service outages.
8. Utility service inspection and activation.
9. Mockup reviews.
10. Closing of walls and ceilings containing electrical Work.
11. System startup, testing, and commissioning activities for major electrical equipment.
12. System startup, testing, and commissioning activities for emergency lighting.
13. System startup, testing, and commissioning activities for automation systems (SCADA, BMS, lighting, HVAC, fire alarm, fire pump, etc.).
14. Pouring of concrete housekeeping pads for electrical equipment and testing of concrete samples.
15. Requests for special inspections.
16. Requests for inspections by authorities having jurisdiction.

B. Delegated Design Drawings for Structural Masonry Wall Penetrations: Where indicated on Drawings, provide reflected ceiling plan(s), supplemented by elevations, sections, and other details, drawn to scale, signed and sealed by a qualified structural professional engineer, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Location and dimensions of structural members supporting wall.
2. Location and dimensions of columns near penetrations.
3. Location and dimension of headers and lintels.
4. Doors and windows near penetrations.
5. Location and dimensions of penetrating cuts.
6. Sprinkler piping and sleeves.
7. Plumbing piping and sleeves.
8. Ductwork and sleeves.
9. Cable tray and sleeves.
10. Conduit and sleeves.
11. Firestopping assemblies for rated penetrations.

12. Structural supports for piping, ductwork, and conduit on both sides of wall.

C. Certificates:

1. Welding certificates.
2. Seismic-Load Performance Certificates: Provide special certification for designated seismic systems as indicated in ASCE/SEI 7-05, ASCE/SEI 7-10, ASCE/SEI 7-16, Paragraph 13.2.2, "Special Certification Requirements for Designated Seismic Systems" for all Designated Seismic Systems identified on Drawings or in the Specifications.

    a. The following systems and components are Designated Seismic Systems and require written special certification of seismic qualification by manufacturer:

        1) Hangers and supports
        2) Raceways, enclosures, cabinets, boxes, and their mounting provisions
        3) Luminaires, accessories, and components

    b. Include the following information:

        1) Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
        2) Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
        3) Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
        4) Detailed description of conduit support devices and interconnections on which the certification is based and their installation requirements.
        5) Provide equipment manufacturer's written certification for each designated active electrical seismic device and system, stating that it will remain operable following the design earthquake. Certification must be based on requirements of ASCE/SEI 7, including shake table testing per ICC-ES AC156 or a similar nationally recognized testing standard procedure acceptable to authorities having jurisdiction.
        6) Provide equipment manufacturer's written certification that components with hazardous contents maintain containment following the design earthquake by methods required in ASCE/SEI 7-05
        7) Submit evidence demonstrating compliance with these requirements for approval to authorities having jurisdiction after review and acceptance by qualified structural professional engineer.

D. Qualification Statements:

1. For qualified regional manufacturer.
2. For structural professional engineer.
3. For electrical professional engineer.
4. For lighting professional engineer.
5. For EPM specialist.
6. For welder.
7. For ERMC-S-PVC raceway Installer.
8. For medium-voltage cable Installer.
9. For medium-voltage duct Installer.

10. For medium-voltage equipment Installer.
11. For electrical power monitoring Installer.
12. For switchboard Installer.
13. For EVSE Installer.
14. For generator set Installer.
15. For lightning protection system Installer.
16. For theatrical lighting Installer.
17. For exterior athletic lighting Installer.
18. For power quality specialist.
19. For low-voltage electrical testing agency and on-site electrical testing supervisor.
20. For control-voltage electrical testing agency and on-site control-voltage testing supervisor.
21. For structural testing and inspecting agency.
22. For outdoor pole testing and inspecting agency.
23. For luminaire photometric testing laboratory.
24. For lighting testing and inspecting agency.

1.8 CLOSEOUT SUBMITTALS

A. Facility EPM Program Binders:

1. Complete Set: On approved online or cloud solution

B. Operation and Maintenance Data:

1. Include the following information:

a. Manufacturer's operating specifications.
b. User's guides for software and hardware.
c. Schedule of maintenance material items recommended to be stored at Project site.
d. Detailed instructions covering operation under both normal and abnormal conditions.
e. Time-current curves for overcurrent protective devices and manufacturer's written instructions for testing and adjusting their settings.
f. List of lamp types and photoelectric relays used on Project, with ANSI and manufacturers' codes.
g. Manufacturer's instructions for setting field-adjustable components.
h. Manufacturer's instructions for testing, adjusting, and reprogramming microprocessor controls.
i. Exterior pole inspection and repair procedures.

C. Software and Firmware Operational Documentation: Provide software and firmware operational documentation, including the following:
1. Names, versions, and website addresses for locations of installed software.
2. Device address list.
3. Testing and adjusting of panic and emergency power features.
4. For lighting controls include the following:

a. Adjustments of scene preset controls, adjustable fade rates, and fade overrides.
b. Operation of adjustable zone controls.

1.9 QUALIFICATIONS

A. Qualified Regional Manufacturer: Manufacturer, possessing qualifications specified in Section 014000 "Quality Requirements," that maintains a service center capable of providing training, parts, and emergency on-site repairs to Project site with response time less than eight hours .

B. Structural Professional Engineer: Professional engineer possessing active qualifications specified in Section 014000 "Quality Requirements," with expertise in structural engineering.

C. Electrical Professional Engineer: Professional engineer possessing active qualifications specified in Section 014000 "Quality Requirements," with expertise in electrical engineering, including electrical power system modeling and analysis of electrical safety in accordance with NFPA 70E.

D. Lighting Professional Engineer: Professional engineer possessing active qualifications in accordance with Section 014000 "Quality Requirements" and the following:

1. Expertise in electrical engineering, lighting design, and structural requirements for exterior poles and standards.
2. Lighting Certified (LC) Professional by the National Council on Qualifications for the Lighting Professions (NCQLP).

E. EPM Specialist: Recognized experts possessing the following qualifications in accordance with Section 014000 "Quality Requirements" and NFPA 70B:

1. Technical Competence: Person should, by education, training, and experience, be well-rounded in all aspects of electrical maintenance.
2. Administrative and Supervisory Skills: Person should be skilled in planning and development of long-range objectives to achieve specific results and should be able to command respect and solicit cooperation of persons involved in EPM Program development.

F. Welder: Installer possessing active qualifications specified in Section 014000 "Quality Requirements," with training and certification in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M.

G. ERMC-S-PVC Installers: Installer possessing active qualifications specified in Section 014000 "Quality Requirements," and able to present unexpired certified Installer credentials issued by ERMC-S-PVC manufacturer prior to starting installation.

H. Electrical Power Monitoring Installers: Installer possessing active qualifications specified in Section 014000 "Quality Requirements," and able to present unexpired certified Installer credentials issued by manufacturer prior to starting installation.

I. Low-Voltage Electrical Testing and Inspecting Agency: Entities possessing active credentials from a qualified electrical testing laboratory recognized by authorities having jurisdiction.

1. On-site electrical testing supervisors must have documented certification and experience with testing electrical equipment in accordance with NETA testing standards.

J. Outdoor Pole Testing and Inspecting Agency: Entity possessing active qualifications specified in Section 014000 "Quality Requirements" with documented training and experience in accordance with ASTM C1093 for foundation testing and inspections.

K. Luminaire Photometric Testing Laboratory: Entity possessing active qualifications specified in Section 014000 "Quality Requirements" accredited under the NVLAP for Energy Efficient Lighting Products, and complying with applicable IES testing standards.

L. Lighting Testing and Inspecting Agency: Entity possessing active qualifications specified in Section 014000 "Quality Requirements" with documented training and experience with testing and inspecting lighting installations in accordance with IES LM-5.

PART 2 - PRODUCTS

2.1 SUBSTITUTION LIMITATIONS FOR ELECTRICAL EQUIPMENT

A. Substitution requests for electrical equipment will be entertained under the following conditions:

1. Substitution requests may be submitted for consideration prior to the Electrical Preconstruction Conference if accompanied by value analysis data indicating that substitution will comply with Project performance requirements while significantly increasing value for Owner throughout life of facility.
2. Substitution requests may be submitted for consideration concurrently with submission of power system study reports when those reports indicate that substitution is necessary for safety of maintenance personnel and facility occupants.
3. Contractor is responsible for sequencing and scheduling power system studies and electrical equipment procurement. After the Electrical Preconstruction Conference, insufficient lead time for electrical equipment delivery will not be considered a valid reason for substitution.

2.2 FACILITY ELECTRICAL PREVENTIVE MAINTENANCE (EPM) PROGRAM BINDERS

A. Description: Set of binders containing operation and maintenance data for facility's electrical equipment that was compiled during analysis of installed electrical Work for Facility EPM Program development.

B. Applicable Standards:

1. Regulatory Requirements: Comply with recommendations in NFPA 70B.
2. General Characteristics:

a. Volume 1 - Introduction:

1) Summarize how Facility EPM Program Analysis was performed, how data were collected, and how volumes are organized.
2) Describe Facility EPM Program and provide recommended policies and procedures for implementing the program and keeping it current.
3) Provide place for Owner to identify contact information for employees responsible for implementing and maintaining Facility EPM Program.

b. Volume 4 - Facility Diagrams and Schedules:

1) Include single-line diagrams.
2) Include grounding and bonding diagrams.
3) Include essential wiring diagrams.
4) Include system automation diagrams (SCADA, BMS, lighting, HVAC, etc.).
5) Include records of switchgear, switchboard, and panelboard schedules.
6) Include time-current curves for overcurrent protective devices.
7) Include list of load-current and overload-relay heaters with related motor nameplate data.

c. Volume 5 - Inventory of Facility Equipment Using Electrical Power:

1) Include simplified floor plans showing equipment locations.
2) Identify critical equipment (electrical or otherwise).
3) Include identifying designations and nameplate data.
4) Include warranty and maintenance contract information.

d. Volume 6 - Inventory of Facility Tools, Supplies, and Personnel Protective Equipment:

1) Include schedules of maintenance material items recommended to be stored at facility.
2) Include list of lamp types and photoelectric relays used in facility with ANSI and manufacturers' codes.
3) Include calibration and servicing data for each item.

e. Volume 7 - Inspection, Testing, and Repair (IT&R) Plan:

1) Include tables showing frequency of activities for each item.
2) Include annual schedule with activities mapped to specific days of the year.
3) Include exterior pole inspection and repair procedures.

f. Volume 10 - Spare Parts List:

1) Include list of all parts required to perform IT&R procedures.
2) Identify quantities of which parts are recommended to be stored on-site.
3) Include source contact information and budget cost for each item.

g. Volume 11 - Construction Project Closeout Record Documentation:

1) Include records of power system studies and photometric studies.
2) Include records of risk assessment studies.
3) Include records of electrical system startup and commissioning activities.

4) Include records of baseline inspections and tests.
5) Include records of baseline infrared photographs with normal light photographs showing the location, direction, angle, and conditions necessary for reproducing each infrared photograph.
6) Include records of baseline settings for adjustable equipment and devices.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Contractor shall verify lines, levels and dimensions indicated on the Drawings and shall be responsible for the accuracy of the setting out of Work and for its strict conformance with existing conditions at the Project site.

2. Verify final locations for rough-ins with field measurements and with the requirements for the actual equipment to be connected.

B. Preinstallation Testing:

1. Preparation, sequencing, handling and installation shall be in accordance with Manufacturer's written instructions and technical data particular to the product specified and/or accepted equal except as otherwise specified. Comply with the following requirements:

a) Shop Drawings prepared by Manufacturer.

b) Verify all dimensions by field measurements.

C. Evaluation and Assessment:

1. Where mounting height is not detailed or dimensioned, contact the Architect for direction prior to proceeding with rough-in.

2. Install systems, materials and equipment to conform with approved submittal data, including coordination Drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are indicated only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.

3. Install systems, materials and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.

4. Install electrical equipment to facilitate servicing, maintenance and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

5. Coordinate electrical systems, equipment and materials installations with other building components.

3.2 PREPARATION

A. Protection of In-Place Conditions:

1. Structural members shall in no case be drilled, bored or notched in such a manner that will impair their structural value. Cutting of holes, if required, shall be done with core drill and only with the approval of the Architect and Structural Engineer.

2. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

3.3 DEVELOPMENT OF FACILITY EPM PROGRAM

A. Facility EPM Program must be developed by qualified EPM specialist.

B. Conduct Facility EPM Program analysis in accordance with NFPA 70B recommendations and documented similar to project's new equipment data as much as possible.

C. Compile operation and maintenance data from Facility EPM Program analysis and submit Facility EPM Program Binders.

3.4 INSTALLATION OF ELECTRICAL WORK

A. Unless more stringent requirements are specified in the Contract Documents or manufacturers' written instructions, comply with NFPA 70 and NECA NEIS 1 for installation of Work specified in Division 26. Consult Architect for resolution of conflicting requirements.

3.5 FIELD QUALITY CONTROL

A. Administrant for Low-Voltage Electrical Tests and Inspections:
1. Administer and perform tests and inspections.

B. Administrant for Field Tests and Inspections of Lighting Installations:
1. Administer and perform tests and inspections.

3.6 CLEANING

A. Waste Management:

1. Prior to energizing of electrical equipment, the Contractor shall thoroughly clean the interior of enclosures from construction debris, scrap wire, etc. using Manufacturer's approved methods and materials.

2. Upon completion of Project, prior to final acceptance, the Contractor shall thoroughly clean both the interior and exterior of all electrical equipment per Manufacturers approved methods and materials. Remove paint splatters and other spots, dirt and debris.

3. Touch-up paint any marks, blemishes or other finish damage suffered during installation.

3.7 CLOSEOUT ACTIVITIES

A. Demonstration:

1. Demonstrate to Owner's maintenance and clerical personnel how to operate the following systems and equipment:

   a. Lighting control devices specified in Section 260923 "Lighting Control Devices."

2. Allow Owner to record demonstrations.

B. Training:

1. Train Owner's maintenance personnel on the following topics:

   a. How to implement facility EPM Program.
   b. How to adjust, operate, and maintain devices specified in Section 260923 "Lighting Control Devices."
   c. How to adjust, operate, and maintain switchboards, overcurrent protective devices, instrumentation, and accessories
   d. How to adjust, operate, and maintain control modules

2. Provide video recordings of training sessions to Owner.

END OF SECTION 260010

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Building wires and cables rated 600 V and less.
   2. Connectors, splices, and terminations rated 600 V and less.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.
   1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Alcan Products Corporation; Alcan Cable Division.
   2. Alpha Wire.
   3. Belden Inc.
   4. Encore Wire Corporation.
   5. Southwire Incorporated.
   6. Or approved equal

B. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.

C. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type THW-2 Type THHN-THWN Type XHHW-2Type USE and Type SO.

D. Multi-conductor Cable: Comply with NEMA WC 70/ICEA S-95-658 for armored cable, Type AC metal-clad cable, Type MC Type SO and Type USE with ground wire.

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. AFC Cable Systems, Inc.
2. Gardner Bender.
3. Hubbell Power Systems, Inc.
4. Ideal Industries, Inc.
5. Ilsco; a branch of Bardes Corporation.
6. NSi Industries LLC.
7. O-Z/Gedney; a brand of the EGS Electrical Group.
8. 3M; Electrical Markets Division.
9. Tyco Electronics.
10. Or approved equal

B. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.3 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

B. Comply with CEC.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

B. Branch Circuits: Copper. Solid for No. 12 AWG and smaller; stranded for No. 10 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Service Entrance: Type XHHW-2, single conductors in raceway.

B. Exposed Feeders and Branch Circuits: Type THHN-THWN, single conductors in raceway.

C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspaces: Type THHN-THWN, single conductors in raceway**.**

D. Feeders and Branch Circuits Concealed in below grade concrete walls, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.

E. Feeder and Branch Circuits exposed above roofing: XHHW-2.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

3.4 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
   1. Use oxide inhibitor in each splice, termination, and tap for aluminum conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

3.5 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.6 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.7 PENETRATIONS

A. Penetrate fire barriers, smoke barriers, vapor barriers, roofing materials and other rated architectural elements in a manner that preserves the rating of the architectural element.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
   1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
   2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

D. Test and Inspection Reports: Prepare a written report to record the following:
   1. Procedures used.
   2. Results that comply with requirements.
   3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

E. Cables will be considered defective if they do not pass tests and inspections.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: Grounding systems and equipment.

B. Section includes grounding systems and equipment, plus the following special applications:
   1. Underground distribution grounding.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

1.4 INFORMATIONAL SUBMITTALS

A. Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:
   1. Test wells.
   2. Ground rods.
   3. Ground rings.
   4. Grounding arrangements and connections for separately derived systems.
   5. Grounding for sensitive electronic equipment.

B. Qualification Data: For qualified testing agency and testing agency's field supervisor.

C. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals. Include the following
   1. Instructions for periodic testing and inspection of grounding features at test wellsgrounding connections for separately derived systemsNFPA 70B.
      a. Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
      b. Include recommended testing intervals.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member Company of NETA or an NRTL.
   1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:
   1. Solid Conductors: ASTM B 3.
   2. Stranded Conductors: ASTM B 8.
   3. Tinned Conductors: ASTM B 33.
   4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
   5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
   6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
   7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 4 inches in cross section, with 9/32-inch holes spaced 1-1/8 inches apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V. Lexan or PVC, impulse tested at 5000 V.

2.2 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.
   1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

D. Bus-bar Connectors: Mechanical type, cast silicon bronze, solder less compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.3 GROUNDING ELECTRODES

A. Ground Rods: Copper-clad steel**;** 3/4 inch by 10 feet in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Provide all grounding and bonding required by NFPA 70, as adopted by the local authority having jurisdiction. Detailed aspects of code requirements for grounding and bonding may not be indicated within the contract documents, however, all aspects of code compliance are the responsibility of the contractor.

B. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

C. Underground Grounding Conductors: Install bare copper conductor, No. 2/0 AWG minimum.
   1. Bury at least 24 inches below grade.

D. Isolated Grounding Conductors: Green-colored insulation with continuous yellow stripe. On feeders with isolated ground, identify grounding conductor where visible to normal inspection, with alternating bands of green and yellow tape, with at least three bands of green and two bands of yellow.

E. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
   1. Install bus on insulated spacers 2 inches minimum from wall, 6 inches above finished floor unless otherwise indicated.
   2. Where indicated on both sides of doorways, route bus up to top of door frame, across top of doorway, and down to specified height above floor; connect to horizontal bus.

F. Conductor Terminations and Connections:
   1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
   2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.
   3. Connections to Ground Rods at Test Wells: Bolted connectors.
   4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

A. Comply with IEEE C2 grounding requirements.

B. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary,

install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

C. Grounding Connections to Manhole Components: Bond exposed-metal parts such as lid, inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields according to written instructions by manufacturer of splicing and termination kits.

D. Pad-Mounted Transformers and Switches: Install two ground rods and ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches from the foundation.

3.3 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Isolated Grounding Receptacle Circuits: Install an insulated equipment grounding conductor connected to the receptacle grounding terminal. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

C. Isolated Equipment Enclosure Circuits: For designated equipment supplied by a branch circuit or feeder, isolate equipment enclosure from supply circuit raceway with a nonmetallic raceway fitting listed for the purpose. Install fitting where raceway enters enclosure, and install a separate insulated equipment grounding conductor. Isolate conductor from raceway and from panelboard grounding terminals. Terminate at equipment grounding conductor terminal of the applicable derived system or service unless otherwise indicated.

D. Signal and Communication Equipment: In addition to grounding and bonding required by CEC, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.
   1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
   2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch grounding bus.
   3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

E. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode in addition to grounding conductor installed with branch-circuit conductors.

3.4 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
   1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
   2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.

C. Test Wells: Ground rod driven through drilled hole in bottom of handhole. Handholes are specified in Division 26 Section "Underground Ducts and Raceways for Electrical Systems," and shall be at least 12 inches deep, with cover.
   1. Test Wells: Install at least one test well for each service unless otherwise indicated. Install at the ground rod electrically closest to service entrance. Set top of test well flush with finished grade or floor.

D. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
   1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
   2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
   3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

E. Grounding and Bonding for Piping:
   1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
   2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
   3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

F. Grounding for Steel Building Structure: Install a driven ground rod at base of each corner column and at intermediate exterior columns at distances not more than 60 feet apart. Bond rods together.

G. Ground Ring: Install a grounding conductor, electrically connected to each building structure ground rod extending around the perimeter of the building.
   1. Install bare copper conductor not less than No. 3/0 AWG for ground ring and for taps to building steel.

2. Bury ground ring not less than 24 inches from building's foundation.

H. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to NFPA 70; use a minimum of 20 feet of bare copper conductor not smaller than No. 4 AWG.
1. If concrete foundation is less than 20 feet (6 m) provide ufer extension.
2. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.

3.5 LABELING

A. Comply with requirements in Division 26 Section "Identification for Electrical Systems" Article for instruction signs. The label or its text shall be green.

B. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.
1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the facility manager."

3.6 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Tests and Inspections:
1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, at ground test wells. Make tests at ground rods before any conductors are connected.
   a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
   b. Perform tests by fall-of-potential method according to IEEE 81.

C. Grounding system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. Report measured ground resistances that exceed the following values:
1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 25 ohms.
2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 25 ohms.
3. Power Distribution Units or Panelboards Serving Electronic Equipment: 3 ohm(s).

F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

3.7 GROUND RODS

A. Provide as shown and/or required. Connect the grounding conductor to each rod.

3.8 SIZE OF GROUND WIRE

A. As required by National Electric Code. Where ground wire is exposed to physical damage protect with rigid non-ferrous conduit as permitted by applicable code.

3.9 GROUND CONNECTION OF PIPING

A. Metal internal piping shall be grounded, as a part of this contract.

3.10 CONNECTION TO THE POWER GROUND BUS

A. Furnish and install connections in accordance with the codes; including but not limited to:
   1. Raceway system
   2. Switchboard
   3. Service neutral
   4. "Separately derived system" (transformer or emergency power supply)
   5. Electrically operated equipment and devices.

B. No device or equipment shall be connected for electrical service which has a neutral conductor connected to a grounding conductor or to the frame within the device or equipment.

3.11 METHOD OF CONNECTIONS

A. Make all ground connections and ground cable splices by thermal welding or copper compression set type connectors U.L. listed for grounding purposes. Grounding lugs, where provided as standard manufacturer's items on equipment furnished, may be used.

3.12 EXPANSION FITTINGS

A. In conduit runs requiring an expansion fitting, a bonding jumper shall be installed around the fitting to maintain continuous ground continuity.

3.13 GROUND CABLE CROSSING EXPANSION JOINTS

A. Ground cables crossing expansion joints or similar separations in structures or paved areas shall be protected from damage by means of suitable approved devices or methods of installation which will provide the necessary slack in the cable across the joint to permit movement. Stranded or other approved flexible copper run or jumper shall be used across such separations.

3.14 GROUNDING FOR PANELBOARD FEEDERS

A. Provide a grounding bushing with ground conductor sized in accordance with CEC table 250.122 to the grounding bus in the panelboard and switchboards.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Hangers and supports for electrical equipment and systems.
   2. Concrete bases (housekeeping pads) for electrical equipment.

1.3 REFERENCES

A. ASTM A325: American Society for Testing and Materials - Standard Specification for Structural Bolts.

B. ASTM A603: American Society for Testing and Materials - Standard Specification for Zinc-Coated Steel Structural Wire Rope.

C. IBC: International Building Code. as adopted and amended by local jurisdiction.

D. ICC: International Code Council.

E. MFMA-3: Metal Framing Manufacturers Association's Metal Framing Standards Publication.

F. MSS SP-58: Manufacturers Standardization Society of the Valve and Fittings Industry Standard for Pipe Hangers and Supports - Materials, Design, and Manufacture.

G. NECA 1: National Electrical Contractors Association Standard Practices for Good Workmanship in Electrical Contracting.

1.4 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. IMC: Intermediate metal conduit.

C. RMC: Rigid metal conduit.

1.5 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, registered in the same state as the project, using appropriate performance requirements and design criteria.

B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents plus 25% spare space capacity.

C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.6 ACTION SUBMITTALS

A. Product Data: For the following:
   1. Steel slotted support systems.
   2. Nonmetallic slotted support systems.
   3. Shop Drawings: Signed and sealed by a qualified professional engineer. Show fabrication and installation details and associated structural calculations for the following:
      a. Trapeze hangers. Include Product Data for components.
      b. Steel slotted channel systems. Include Product Data for components.
      c. Nonmetallic slotted channel systems. Include Product Data for components.
      d. Equipment supports.
      e. Light fixtures greater than 50 pounds.

1.7 INFORMATIONAL SUBMITTALS

A. Welding certificates.

1.8 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with California Electrical Code.

1.9 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Coordinate installation of roof curbs, equipment supports, and roof penetrations.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Allied Tube & Conduit.
      b. Cooper B-Line, Inc.; a division of Cooper Industries.
      c. ERICO International Corporation.
      d. GS Metals Corp.
      e. Thomas & Betts Corporation.
      f. Unistrut; Tyco International, Ltd.
      g. Wesanco, Inc.
      h. Or approved equal
   2. Finishes:
      a. Plated Coatings: Zinc Plated. Fitting and accessories - zinc plated
      b. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-3. Fitting and accessories - hot-dip galvanized or stainless steel where hot-dip galvanized is not available.
      c. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4. . Fitting and accessories - PVC coated or stainless steel where PVC coated is not available
      d. High Performance Coatings: Manufacturer's standard epoxy or acrylic coating applied according to MFMA-4.
   3. Channel Dimensions: Selected for applicable load criteria.

B. Raceway and Cable Supports: As described in NECA 1.

C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

E. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

F. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
   1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
      a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
         1) Hilti Inc.
         2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.

3) MKT Fastening, LLC.
4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.
5) Or approved equal

2. Mechanical-Expansion Anchors: Insert-wedge-type, steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
   a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      1) Cooper B-Line, Inc.; a division of Cooper Industries.
      2) Empire Tool and Manufacturing Co., Inc.
      3) Hilti Inc.
      4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
      5) MKT Fastening, LLC.
      6) Or approved equal
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 SUPPORT INSTALLATION -GENERAL

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 50% of load.

C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
   1. To Wood: Fasten with lag screws or through bolts.
   2. To New Concrete: Bolt to concrete inserts or use expansion anchor fasteners.

3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches thick.
6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.2 HANGERS AND SUPPORTS FOR RACEWAYS

A. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by California Electrical Code. Minimum rod size shall be 1/4 inch in diameter.

B. Suspended ceiling systems: Do not attach raceways to ceiling suspension system hangers.

C. Raceways 3/4" (20mm) and smaller serving equipment located within ceiling cavity or mounted on or supported by the ceiling grid system may be supported by dedicated #12 ga. galvanized, soft annealed mild steel wire hangers. Two raceways maximum per hanger. Attach raceways to wires with clips manufactured for the purpose.

D. Raceways 1" and larger: Provide lay-in pipe hangers on 1/4" (6mm) or larger all threaded rods attached to metal ceiling inserts or to structural members at not greater than spacing noted above and within 36" of each change in direction.

E. Multiple Raceways or Cables: When more than two raceways will use the same routing, group together on a channel trapeze support system supported by threaded rods attached to metal ceiling inserts or structural members. Size supports for multiple raceways for 25% future capacity. Trapeze shall be sized in accordance with SMACNA Guidelines with conduit weight taken to be as listed for same size pipe filled of water.
1. Secure raceways and cables to these supports with two-bolt conduit clamps.

F. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in CEC.

3.3 VERTICAL CABLE SUPPORTS

A. Provide cable support for vertical cable runs as required by CEC.

3.4 SUPPORT FOR LIGHT FIXTURES

A. Provide support system designed by registered engineer for all light fixtures over 50 pounds.

B. Recessed mounted type fixtures less than 20 pounds installed in lay-in ceiling: Provide four support clips, Caddy #515 or similar, (one each corner) which lock light fixture to ceiling tees after light fixture is installed. In addition, provide for each light fixture **two** #14 earthquake chains or #12 wires secured located at diagonally opposite fixture corners and attached to structural members above suspended ceiling.

C. Recessed mounted type fixtures less than 50 pounds installed in lay-in ceiling: Provide four support clips, Caddy #515 or similar , (one each corner) which lock light fixture to ceiling tees after light fixture is installed. In addition, provide for each light fixture two #14 earthquake chains or #12 wires at diagonally opposite fixture corners installed taut and secured to structural members above suspended ceiling.

D. Recessed mounted type fixtures installed in plaster or gypsum ceiling. Provide support chains or wires similar to lay-in ceiling requirements except also provide plaster frame compatible with light fixture. Attach support wires/chains to plaster frame.

E. Surface mounted type fixtures less than 50 pounds installed on suspended ceilings: Provide metal carrying channels above suspended ceiling spanning between ceiling support channels. Attached fixture through ceiling to carrying channels. In addition, provide for each light fixture **four** #14 earthquake chains or #12 wires installed taut from metal carrying channels to structural members above suspended ceiling.

F. Surface mounted type fixtures less than 20 pounds installed on suspended ceilings: Provide support frame above suspended ceiling. Attached fixture through ceiling to support frame. In addition, provide for each light fixture two #14 earthquake chains or #12 wires secured located at diagonally opposite fixture corners of plaster frame secured to structural members above suspended ceiling.

G. Surface mounted type fixtures less than 50 pounds designed to be supported from fixture junction box:
   1. Provide hanger bars between structural members. Attach junction box directly to hanger bars.
   2. Attach heavy formed steel straps to the outlet box by means of threaded stems with locknuts, or directly to the outlet box where the light fixture is specifically so designed. Support junction box from structure with 1/4" threaded rod.

H. Pendant mounted type fixtures less than 50 pounds:
   1. For fixtures with rigid pendants, provide swivel ball aligners at canopy.
   2. Where mounted below suspended ceiling, support fixture from structural members above ceiling by means of minimum 1/4" threaded stems with locknuts.

3.5 SUPPORT FOR TRANSFORMERS

A. Floor mounting
   1. Provide concrete base (housekeeping pad).

2. Secure transformer to floor with bolts having pull-out rating equal to the weight of the transformer or greater. All attachment nuts to have split and flat washer.

3.6 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.7 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete."

C. Anchor equipment to concrete base.
1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.8 COATINGS

A. Touchup: Clean field cuts, field welds and abraded areas of PVC, Epoxy and Acrylic coated products. Re-coat exposed areas immediately after erecting hangers and supports. Follow manufacturer's instructions for repair of coated products.

B. Hot Dip Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Metal conduits, tubing, and fittings.
   2. Nonmetal conduits, tubing, and fittings.
   3. Metal wireways and auxiliary gutters.
   4. Surface raceways.
   5. Boxes, enclosures, and cabinets.
   6. Handholes and boxes for exterior underground cabling.

B. Related Sections
   1. Section 260529 - Hangers and Supports for Electrical Systems
   2. Section 260543 - Underground Ducts and Raceway Systems
   3. Section 260544 - Sleeves and Sleeve Seals for Electrical Raceways and Cabling

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. ENT: Electrical nonmetallic tubing.

C. FMC: Flexible metal conduit

D. GRC: Galvanized rigid steel conduit.

E. LFMC: Liquidtight flexible metal conduit.

F. LFNC: Liquidtight flexible nonmetallic conduit.

G. RNC: Rigid nonmetallic conduit.

H. RTRC: Reinforced Thermosetting Resin Conduit

1.4 REFERENCES

A. American National Standards Institute (ANSI)

B. National Electrical Manufacturers Association (NEMA)

C. Underwriters Laboratories, Inc. (UL)

D. National Fire Protection Association (NFPA)

E. California Electrical Code (CEC)

1.5 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, and attachment details, and attachments to other work.
1. Custom enclosures and cabinets.
2. For handholes and boxes for underground wiring, including the following:
a. Duct entry provisions, including locations and duct sizes.
b. Frame and cover design.
c. Grounding details.
d. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.
e. Joint details.

1.6 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with work of other trades, using input from installers of items involved:
1. Structural members in paths of conduit groups with common supports.
2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

B. Qualification Data: For professional engineer.

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PART 2 - PRODUCTS

2.1 METAL CONDUITS, TUBING, AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following
1. AFC Cable Systems, Inc.
2. Alflex Inc.
3. Allied Tube & Conduit; a Tyco International Ltd. Co.
4. Anamet Electrical, Inc.; Anaconda Metal Hose.
5. Electri-Flex Company.

6. Manhattan/CDT/Cole-Flex.
7. Maverick Tube Corporation.
8. O-Z/Gedney; a brand of EGS Electrical Group.
9. Wheatland Tube Company; a division of John Maneely Company.
10. Or approved equal

B. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

C. GRC: Comply with ANSI C80.1 and UL 6.

D. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.
1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch , minimum.

E. EMT: Comply with ANSI C80.3 and UL 797.

F. FMC: Comply with UL 1; zinc-coated steel or aluminum.

G. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.

H. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and CEC.
2. Fittings for EMT:
    a. Material: Steel.
    b. Type: Compression. Die Cast fittings are not acceptable.
3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
4. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch, with overlapping sleeves protecting threaded joints.

I. Joint Compound for GRC: Approved, as defined in CEC, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following
1. AFC Cable Systems, Inc.
2. Anamet Electrical, Inc.
3. Arnco Corporation.
4. CANTEX Inc.
5. CertainTeed Corp.
6. Condux International, Inc.
7. ElecSYS, Inc.
8. Electri-Flex Company.
9. Lamson & Sessions; Carlon Electrical Products.

10. Manhattan/CDT/Cole-Flex.
11. RACO; a Hubbell company.
12. Thomas & Betts Corporation.
13. Or approved equal

B. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

C. ENT: Comply with NEMA TC 13 and UL 1653.

D. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.

E. LFNC: Comply with UL 1660.

F. RTRC: Comply with UL 1684A and NEMA TC 14.

G. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

H. Fittings for LFNC: Comply with UL 514B.

I. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

J. Solvent cements and adhesive primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following
1. Cooper B-Line, Inc.
2. Hoffman; a Pentair company.
3. Square D; a brand of Schneider Electric.
4. Or approved equal

B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 1, unless otherwise indicated.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers**:** Screw-cover type.

E. Finish: Manufacturer's standard enamel finish.

2.4 NONMETALLIC WIREWAYS AND AUXILIARY GUTTERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following
   1. Hoffman; a Pentair company.
   2. Lamson & Sessions; Carlon Electrical Products.
   3. Or approved equal

B. Listing and Labeling: Nonmetallic wireways and auxiliary gutters shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Description: Fiberglass polyester, extruded and fabricated to required size and shape, without holes or knockouts. Cover shall be gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections shall be flanged and have stainless-steel screws and oil-resistant gaskets.

D. Description: PVC, extruded and fabricated to required size and shape, and having snap-on cover, mechanically coupled connections, and plastic fasteners.

E. Fittings and Accessories: Couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings shall match and mate with wireways as required for complete system.

F. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

G. Solvent cements and adhesive primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.5 SURFACE RACEWAYS

A. Listing and Labeling: Surface raceways and tele-power poles shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Surface Metal Raceways: Galvanized steel with snap-on covers complying with UL 5. Manufacturer's standard enamel finish in color selected by Architect.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following
      a. Thomas & Betts Corporation.
      b. Walker Systems, Inc.; Wiremold Company (The).
      c. Wiremold Company (The); Electrical Sales Division.
      d. Or approved equal

2.6 BOXES, ENCLOSURES, AND CABINETS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following
   1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
   2. EGS/Appleton Electric.
   3. Erickson Electrical Equipment Company.
   4. Hoffman.
   5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
   6. O-Z/Gedney; a unit of General Signal.
   7. RACO; a Hubbell Company.
   8. Robroy Industries, Inc.; Enclosure Division.
   9. Scott Fetzer Co.; Adalet Division.
   10. Spring City Electrical Manufacturing Company.
   11. Thomas & Betts Corporation.
   12. Walker Systems, Inc.; Wiremold Company (The).
   13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.
   14. Or approved equal

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.

D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.

E. Metal Floor Boxes:
   1. Material: Cast metal or sheet metal.
   2. Type: Fully adjustable.
   3. Shape: Rectangular.

F. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

G. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lb shall be listed and marked for the maximum allowable weight.

H. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

I. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.

J. Box extensions used to accommodate new building finishes shall be of same material as re-cessed box.

K. Device Box Dimensions: 4 inches by 2-1/8 inches by 2-1/8 inches deep.

L. Gangable boxes are allowed.

M. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1with continuous-hinge cover with flush latch unless otherwise indicated.
1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

N. Cabinets:
1. NEMA 250, Type 1, galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
2. Hinged door in front cover with flush latch and concealed hinge.
3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.
6. Nonmetallic cabinets shall be listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

2.7 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

A. General Requirements for Handholes and Boxes:
1. Boxes and handholes for use in underground systems shall be designed and identified as defined in CEC, for intended location and application.
2. Boxes installed in wet areas shall be listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Armorcast Products Company.
b. Carson Industries LLC.
c. CDR Systems Corporation; Hubbell Power Systems.
d. NewBasis.
e. Oldcastle Precast, Inc.; Christy Concrete Products.
f. Synertech Moulded Products; a division of Oldcastle Precast, Inc.
g. Or approved equal

C. Standard: Comply with SCTE 77.
1. Configuration: Designed for flush burial with closed bottom unless otherwise indicated.
2. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
3. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
4. Cover Legend: Molded lettering, "ELECTRIC" or "COMMUNICATION"
5. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
6. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

D. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with frame and covers of polymer concrete or fiberglass.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Armorcast Products Company.
    b. Carson Industries LLC.
    c. CDR Systems Corporation; Hubbell Power Systems.
    d. NewBasis.
    e. Nordic Fiberglass, Inc.
    f. Oldcastle Precast, Inc.; Christy Concrete Products.
    g. Synertech Moulded Products; a division of Oldcastle Precast, Inc.
    h. Or approved equal
2. Standard: Comply with SCTE 77.
3. Color of Frame and Cover Green.
4. Configuration: Designed for flush burial with integral closed bottom unless otherwise indicated.
5. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
6. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
7. Cover Legend: Molded lettering, "ELECTRIC" or "COMMUNICATION"
8. Conduit Entrance Provisions: Conduit-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
9. Handholes 12 Inches Wide by 24 Inches Long and Larger: Have inserts for cable racks and pulling-in irons installed before concrete is poured.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
    1. Exposed Conduit: GRC.
    2. Concealed Conduit, Aboveground: GRCor RNC, Type EPC-40-PVC.
    3. Underground Conduit: RNC, Type EPC-40-PVC, direct buried.
    4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFNC.
    5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
    6. Application of Handholes and Boxes for Underground Wiring:
        a. Handholes and Pull Boxes in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Non-deliberate Loading by Heavy Vehicles: Polymer concrete, SCTE 77, Tier 15 structural load rating.
        b. Handholes and Pull Boxes in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer-concrete units, SCTE 77, Tier 8 structural load rating.
        c. Handholes and Pull Boxes Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf vertical loading.

B. Comply with the following indoor applications: Apply raceway products as specified below unless otherwise indicated:
    1. Exposed, Not Subject to Physical Damage: EMT.

2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include, but are not limited to the following:
   a. Loading dock.
   b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
6. Damp or Wet Locations: GRC.
7. Raceways for Optical Fiber or Communications Cable in Spaces Used for Environmental Air: Plenum-type, optical fiber/communications cable raceway.
8. Raceways for Optical Fiber or Communications Cable Risers in Vertical Shafts: Riser-type, optical fiber/communications cable raceway.
9. Raceways for Concealed General Purpose Distribution of Optical Fiber or Communications Cable: General-use, optical fiber/communications cable raceway or EMT.
10. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.

C. Minimum Raceway Size: 1/2-inch trade size.

D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
3. EMT: Use compression, steel fittings. Comply with NEMA FB 2.10. Cast metal fittings are not acceptable
4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

E. Install nonferrous conduit or tubing for circuits operating above 60 Hz. Where aluminum raceways are installed for such circuits and pass through concrete, install in nonmetallic sleeve.

F. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.

G. Install surface raceways only where indicated on Drawings.

H. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F (49 deg C).

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Comply with requirements in Division 26 Section "Hangers and Supports for Electrical Systems" for hangers and supports.

E. Arrange stub-ups so curved portions of bends are not visible above finished slab.

F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.

G. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.

H. Support conduit within 12 inches of enclosures to which attached.

I. Stub-ups to Above Recessed Ceilings:
   1. Use EMT for raceways.
   2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

J. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

K. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.

L. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

M. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

N. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

O. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

P. Cut conduit perpendicular to the length. For conduits 2-inch trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

Q. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

R. Surface Raceways:
   1. Install surface raceway with a minimum 2-inch radius control at bend points.
   2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

S. Install raceway sealing fittings at accessible locations according to CEC and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to CEC.

T. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
   1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
   2. Where an underground service raceway enters a building or structure.
   3. Where otherwise required by CEC.

U. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

V. Expansion-Joint Fittings:
   1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F (17 deg C) and that has straight-run length that exceeds 5 feet. Install in each run of aboveground RMC and EMT conduit that is located where environmental temperature change may exceed 100 deg F (55 deg C) and that has straight-run length that exceeds 100 feet.
   2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
      a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F (70 deg C) temperature change.
      b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F (86 deg C) temperature change.
      c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F (70 deg C) temperature change.
      d. Attics: 135 deg F (75 deg C) temperature change.
   3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
   4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
   5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

W. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for recessed and semi-recessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
   1. Use LFMC in damp or wet locations subject to severe physical damage.

2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.

X. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

Y. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a rain-tight connection between box and cover plate or supported equipment and box.

Z. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

AA. Locate boxes so that cover or plate will not span different building finishes.

BB. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

CC. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

DD. Set metal floor boxes level and flush with finished floor surface.

EE. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:
1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "Earth Moving" for pipe less than 6 inches in nominal diameter.
2. Install backfill as specified in Division 31 Section "Earth Moving."
3. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "Earth Moving."
4. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
5. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.
   a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
   b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.

6. Underground Warning Tape: Comply with requirements in Division 26 Section "Identification for Electrical Systems."

3.4 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas, set so cover surface will be flush with finished grade. Set covers of other enclosures 1 inch above finished grade.

D. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables but short enough to preserve adequate working clearances in enclosure.

E. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.5 PENETRATIONS

A. Penetrate fire barriers, smoke barriers, vapor barriers, acoustic barriers, waterproofing, roofing materials, and other rated architectural elements and assemblies in a manner that preserves the integrity of the rating.

B. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Division 26 Section "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

C. Install firestopping at penetrations of fire-rated floor and wall assemblies.

3.6 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.
   1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
   2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Conduit, ducts, and duct accessories for direct-buried and concrete-encased duct banks, and in single duct runs.
   2. Handholes and pull boxes.
   3. Manholes.

1.3 DEFINITION

A. RNC: Rigid nonmetallic conduit.

1.4 ACTION SUBMITTALS

A. Product Data: For the following:
   1. Duct-bank materials, including separators and miscellaneous components.
   2. Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
   3. Accessories for manholes, handholes, pull boxes, and other utility structures.
   4. Warning tape.
   5. Warning planks.

B. Shop Drawings for Factory-Fabricated Handholes and Pull Boxes Other Than Precast Concrete: Include dimensioned plans, sections, and elevations, and fabrication and installation details, including the following:
   1. Duct entry provisions, including locations and duct sizes.
   2. Cover design.
   3. Grounding details.
   4. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.5 INFORMATIONAL SUBMITTALS

A. Duct-Bank Coordination Drawings: Show duct profiles and coordination with other utilities and underground structures.
   1. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.

2. Drawings shall be signed and sealed by a qualified professional engineer.

B. Product Certificates: For concrete and steel used in precast concrete pull boxes and handholes, as required by ASTM C 858.

C. Qualification Data: For professional engineer and testing agency.

D. Source quality-control test reports.

E. Field quality-control test reports.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Comply with ANSI C2.

C. Comply with California Electrical Code (CEC).

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

B. Store precast concrete and other factory-fabricated underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.

C. Lift and support precast concrete units only at designated lifting or supporting points.

1.8 PROJECT CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:
1. Notify Construction Manager no fewer than two days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Construction Manager's written permission.

1.9 COORDINATION

A. Coordinate layout and installation of ducts, manholes, handholes, and pull boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.

B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and pull boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and

elevations from those indicated as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Architect.

1.10 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

PART 2 - PRODUCTS

2.1 CONDUIT

A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.

B. RNC: NEMA TC 2, Type EPC-40-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.2 NONMETALLIC DUCTS AND DUCT ACCESSORIES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. ARNCO Corp.
2. Beck Manufacturing.
3. Cantex, Inc.
4. CertainTeed Corp.; Pipe & Plastics Group.
5. ElecSys, Inc.
6. Electri-Flex Company.
7. IPEX Inc.
8. Lamson & Sessions; Carlon Electrical Products.
9. Manhattan/CDT; a division of Cable Design Technologies.
10. Spiraduct/AFC Cable Systems, Inc.
11. Underground Devices, Inc.
12. Or approved equal

C. Underground Plastic Utilities Duct: NEMA TC 6 & 8, Type EB-20-PVC, ASTM F 512, UL 651A, with matching fittings by the same manufacturer as the duct, complying with NEMA TC 9.

D. Underground Plastic Utilities Duct: NEMA TC 6 & 8, Type DB-60-PVC and Type DB-120-PVC, ASTM F 512, with matching fittings by the same manufacturer as the duct, complying with NEMA TC 9.

E. Duct Accessories:

1. Duct Separators: Factory-fabricated rigid PVC interlocking spacers, sized for type and sizes of ducts with which used, and selected to provide minimum duct spacing indicated while supporting ducts during concreting or backfilling.
2. Warning Tape: Underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."

2.3 PRECAST CONCRETE HANDHOLES AND PULL BOXES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Carder Concrete Products.
2. Christy Concrete Products.
3. Elmhurst-Chicago Stone Co.
4. Oldcastle Precast Group.
5. Riverton Concrete Products; a division of Cretex Companies, Inc.
6. Utility Concrete Products, LLC.
7. Utility Vault Co.
8. Wausau Tile, Inc.
9. Or approved equal

B. Comply with ASTM C 858 for design and manufacturing processes.

C. Ferrous metal hardware shall be hot-dip galvanized in accordance with ASTM A153 (ASTM A153M) and ASTM A123 (ASTM A123M).

D. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or pull box.
1. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing stainless-steel bolts.
2. Frame and Cover: Weatherproof steel frame, with steel cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing stainless-steel bolts.
3. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing stainless-steel bolts.
   a. Cover Hinges: Concealed, with hold-open ratchet assembly.
   b. Cover Handle: Recessed.
4. Frame and Cover: Weatherproof aluminum frame with hinged aluminum access door assembly with tamper-resistant, captive, cover-securing stainless-steel bolts.
   a. Cover Hinges: Concealed, with hold-open ratchet assembly.
   b. Cover Handle: Recessed.
5. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
6. Cover Legend: Molded lettering, "ELECTRIC" or "COMMUNICATION".
7. Configuration: Units shall be designed for flush burial and have integral closed bottom, unless otherwise indicated.
8. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
   a. Extension shall provide increased depth of 12 inches.
   b. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.

9. Windows: Precast openings in walls, arranged to match dimensions and elevations of approaching ducts and duct banks plus an additional 12 inches vertically and horizontally to accommodate alignment variations.
   a. Windows shall be located no less than 6 inches from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.
   b. Window opening shall have cast-in-place, welded wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct banks.
   c. Window openings shall be framed with at least two additional No. 4 steel reinforcing bars in concrete around each opening.
10. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
   a. Type and size shall match fittings to duct or conduit to be terminated.
   b. Fittings shall align with elevations of approaching ducts and be located near interior corners of handholes to facilitate racking of cable.
11. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.4 HANDHOLES AND PULL BOXES OTHER THAN PRECAST CONCRETE

A. Description: Comply with SCTE 77.
   1. Color: Green.
   2. Configuration: Units shall be designed for flush burial and have integral closed bottom, unless otherwise indicated.
   3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
   4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
   5. Cover Legend: Molded lettering, "ELECTRIC" or “COMMUNICATION.”
   6. Direct-Buried Wiring Entrance Provisions: Knockouts equipped with insulated bushings or end-bell fittings, selected to suit box material, sized for wiring indicated, and arranged for secure, fixed installation in enclosure wall.
   7. Duct Entrance Provisions: Duct-terminating fittings shall mate with entering ducts for secure, fixed installation in enclosure wall.
   8. Handholes 12 inches wide by 24 inches long and larger shall have factory-installed inserts for cable racks and pulling-in irons.

B. Polymer Concrete Handholes and Pull Boxes with Polymer Concrete Cover: Molded of sand and aggregate, bound together with a polymer resin, and reinforced with steel or fiberglass or a combination of the two. Handholes and pull boxes shall comply with the requirements of SCTE 7 Tier 15 loading.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Armorcast Products Company.
      b. Carson Industries LLC.
      c. CDR Systems Corporation.
      d. NewBasis.
      e. Quazite Underground Products, division of Hubbell Power Systems, Lenoir City Division
      f. Or approved equal

C. Fiberglass Handholes and Pull Boxes with Polymer Concrete Frame and Cover: Complying with SCTE 77 Tier 8 loading. Sheet-molded, fiberglass-reinforced, polyester resin enclosure joined to polymer concrete top ring or frame.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Armorcast Products Company.
      b. Carson Industries LLC.
      c. Christy Concrete Products.
      d. Synertech Moulded Products, Inc.; a division of Oldcastle Precast.
      e. Or approved equal

D. Fiberglass Handholes and Pull Boxes: Molded of fiberglass-reinforced polyester resin, with covers of fiberglass, complying with SCTE 77 Tier 8 loading.
   1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Carson Industries LLC.
      b. Christy Concrete Products.
      c. Nordic Fiberglass, Inc.
      d. Or approved equal

2.5 PRECAST MANHOLES

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. .
   2. Christy Concrete Products.
   3. Elmhurst-Chicago Stone Co.
   4. Oldcastle Precast Group.
   5. Riverton Concrete Products; a division of Cretex Companies, Inc.
   6. Utility Concrete Products, LLC.
   7. Utility Vault Co.
   8. Wausau Tile, Inc.
   9. Or approved equal

2.6 SOURCE QUALITY CONTROL

A. Test and inspect precast concrete utility structures according to ASTM C 1037.

B. Nonconcrete Handhole and Pull-Box Prototype Test: Test prototypes of manholes and pull boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.
   1. Tests of materials shall be performed by a independent testing agency.
   2. Strength tests of complete boxes and covers shall be by either an independent testing agency or the manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
   3. Testing machine pressure gages shall have current calibration certification complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 UNDERGROUND DUCT APPLICATION

A. Ducts for Electrical Feeders 600 V and Less: RNC**,** NEMA Type EPC-40PVC, in direct-buried duct bank, unless otherwise indicated.

B. Ducts for Electrical Branch Circuits: RNC, NEMA Type EPC-40PVC, in direct-buried duct bank, unless otherwise indicated.

C. Underground Ducts for Telephone, Communications, or Data Utility Service Cables: RNC, NEMA Type EPC-40-PVC, installed in direct-buried duct bank, unless otherwise indicated.

D. Underground Ducts for Telephone, Communications, or Data Circuits: RNC, NEMA Type EPC-40PVC, in direct-buried duct bank, unless otherwise indicated.

E. Underground Ducts Crossing Driveways: RNC, NEMA Type EPC-40-PVC, encased in reinforced concrete.

3.2 UNDERGROUND ENCLOSURE APPLICATION

A. Handholes and Boxes for 600 V and Less, Including Telephone, Communications, and Data Wiring:
   1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-20 structural load rating.
   2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Precast concrete, AASHTO HB 17, H-20structural load rating.
   3. Units in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer concrete units, SCTE 77, Tier 8 structural load rating.
   4. Units Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf vertical loading.

3.3 EARTHWORK

A. Excavation and Backfill: Comply with Section 312000 "Earth Moving," but do not use heavy-duty, hydraulic-operated, compaction equipment.

B. Restore surface features at areas disturbed by excavation and reestablish original grades, unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

C. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.

D. Cut and patch existing pavement in the path of underground ducts and utility structures.

3.4 DUCT INSTALLATION

A. Slope: Pitch ducts a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope ducts from a high point in runs between two manholes to drain in both directions.

B. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches , both horizontally and vertically, at other locations, unless otherwise indicated.

C. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.

D. Duct Entrances to Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch ducts, and vary proportionately for other duct sizes.
   1. Begin change from regular spacing to end-bell spacing 10 feet from the end bell without reducing duct line slope and without forming a trap in the line.
   2. Direct-Buried Duct Banks: Install an expansion and deflection fitting in each conduit in the area of disturbed earth adjacent to manhole or handhole.
   3. Grout end bells into structure walls from both sides to provide watertight entrances.

E. Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit at least 10 feet outside the building wall without reducing duct line slope away from the building, and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install conduit penetrations of building walls as specified in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

F. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.

G. Pulling Cord: Install 100-lbf test nylon cord in ducts, including spares.

H. Concrete-Encased Ducts: Support ducts on duct separators.
   1. Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, with not less than spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent floating during concreting. Stagger separators approximately 6 inches between tiers. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
   2. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.
      a. Start at one end and finish at the other, allowing for expansion and contraction of ducts as their temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written recommendations, or use other specific measures to prevent expansion-contraction damage.
      b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch reinforcing rod dowels extending 18 inches into concrete on both sides of joint near corners of envelope.

3. Pouring Concrete: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Use a plank to direct concrete down sides of bank assembly to trench bottom. Allow concrete to flow to center of bank and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-bank application.
4. Reinforcement: Reinforce concrete-encased duct banks where they cross disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.
5. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
6. Minimum Space between Ducts: 3 inches between ducts and exterior envelope wall, 2 inches between ducts for like services, and 4 inches between power and signal ducts.
7. Depth: Install top of duct bank at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles, unless otherwise indicated.
8. Stub-Ups: Use manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Extend concrete encasement throughout the length of the elbow.
9. Stub-Ups: Use manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    b. Stub-Ups to Equipment: For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of base. Install insulated grounding bushings on terminations at equipment.
10. Warning Tape: Bury warning tape approximately 12 inches above all concrete-encased ducts and duct banks. Align tape parallel to and within 3 inches of the centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches (450 mm). Space additional tapes 12 inches apart, horizontally.

I. Direct-Buried Duct Banks:
1. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.
2. Space separators close enough to prevent sagging and deforming of ducts, with not less than 5 spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent displacement during backfill and yet permit linear duct movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches between tiers.
3. Excavate trench bottom to provide firm and uniform support for duct bank. Prepare trench bottoms as specified in Section 312000 "Earth Moving" for pipes less than 6 inches in nominal diameter.
4. Install backfill as specified in Section 312000 "Earth Moving."
5. After installing first tier of ducts, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand-place backfill to 4 inches over ducts and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction as specified in Section 312000 "Earth Moving."

6. Install ducts with a minimum of 3 inches between ducts for like services and 6 inches between power and signal ducts.
7. Depth: Install top of duct bank at least 36 inches below finished grade, unless otherwise indicated.
8. Set elevation of bottom of duct bank below the frost line.
9. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
10. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.
    a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    b. For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
11. Warning Planks: Bury warning planks approximately 12 inches above direct-buried ducts and duct banks, placing them 24 inches o.c. Align planks along the width and along the centerline of duct bank. Provide an additional plank for each 12-inch increment of duct-bank width over a nominal 18 inches . Space additional planks 12 inches apart, horizontally.

3.5 INSTALLATION OF CONCRETE MANHOLES, HANDHOLES, AND PULL BOXES

A. Cast-in-Place Manhole Installation:
1. Finish interior surfaces with a smooth-troweled finish.
2. Windows for Future Duct Connections: Form and pour concrete knockout panels 1-1/2 to 2 inches thick, arranged as indicated.
3. Cast-in-place concrete, formwork, and reinforcement are specified in Section 033000 "Cast-in-Place Concrete."

B. Precast Concrete Handhole and Manhole Installation:
1. Comply with ASTM C 891, unless otherwise indicated.
2. Install units level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances.
3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

C. Elevations:
1. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.
2. Where indicated, cast handhole cover frame integrally with handhole structure.

D. Drainage: Install drains in bottom of manholes where indicated. Coordinate with drainage provisions indicated.

E. Manhole Access: Circular opening in manhole roof; sized to match cover size.
1. Manholes with Fixed Ladders: Offset access opening from manhole centerlines to align with ladder.

2. Install chimney, constructed of precast concrete collars and rings to support frame and cover and to connect cover with manhole roof opening. Provide moisture-tight masonry joints and waterproof grouting for cast-iron frame to chimney.

F. Waterproofing: Apply waterproofing to exterior surfaces of manholes and handholes after concrete has cured at least three days. After ducts have been connected and grouted, and before backfilling, waterproof joints and connections and touch up abrasions and scars. Waterproof exterior of manhole chimneys after mortar has cured at least three days.

G. Dampproofing: Apply dampproofing to exterior surfaces of manholes and handholes after concrete has cured at least three days. After ducts have been connected and grouted, and before backfilling, dampproof joints and connections and touch up abrasions and scars. Dampproof exterior of manhole chimneys after mortar has cured at least three days.

H. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, and insulators, as required for installation and support of cables and conductors and as indicated.

I. Fixed Manhole Ladders: Arrange to provide for safe entry with maximum clearance from cables and other items in manholes.

J. Field-Installed Bolting Anchors in Manholes and Concrete Handholes: Do not drill deeper than 3-7/8 inches for manholes and 2 inches for handholes, for anchor bolts installed in the field. Use a minimum of two anchors for each cable stanchion.

K. Warning Sign: Install "Confined Space Hazard" warning sign on the inside surface of each manhole cover.

3.6 INSTALLATION OF HANDHOLES AND PULL BOXES OTHER THAN PRECAST CONCRETE

A. Install handholes and pull boxes level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances. Use pull box extension if required to match depths of ducts, and seal joint between box and extension as recommended by the manufacturer.

B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: In paved areas and trafficways, set so cover surface will be flush with finished grade. Set covers of other handholes 1 inch above finished grade.

D. Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cables and conductors and as indicated. Select arm lengths to be long enough to provide spare space for future cables, but short enough to preserve adequate working clearances in the enclosure.

E. Field-cut openings for ducts and conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

F. For enclosures installed in asphalt paving and subject to occasional, nondeliberate, heavy-vehicle loading, form and pour a concrete ring encircling, and in contact with, enclosure and with top surface screeded to top of box cover frame. Bottom of ring shall rest on compacted earth.
   1. Concrete: 3000 psi , 28-day strength, complying with Section 033000 "Cast-in-Place Concrete," with a troweled finish.
   2. Dimensions: 10 inches wide by 12 inches deep.

3.7 GROUNDING

A. Ground underground ducts according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:
   1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
   2. Pull aluminum or wood test mandrel through duct to prove joint integrity and test for out-of-round duct. Provide mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.
   3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.9 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of manholes, including sump. Remove foreign material.

END OF SECTION 260543

SECTION 260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
   2. Sleeve-seal systems.
   3. Sleeve-seal fittings.
   4. Grout.
   5. Silicone sealants.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:
   1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
   2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. PVC-Pipe Sleeves: ASTM D 1785, Schedule 40.

D. Molded-PVC Sleeves: With nailing flange for attaching to wooden forms.

E. Molded-PE or -PP Sleeves: Removable, tapered-cup shaped, and smooth outer surface with nailing flange for attaching to wooden forms.

F. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.
2. Minimum Metal Thickness:
   a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches (400 mm), thickness shall be 0.052 inch.
   b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Advance Products & Systems, Inc.
      b. CALPICO, Inc.
      c. Metraflex Company (The).
      d. Pipeline Seal and Insulator, Inc.
      e. Proco Products, Inc.
      f. Or approved equal
   2. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
   3. Pressure Plates: Carbon steel.
   4. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating, of length required to secure pressure plates to sealing elements.

2.3 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.
   1. Manufacturers: Subject to compliance with requirements available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Presealed Systems.
      b. Or approved equal

B. Cable/conductor sealing fittings (for use where sealing ends of conduits were cables emerge in application involving higher fluid or gas pressures than can be handled by standard sealing bushings):
   1. Material: Body: malleable or ductile lron casting with hop dip galvanized finish. Sealing disc is canvas Bakelite
   2. Manufacturers: O-Z Gedney RA Series.
   3. Or approved equal

2.4 GROUT

A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi , 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.5 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.
   1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:
   1. Interior Penetrations of Non-Fire-Rated Walls and Floors:
      a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
      b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.
   2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
   3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.
   4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:
   1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
   2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel or cast-iron pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION 260544

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Equipment identification nameplates.
   2. Identification for conductors and MC cables
   3. Identification for raceways.
   4. Underground-line warning tape.
   5. Warning labels and signs.
   6. Instruction signs.
   7. Receptacle Identification Labels
   8. Miscellaneous identification products.

1.3 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI A13.1 "Scheme for Identification of Piping Systems"

B. Occupational Safety and Health Administration (OSHA). 29 CFR - Labor Chapter XVII Part 1910-145 "Occupational and Safety Health Standards" 1992.

1.4 ACTION SUBMITTALS

A. Product Data: For each electrical identification product indicated.

B. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

1.5 QUALITY ASSURANCE

A. Comply with ANSI A13.1and IEEE C2.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.6 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Note that equipment names and room numbers shown on the Contract Drawings may not be final names and numbers. Confirm all final naming prior to label manufacture.

C. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

D. Coordinate installation of identifying devices with location of access panels and doors.

E. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 EQUIPMENT NAMEPLATES

A. Materials:
1. Engraved plastic laminate - three-layer laminated plastic with punched or drilled holes for screw mounting
2. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed
3. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process.
4. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Overlay shall provide a weatherproof and UV-resistant seal for label.
5. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch (25 mm)

B. Dimension
1. Nameplate minimum of 1 3/4" high by 5" wide.
2. Lettering height for panel or equipment identifier @ 1/4".
3. Lettering height for remaining lines @ 1/8" high with 1/8" spacing between lines.
4. Normal System: White letters on black background.
5. Emergency System: White letters on red background.
6. Comply with ANSI 13.1.

C. Switchboard and Switchgear Nameplates:
1. Provide engraved plastic nameplate for each new Switchboard or Switchgear with the following information:

Line 1: Switchboard or Switchgear Name

Line 2: Source from which fed (i.e. "Fed From:")

Line 3: Amps, voltage, phase and wire

Line 4: Branch from which served (Normal, Emergency, Legally Required Standby, Optional Standby).

Line 4: Branch from which served (Normal, Life Safety, Critical, Equipment, Optional Standby).

2. Provide engraved plastic nameplates for each new branch device in each switchboard or switchgear with the following information:

Line 1: Load Served (i.e. panel names, motor control center, etc.)

Line 2: Area of building served (i.e. penthouse, lab, etc.)

Line 3: Type of load served (i.e. lighting, receptacles, equipment, etc.)

Line 4: Amp and AIC rating, if Amp rating and AIC are not visible on branch device with dead-front cover in closed position.

D. Panelboard Nameplates
1. Provide engraved plastic nameplate for each new panelboard with the following information:

Line 1: Panelboard Name

Line 2: Source from which panel is fed (e.g.Fed From SWBD 4N2A)

Line 3: Transfer switch from which panel is fed (if applicable)

Line 4: Amps, voltage, phase and wire

E. Motor Control Center Nameplates
1. Provide engraved plastic nameplate for each new motor control center with the following information:

Line 1: Motor Control Center Name

Line 2: Source from which fed (e.g.Fed From SWBD 4N2A)

Line 3: Transfer switch from which MCC is fed (if applicable)

Line 4: Amps, voltage, phase and wire
2. Provide phenolic nameplate for each new motor control center cubicle with the following information:

Line 1: Load served, motor size in HP

Line 2: Area that load serves

Line 3: Starter size and Over-current Protection size and Type. (e.g. NEMA 1 - 30 Amp CB)

F. Disconnects, Starters, Combination Starters and Other Devices
1. Provide phenolic nameplate for each device with the following information:

Line 1: Load served

Line 2: Panelboard and circuit number from which device is fed

Line 3: Fuse size or breaker size as applicable

G. Main Service Project Nameplate
1. At Main Service Distribution Switchboard, provide engraved nameplate on switchboard/ switchgear front with the following information:

Project Name: (3/8" lettering, all other 1/4")

Architect

Electrical Consultant (Stantec Consulting Services, Inc.)

Electrical Contractor

Year of Manufacturer
2. At Main Service Distribution Switchboard, provide engraved nameplate on switchboard/switchgear front listing all other services, feeders, and branch circuits supplying the building or structure and the area served by each, per NEC 230 -2(e) Identification.
3. Comply with ANSI A13.1.

2.2 CONDUCTOR, CABLE AND AC AND MC CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each conductor and cable size.

B. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

D. Snap-Around Labels: Slit, pre-tensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of conductor or cable it identifies and to stay in place by gripping action.

E. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

2.3 RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1, for minimum lettering size and for minimum length of color field for each raceway size.

B. Color for Raceway Carrying Circuits at 600 V or Less:
   1. Legend**:** Indicate Voltage and system or service type**.**

C. Color for Raceway Carrying Fire Alarm Circuits:
   1. White Letters on an red field
   2. Legend: "FIRE ALARM" with 3-inch- high letters on 20-inch centers.

D. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

2.4 FLOOR MARKING TAPE

A. 2-inch- wide, 5-mil (0.125-mm) pressure-sensitive vinyl tape, with black and white stripes and clear vinyl overlay.

2.5 UNDERGROUND-LINE WARNING TAPE

A. Tape:
   1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
   2. Printing on tape shall be permanent and shall not be damaged by burial operations.
   3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:
   1. Comply with ANSI Z535.1 through ANSI Z535.5.
   2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
   3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

C. Non-Conducting Protective Tapes
   1. Pigmented polyolefin, bright-colored, continuous-printed with the inscription noted above compounded for direct-burial service.
   2. Thickness: 4 mils (0.1 mm).

D. Protective Tapes Suitable for Conductive or Inductive Tracing.
   1. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the conductive core, bright-colored, continuous-printed with the inscription indicated above**,** compounded for direct-burial service.
   2. Overall Thickness: 5 mils (0.125 mm).
   3. Foil Core Thickness: 0.35 mil (0.00889 mm).

2.6 POSTED DRAWINGS

A. Electrical One-line or Risers: Print electrical one-line/riser diagrams on 20 lb. bond paper. (Blue print paper is not acceptable). Reduce drawings to approximately 1/2 size using Xerox reduction process. Contact engineer to obtain updated original plans for printing.

B. Mounting Frames: Extruded aluminum, 4 point screw mount with 1/8" clear plexi-glass cover.

2.7 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Baked-Enamel Warning Signs:
1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 7 by 10 inches.

D. Metal-Backed, Butyrate Warning Signs:
1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 10 by 14 inches.

E. Warning label and sign shall include, but are not limited to, the following legends:
1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.8 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.
1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

C. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.9 RECEPTACLE AND SWITCH IDENTIFICATION LABELS

A. Materials (Where engraved device faceplates are not used)
   1. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Overlay shall provide a weatherproof and UV-resistant seal for label.

B. Identification
   1. Label all receptacles and devices served from the isolated ground system with "ISO GROUND" above the receptacle or device with the panelboard and circuit supplying them below. Label lettering shall be approximately 3/16" high, orange filled characters.
   2. Label normal receptacle and switch cover plates with the circuit number supplying them below the device using 3/16" high, black filled letters.
   3. For all receptacles other than 15 and 20 amp, 120 volts, provide separate nameplate with ampere rating, voltage and phase.
   4.

2.10 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.
   1. Minimum Width: 3/16 inch .
   2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 12,000 psi.
   3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
   4. Color: Black except where used for color-coding.

B. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.
   1. Minimum Width: 3/16 inch.
   2. Tensile Strength at 73 deg F (23 deg C), According to ASTM D 638: 7000 psi.
   3. UL 94 Flame Rating: 94V-0.
   4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
   5. Color: Black.

2.11 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in Division 09 painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:
   1. Outdoors: UV-stabilized nylon.
   2. In Spaces Handling Environmental Air: Plenum rated.

G. Painted Identification: Comply with requirements in Division 09 painting Sections for surface preparation and paint application.

3.2 EQUIPMENT IDENTIFICATION:

A. On each unit of equipment, install unique designation nameplate that is consistent with naming used in wiring diagrams, schedules, and the Operation and Maintenance Manual.

B. In addition to equipment listed in Part 2 provide nameplates for:
   1. Access doors for concealed electrical devices
   2. Transformers
   3. Substations
   4. Enclosed over-current protective devices
   5. Electrical cabinets, enclosures and terminal cabinets
   6. Contactors
   7. Variable speed drives
   8. Battery -inverters, battery racks, UPS equipment
   9. Power-generating units
   10. Monitoring and control panels and equipment

C. Confirm all final naming prior to label manufacture.

D. Labeling Instructions:
   1. Indoor Equipment: Self-adhesive, engraved, laminated acrylic or melamine label.
   2. Outdoor Equipment: Engraved, laminated acrylic or melamine label with screw fasteners
   3. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
   4. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

3.3 CIRCUIT CONDUCTOR IDENTIFICATION

A. Power-Circuit Conductor Identification, 600 V or Less:

1. For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
2. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.
   a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
   b. Colors for 208/120-V Circuits:
      1) Phase A: Black.
      2) Phase B: Red.
      3) Phase C: Blue.
      4) Neutral: White
      5) Equipment Ground: Green
      6) Isolated Ground: Green with yellow tracer
   c. Colors for 480/277-V Circuits:
      1) Phase A: Brown.
      2) Phase B: Orange.
      3) Phase C: Yellow.
      4) Neutral: Gray
      5) Equipment Ground: Green
      6) Isolated Ground: Green with yellow tracer
   d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
3. Conductors to Be Extended in the Future: Attach self adhesive label to conductors and list source.

B. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
   1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
   2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
   3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

3.4 RACEWAY IDENTIFICATION

A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits More Than 30A, and 120V to ground: Identify with self-adhesive vinyl label.
   1. Install labels at 30-foot maximum intervals.
   2. Install minimum one label per enclosed room.

B. System Identification Color-Coding Bands for Raceways: Each color-coding band shall completely encircle raceway. Place adjacent bands of two-color markings in contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

C. Junction Box Color Coding

1. Color Code all junction and pull boxes installed in accessible ceiling spaces and exposed in unfinished areas using spray paint on the box and entire cover in the following manner:

System	Color
480 Volt Power	Brown
277 volt lighting	Yellow
120/208 volt	Unpainted
Isolated Ground	Orange
Fire Alarm	Red
Telephone/Network	Black
Access Control	Gray

2. Use self adhesive vinyl labels following painting to indicate the circuit numbers in 1" (25mm) high letters contained within.

3.5 WORKING CLEARANCE IDENTIFICATION

A. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by CEC and 29 CFR 1926.403 unless otherwise indicated.

B. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

3.6 UNDER GROUND LINE IDENTIFICATION

A. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, and communication, and control wiring and optical fiber cable**.**
   1. Install underground-line warning tape for direct-buried cables, cables in raceway and duct banks.

B. Underground-Line Warning Tape Installation: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

3.7 POSTED DRAWINGS AND OPERATING INSTRUCTIONS

A. Mount drawings and operating procedures on the wall immediately adjacent to the main piece of equipment for which the instructions apply. If sufficient wall space is available, mount directly to one of the sheet metal panels of the equipment.

B. Color Coding Sign: Install instructional sign for the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

C. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

3.8 WARNING SIGNS

A. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs
   1. Comply with 29 CFR 1910.145.
   2. Identify system voltage with black letters on an orange background.
   3. Apply to exterior of door, cover, or other access.
   4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:
      a. Power transfer switches.
      b. Controls with external control power connections.

END OF SECTION 260553

SECTION 260923 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections include the following:
   1. Section 260519 Low Voltage Electrical Power Conductors and Cables
   2. Section 265600 Exterior Lighting

1.2 SUMMARY

A. This Section includes the following lighting control devices:
   1. Snap switches and wall box dimmers
   2. Indoor occupancy sensors
   3. Outdoor motion sensors
   4. Outdoor photocell switches
   5. Time switches
   6. Multi-pole contactors
   7. Control Relays

B. This Section includes the following daylighting control devices:
   1. Dimmed control of electronic dimming ballasts and drivers with photo sensor(s).
   2. Dimmed control of digital addressable multi-input dimming ballasts and drivers with digital photo sensor(s) and digital control devices.

1.3 DEFINITIONS

A. LED: Light-Emitting Diode

B. PIR: Passive Infrared

C. DT: Dual Technology

1.4 SUBMITTALS

A. Product Data: Provide clearly marked and legible data sheets for each item of equipment being installed on the project. This shall include each major replaceable component that is part of a larger assembly. Data sheets should clearly indicate:
   1. Equipment manufacturer, make, model number, size, nameplate data, etc.
   2. Dimensional and performance data for specific unit provided as appropriate
   3. Required environmental operating parameters
   4. UL, FM and ETL listing and category

5. Manufacturer contact information including address, telephone number, facsimile number, email address, web site address and contact person or persons.
6. Local manufacturer's representative contact information including address, telephone number, facsimile number, email address, web site address and contact person or persons.

B. Shop Drawings: Show installation details for occupancy and light-level sensors.
1. Lighting plan showing location, orientation, and coverage area of each sensor. This plan shall take into consideration the size and use of each space as well as the specific capabilities of submitted manufacturer's equipment to provide proper coverage to the areas of control.
2. Interconnection diagrams showing field-installed wiring.

C. Label List: Submit list of proposed text for all labels prior to manufacturing for review and approval by Owner's representative.

D. Warranty: Submit a copy of product warranty that complies with contract document requirements. Where these requirements exceed manufacturer's standard warranty include cost of extended warranty in contract price.

E. Maintenance Requirements: Submit maintenance requirements manual or guidelines. This document should detail the requirements necessary to comply with the warranty. This is required for the submittal process and is in addition to the O&M requirements.

F. Samples: Provide sample devices and finishes plus other samples when requested, as part of the submittal process.

G. Commissioning Checklist: Submit a copy of the proposed commissioning checklist to be utilized for this project.

H. Commissioning Results: Submit a copy of the completed commissioning documents.

1.5 COORDINATION

A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.6 QUALITY ASSURANCE

A. Qualifications
1. Manufacturer shall have been in the business of manufacturing and providing service for lighting control equipment for similar capabilities and size, under the same name and ownership.
2. All components and assemblies shall be factory pre-tested prior to installation.
3. Factory trained technicians shall be on site for start-up, commissioning and training.
4. Factory trained technicians shall be available for telephone support twenty four (24) hours a day, seven (7) days a week.
5. Lighting control devices must be approved by the CEC (California Energy Commission).

B. Regulatory Requirements
   1. Underwriters Laboratories: Provide U.L. listed lighting control equipment.
   2. Code of Federal Regulations: 47 CFR - FCC All assemblies are to be in compliance with FCC emissions standards specified in Part 15 for Class A application.

1.7 WARRANTY

A. Manufacturer's Warranty: The manufacturer shall provide a written warranty agreeing to provide parts to replace any portion of the lighting control system equipment that fails due to material or workmanship for a period of twelve months from warranty commencement.

B. Warranty Commencement: Warranty shall begin at the point of substantial completion of the system installation, which is defined as the date when commissioning and owner training has been completed and the owner obtains beneficial use of the system.

C. Warranty Replacement Parts: The manufacturer shall be able to ship replacement parts within 24 hours for any component that that fails due to material or workmanship during the warranty period.

PART 2 - PRODUCTS

2.1 OUTDOOR PHOTOCELL SWITCHES

A. Subject to compliance with the contract documents, provide products from one of the following manufacturers:
   1. Acuity Brands
   2. Lighting Control & Design, Inc. (LC&D)
   3. Lutron
   4. Square D
   5. Wattstopper
   6. Or approved equal

B. Solid state with SPST dry contacts rated for 1000 VA LED**,** to operate connected relay, contactor coils, microprocessor input, and complying with UL 773A.
   1. Light-Level Monitoring Range: 10 to 10,000 fc, with an adjustment for turn-on and turn-off levels within that range.
   2. Time Delay: variable, to prevent false operation.
   3. Surge Protection: Metal-oxide varistor type, complying with IEEE C62.41 for Category A1 locations.
   4. Mounting: Twist lock complying with IEEE C136.10, with base-and-stem mounting or stem-and-swivel mounting accessories as required to direct sensor to the North sky exposure.

2.2 TIME SWITCHES (TIME CLOCKS)

A. Subject to compliance with the contract documents, provide products from one of the following manufacturers:

1. Acuity Brands
2. Hubbell Building Automation
3. Leviton
4. Lighting Control & Design, Inc. (LC&D)
5. Square D
6. Wattstopper
7. Or approved equal

B. Digital Time Switches: Electronic, solid-state programmable units with alphanumeric display complying with UL 917.
   1. Contact Configuration: SPST
   2. Contact rating: 20A LED load, 120 or 277 Vac
      a. Program: Single channel, 2 on-off set points on a 24-hour schedule, allowing different set points for each day of the week and an annual holiday schedule that overrides the weekly operation on holidays.
      b. Circuitry: Allow connection of a photoelectric relay to substitute for on and off function of a program.
      c. Astronomical Time: All channels.
      d. Battery Backup: For schedules and time clock.

2.3 CONTROL RELAYS

A. Industrial Control Relays: Rated 600V, 20A convertible contacts. Square D Class 8501 XMO series.

B. General Purpose Relays: Rated 120/ 240 volt, 10A. Square D Class 8501 Type K plug in series with screw terminal socket.

2.4 CONDUCTORS AND CABLES

A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG, complying with Section 260519 - Low Voltage Electrical Power Conductors and Cables.

B. Classes 2 and 3 Control Cable: Multiconductor cable with stranded copper conductors not smaller than No. 22 AWG, complying with Section 260519 - Low Voltage Electrical Power Conductors and Cables. Provide plenum rated as required.

C. Class 1 Control Cable: Multiconductor cable with stranded copper conductors not smaller than No. 18 AWG, complying with Section 260519 - Low Voltage Electrical Power Conductors and Cables. Provide plenum rated as required.

D. Install unshielded, twisted-pair cable for control and signal transmission conductors, complying with Section 260519 - Low Voltage Electrical Power Conductors and Cables. Provide plenum rated as required.

PART 3 - EXECUTION

3.1 SENSOR INSTALLATION

A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression systems, and partition assemblies.

B. Install and aim sensors in locations to achieve at least 90 percent coverage of areas indicated. Install sensors in accordance with manufacturer's instructions. Do not exceed coverage limits specified in manufacturer's written instructions.

C. Where sensors are integral to light fixtures, coordinate orientation and location of fixture with sensor position.

3.2 DEVICE INSTALLATION

A. Dimmers:
1. Install dimmers within terms of their listing.
2. Verify that dimmers used for fan speed control are listed for that application.
3. Install unshared neutral conductors on line and load side of dimmers according to manufacturers' device listing conditions in the written instructions.

B. Arrangement of Devices: Group adjacent switches under single, multigang wall plates.

3.3 WIRING INSTALLATION

A. Wiring Method: Comply with Section 260519 - Low Voltage Electrical Power Conductors and Cables.

B. Wiring within Enclosures: Comply with NECA 1. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.

C. Size conductors according to lighting control device manufacturer's written instructions, unless otherwise indicated.

D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

3.4 IDENTIFICATION

A. Identify components and power and control wiring according to Section 260553 - Identification For Electrical Systems.

B. Label time switches and contactors with a unique designation.

3.5 FIELD QUALITY CONTROL

A. Perform the following field tests and inspections and prepare test reports:
   1. After installing time switches and sensors, and after electrical circuitry has been energized, adjust and test for compliance with manufacturers' commissioning checklist.
   2. Operational Test: Verify actuation of each sensor and adjust time delays.

B. Remove and replace lighting control devices where test results indicate that they do not comply with specified requirements.

C. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.6 SYSTEM STARTUP AND COMMISSIONING

A. Commissioning shall take place prior to demonstration of system to Owner. After the system has been installed the Contractor shall provide manufacturer's recommended commissioning with factory trained and authorized technicians on-site, to:
   1. Verify that the contractor has properly installed and interconnected all necessary components.
   2. Verify correct operation of all system components.
   3. Verify that all switch and contact inputs are in compliance with contract requirements.
   4. Occupancy sensors and photo-sensors: Ensure that each sensor is correctly placed and oriented to provide the intended function. Adjust sensor location if unanticipated obstructions are present that impede the proper operation of the device.
   5. Occupancy Sensors: Adjust sensitivity and time delay of the occupancy sensor and test to ensure it provides appropriate response. Set initial time delay for 15 minutes.
   6. Dual Technology Type Occupancy Sensors: If interferences occur, disable either PIR or ultrasonic technology as appropriate for application.
   7. Daylight harvesting: Calibrate sensors after all furnishings and interior finishes are installed. Adjust photo-sensor to determine the threshold for switching based upon the detected light level. Calibrate sensor under normal daylight levels and dusk light levels.
   8. Daylight dimming controls: Confirm that fluorescent lamps are pre-seasoned by manufacturer or season lamps as recommended by manufacturer prior to dimming.
   9. Submit completed verification checklist.

3.7 OWNER'S INSTRUCTIONS AND SYSTEM DEMONSTRATION

A. System Demonstration
   1. Schedule demonstration a minimum of two-weeks prior to system turn over and substantial completion. Schedule with owner's representative and electrical engineer.
   2. Demonstrate complete system operation and contract compliance to designated owner's representative and engineer to prove system is functional and ready for comprehensive training.

B. System Instruction
   1. The Contractor shall after one week (minimum) written notification to Architect conduct an instruction session during which all maintenance and operational aspects of the system will be described and demonstrated to personnel selected by the Owner. The session shall be conducted by a Contractor's representative thoroughly familiar with the

characteristics of the system. O & M manual information regarding the system shall be turned over to the Architect prior to scheduling the instruction session.

2. Training shall utilize the following draft documents:
   a. Draft O&M Manual
   b. Contractor's record drawings
3. The training effort shall validate the O&M Manual and record drawing documentation.

END OF SECTION 260923

SECTION 262200 - LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section includes dry type transformers rated 600 volts and below with capacities up to 1000kVA.

1.3 REFERENCES

A. Transformers shall be manufactured, tested and installed in accordance with the latest revision of the following Standards and Publications.
   1. The Energy Policy and Conservation Act of 1975, Part C of Title III, Certain Industrial Equipment (Distribution Transformers), Department of Energy 10 CFR Part 431 Energy Conservation Program: Energy Conservation for Distribution Transformers, including amendments published in 78 FR 23335 (April 18, 2013) for implementation in 2016.
   2. American National Standards Institute (ANSI)
      a. ANSI C57.12.91 IEEE Standard Test Code for Dry Type Distribution and Power Transformers.
   3. National Electrical Manufacturer's Association (NEMA)
      a. NEMA ST-20 Dry-Type Transformers for General Applications
      b. NEMA TP-1 Guide for Determining Energy Efficiency for Distribution Transformers
      c. NEMA TR-1 Transformers, Regulators and Reactors R2000.
      d. NEMA TP-3 Standard for the Labeling of Distribution Transformer Efficiency.
      e. NEMA 250 Enclosures for Electrical Equipment 1,000 volts maximum.
   4. Underwriters Laboratories, Inc. (UL)
      a. UL 506 Standard for Specialty Transformers (for transformers rated 10 kVA and below)
      b. UL 1561 Standard for Dry Type General Purpose and Power Transformers (for transformers rated 10 to 1500 kVA)
   5. American Association of State Highway and Transportation Officials (AASHTO)
   6. International Building Code (latest edition) for seismic certification

B. ASCE 7, Minimum Design Loads for Buildings and Other Structures

1.4 SUBMITTALS

A. General: Conform to requirements described in this specification section.

B. Demonstrate conformance with specification requirements. Provide typical load losses for each transformer size at 0%, 40%, 75% and 100% of full load rating.

C. Submit shop drawings for proposed channel assembly for suspending transformers.

D. Submit lug schedule showing proposed lugs for each transformer.

E. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, center of gravity, loads, required clearances, method of field assembly, components, and location and size of each field connection.

F. Wiring Diagrams: Power wiring with polarity indication.

G. Manufacturer Special Seismic Certification: Upon request by authority having jurisdiction, submit certification that transformers, accessories, and components will withstand seismic forces defined for the site in accordance with ASCE 7. Unless project documentation (ie building structural drawings) defines otherwise, submit certifications based on ASCE 7 Importance Factor of 1.5 and Seismic Design Category F.
   1. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
   2. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the InterNational Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
   1. Testing Agency's Field Supervisor: Person currently certified by the InterNational Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7.

C. Source Limitations: Obtain each transformer type through one source from a single manufacturer.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. Comply with IEEE C57.12.91, "Test Code for Dry-Type Distribution and Power Transformers."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions within the enclosure of each ventilated-type unit, throughout periods during which equipment is not energized and when transformer is not in a space that is continuously under normal control of temperature and humidity.

1.7 COORDINATION

A. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Coordinate installation of wall-mounting and structure-hanging supports with actual transformer provided and seismic bracing requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Eaton Electrical Inc.; Cutler-Hammer Products.
   2. General Electric Company.
   3. Siemens Energy & Automation, Inc.
   4. Square D; Schneider Electric.
   5. Or approved equal

2.2 GENERAL TRANSFORMER REQUIREMENTS

A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.

B. Cores: Grain-oriented, non-aging silicon steel.

C. Coils: Continuous windings without splices except for taps.
   1. Internal Coil Connections: Brazed or pressure type.
   2. Coil Material: Aluminum.

D. Comply with each listed REFERENCE applicable to the specified type of transformer.

E. Provide transformers that are internally braced to withstand seismic forces at the site with an importance factor of 1.5 per ASCE 7.

2.3 ENCLOSURE

A. Steel panel enclosure over core, coil and terminal chamber with louvered openings for convection cooling. Cooling and terminal access shall be possible with both sides and rear of enclosure obstructed. Minimum 14 gage steel with appropriate reinforcement and lifting lugs

B. Indoor: Ventilated, NEMA 250, Type 2.

C. Outdoor: Ventilated with screened openings, raintight, NEMA 250 Type 3R

D. Finish: Comply with NEMA 250 for "Indoor Corrosion Protection" Manufacturer's standard gray finish.

2.4 WINDINGS

A. Separate primary and secondary. Windings shall have Class H insulation and shall be rated for continuous operation at rated kVA with temperature rise of not over 150 degrees C above a 40 degree C ambient, with a maximum hot spot temperature of 220 degrees C.

B. Core and coil mounted on rubber isolation mounting pads. Windings and core and coil assembly shall be treated and built to resist the effects of dirt and moisture.

C. Unless noted otherwise three phase transformers shall have a 480 volt delta connected primary and 208Y/120 volt, three phase, four wire secondary. Single phase transformers shall be 480 volt, single phase, primary, 120/240 volt, single phase, three wire secondary.

D. Windings shall be copper or aluminum.

E. Grounded electrostatic shield to reduce capacitive coupling where noted on the drawings. Include primary surge suppression and secondary filters similar to Square D Class 7450-FIL. Common mode noise attenuation: -65db, 1.5 to 100kHz.

2.5 PRIMARY TAPS

A. Transformers rated 15 KVA and larger shall have full capacity taps, minimum of two 2-1/2 percent above and four 2-1/2 percent below normal (rated) primary voltage.

B. Transformers rated less than 3 kVA:

C. Transformers rated 7.5 to 24 kVA: One 5 percent tap above and one 5 percent tap below normal full capacity

2.6 RATINGS

A. Continuous capacity rating not less than size noted.

B. K Factor Ratings
   1. Provide transformers rated for harmonic loads characterized by the K-Factor indicated on the drawings, when loaded at full nameplate rating.

C. Efficiency
   1. Transformers shall comply with the Energy Policy Act of 1975 and subsequent amendments, and NEMA TP-1, applying whichever of the two standards has the greater efficiency for the specified kva size and phase.

2.7 CONNECTIONS

A. Provisions for external connections shall be made by means of a terminal board employing lugs conforming to Section 260519 – Low-Voltage Electrical Power Conductors and Cables which are compatible with the external conductors installed All connections shall be accessible from front of cabinet.

B. Wire termination provisions shall be based on and marked suitable for the use of 75C or 90C wire.

2.8 NOISE LEVEL

A. Manufacturer shall test for noise level compliance in accordance with ANSI C57.12.91, IEEE Standard Test Code for Dry Type Distribution and Power Transformers.

B. Quiet type reduced noise level transformers shall have noise levels not exceeding 42db for sizes less than 51 kVA, 47 db for 51-150 kVA and 52 db for 151 to 300 kVA and 57db for greater than 300 kVA.

2.9 CONTROL AND SIGNAL TRANSFORMERS

A. Description: Self-cooled, two-winding dry type, rated for continuous duty, complying with NEMA ST 1, and listed and labeled as complying with UL 506.

B. Ratings: Continuous duty. If rating is not indicated, provide at least 50 percent spare capacity above connected peak load.

2.10 VIBRATION ISOLATORS

A. Isolators shall be sized to safely accommodate weight of transformer.

B. Pads
   1. Vibration isolation shall exceed 95%.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions for compliance with enclosure- and ambient-temperature requirements for each transformer.

B. Verify that field measurements are as needed to maintain working clearances required by NFPA 70 and manufacturer's written instructions.

C. Examine walls, floors, roofs, and concrete bases for suitable mounting conditions where transformers will be installed.

D. Verify that ground connections are in place and requirements in Division 26 Section "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GENERAL

A. Comply with manufacturer's requirements for storage, handling, and installation. Include copy of manufacturer's recommendation in Operations and Maintenance manual.

B. Remove all shipping blocks prior to installation.

3.3 MOUNTING

A. General
1. Attach to the building structure to prevent overturning or impacting adjacent systems in the event of seismic earthquake.
2. All attachment nuts to have split and flat washer.
3. Mount on floor. Set transformers level and plumb within 1/2 degree.
4. Compress pad or combination isolators to optimize vibration isolation at 60 Hz.

B. Floor mounting
1. Secure floor mounted types to floor via rubber pad isolators.

3.4 CONNECTIONS

A. Provide raceway rough-in to allow for cable pulling and minimum cable bending requirements.

B. 208/120 volt three phase and 120/240 volt single phase secondary transformers shall be considered "grounded neutral separately derived systems" and neutral shall be grounded per code.

C. Transformer raceway connections shall be flexible metal conduit as specified in Section 260533 - Raceways and Boxes For Electrical Systems.

D. Voltage Tap Connections: Connect all transformers at "normal" tap. After facility is completely energized, measure secondary voltages and phase current at all transformers and service switchboard. Forward a list to Engineer and Architect for evaluation. Include copy in O&M Manual. Reconnect taps as subsequently directed. All costs associated with this work to be included in base bid.

E. Insulation temperature rating of conductors connecting to transformers shall be 90C or higher.

3.5 IDENTIFICATION

A. Provide permanently attached engraved nameplates per Section 260553 - Identification For Electrical Systems for each transformer.

3.6 ADJUSTING

A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 10 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.

B. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION 262200

SECTION 262413 - SWITCHBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Service and distribution switchboards rated 600 V and less.
   2. Transient voltage suppression devices.
   3. Disconnecting and overcurrent protective devices.
   4. Instrumentation.
   5. Control power.
   6. Accessory components and features.
   7. Identification.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. RMS: Root mean square.

D. SPDT: Single pole, double throw.

1.4 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Switchboards shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
   1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.5 ACTION SUBMITTALS

A. Product Data: For each type of switchboard, overcurrent protective device, transient voltage suppression device, ground-fault protector, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

B. Shop Drawings: For each switchboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings.
   a. Detail enclosure types for types other than NEMA 250, Type 1.
   b. Detail bus configuration, current, and voltage ratings.
   c. Detail short-circuit current rating of switchboards and overcurrent protective devices.
   d. Detail utility company's metering provisions with indication of approval by utility company.
2. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
3. Include time-current coordination curves for each type and rating of overcurrent protective device included in switchboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device.
4. Include schematic and wiring diagrams for power, signal, and control wiring.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Seismic Qualification Certificates: Submit certification that switchboards, overcurrent protective devices, accessories, and components will withstand seismic forces defined in Section 260529 Hangers and Supports for Electrical Systems. Include the following:
   1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
      a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."
   2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
   3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Field Quality-Control Reports:
   1. Test procedures used.
   2. Test results that comply with requirements.
   3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For switchboards and components to include in emergency, operation, and maintenance manuals. Include the following:
   1. Routine maintenance requirements for switchboards and all installed components.
   2. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
   3. Time-current coordination curves for each type and rating of overcurrent protective device included in switchboards. Include selectable ranges for each type of overcurrent protective device.

1.8 COORDINATION AND ARC FLASH HAZARD STUDY

A. Provide coordination study and Arc Flash Hazard Study. Study to indicate switchboard components are selectively coordinated for all levels of short circuit current. Submit settings and trip curves of all components.

1.9 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers qualified as defined in NEMA PB 2.1 and trained in electrical safety as required by NFPA 70E.

B. Testing Agency Qualifications: Member Company of NETA or an NRTL.
   1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

C. Source Limitations: Obtain switchboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

D. Product Selection for Restricted Space: Maximum 92 inches (including base channels). Length and depth: Not exceeding dimensions as scaled or noted in contract documents. Equipment exceeding dimensions not allowed. Base bid on equipment complying with contract documents.

E. Comply with NEMA PB 2, "Deadfront Distribution Switchboards."

F. Comply with UL 891.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver switchboards in sections or lengths that can be moved past obstructions in delivery path.

B. Retain first paragraph below Store indoors in clean dry space with uniform temperature to prevent condensation. Protect from exposure to dirt, fumes, water, corrosive substances, and physical damage.

C. If stored in areas subjected to weather, cover switchboards to provide protection from weather, dirt, dust, corrosive substances, and physical damage. Remove loose packing and flammable materials from inside switchboards; install electric heating (250 W per section) to prevent condensation.

D. Handle switchboards according to NEMA PB 2.1 and NECA 400.

1.11 PROJECT CONDITIONS

A. Environmental Limitations: Rate equipment for continuous operation under the following conditions, unless otherwise indicated:
   1. Ambient Temperature: Not exceeding 104 deg F (40 deg C).
   2. Altitude: Not exceeding 6600 feet (2000 m).

B. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
   1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of electric service.
   2. Do not proceed with interruption of electric service without Construction Manager's written permission.
   3. Comply with NFPA 70E.

1.12 COORDINATION

A. Coordinate layout and installation of switchboards and components with other construction including conduit, piping, equipment, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels. Coordinate work so piping, ducts, etc. are routed around dedicated spaces above and in front of switchboards per code.

B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.13 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products or comparable product by one of the following:
   1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
   2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
   3. Siemens Energy & Automation, Inc.
   4. Square D; a brand of Schneider Electric.
   5. Or approved equal

2.2 SWITCHBOARD STRUCTURE

A. Front-Connected, Front-Accessible Switchboard: Panel -mounted fixed, individually mounted main device as indicated on the drawings, panel-mounted branches, and sections front and rear aligned.

B. Determine switchboard voltage and ampacity from the drawings.

C. Space for future fused switches or breakers noted including complete bussing and required hardware for mounting devices. Space for conductor current limiters when noted.

D. Cleats for securing conductors. Miscellaneous appurtenances as required for complete installation.

E. When serving as a Service Switchboard:
   1. UL 869 and Service Entrance UL labels.
   2. Utility Metering Compartment: Fabricated compartment for current transformer space, meter base(s), metering conductors and miscellaneous appurtenances required by serving utility. Complying with utility company's requirements. If separate vertical section is required for utility metering, match and align with basic switchboard.

F. Bus Transition and Incoming Pull Sections: Matched and aligned with basic switchboard.

G. Hinged Front Panels: Allow access to circuit breaker, metering, accessory, and blank compartments.

H. Pull Box on Top of Switchboard, where space allows:
   1. Adequate ventilation to maintain temperature in pull box within same limits as switchboard.
   2. Set back from front to clear circuit-breaker removal mechanism.
   3. Removable covers shall form top, front, and sides. Top covers at rear shall be easily removable for drilling and cutting.
   4. Bottom shall be insulating, fire-resistive material with separate holes for cable drops into switchboard.
   5. Cable supports shall be arranged to facilitate cabling and adequate to support cables indicated, including those for future installation.

2.3 SWITCHBOARD BUSBARS

A. Three phase, four wire, unless otherwise indicated. Brace switchboard components for symmetrical fault current shown plus asymmetrical offset (65,000-amp symmetrical bracing minimum).

B. At the manufacturers option, provide one of the following:
   1. Phase and Neutral-Bus Material: Hard-drawn copper of 98 percent conductivity or tin-plated, high-strength, electrical-grade aluminum alloy.

C. Circuit Breaker Connections
   1. If bus is aluminum, use copper- or tin-plated aluminum for circuit-breaker line connections.
   2. If bus is copper, use copper for feeder circuit-breaker line connections.

D. Contact Surfaces: Silver plated

E. Main Phase Buses, Neutral Buses, and Equipment Ground Buses: Uniform capacity for entire length of switchboard's main and distribution sections. Provide for future extensions from both ends.

F. Vertical Section Bus: Match main phase bus. For drawout or individually mounted circuit breakers, match the ampacity of the sum of the circuit breaker frame sizes.

G. Neutral Buses: 100 percent of the ampacity of phase buses, unless otherwise indicated, equipped with pressure connectors for outgoing circuit neutral cables. Brace bus extensions for busway feeder neutral bus.

H. Ground Bus: Full length ground bus bonded to frame conforming with U.L. 891 for minimum size except larger as required by code for grounding neutral conductor. Hard drawn copper of 98 percent conductivity, equipped with pressure connectors for feeder and branch-circuit ground conductors. For busway feeders, extend insulated equipment grounding cable to busway ground connection and support cable at intervals in vertical run.

I. Future Devices: Equip compartments with mounting brackets, supports, bus connections, and appurtenances at full rating of circuit-breaker compartment.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker: NEMA AB 3, with interrupting capacity to meet available fault currents.
   1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits.
   2. Adjustable Instantaneous-Trip Circuit Breakers: Frames sizes 250A and larger. Magnetic trip element with front-mounted, field-adjustable trip setting.
   3. Electronic trip-units on circuit breakers rated 800 amps and larger shall have RMS sensing, field-replaceable rating plug, and the following discrete (field-adjustable) settings:
      a. Instantaneous trip.
      b. Long- and short-time pickup levels.
      c. Long- and short-time time delay adjustments.
      d. Ground-fault pickup level, time delay, and I2t response.
   4. Electronic trip-units shall provide local trip indication, i.e. overload, short circuit or ground fault.
   5. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
   6. Circuit breakers with overcurrent ratings of 1200 amps and above: provide manual switching means to override delay in instantaneous trip sensing elements to reduce the arc flash hazard on the load side of the circuit breaker.
   7. Integrally Fused Circuit Breakers: Thermal-magnetic trip element with integral limiter-style fuse listed for use with circuit breaker; trip activation on fuse opening or on opening of fuse compartment door.
   8. Molded-Case Circuit-Breaker Features and Accessories: Standard frame sizes, trip ratings, and number of poles.
      a. Lugs: Compression style, suitable for number, size, trip ratings, and conductor material.

B. Enclosed, Insulated-Case Circuit Breaker: Fully rated, encased-power circuit breaker with interrupting capacity rating to meet available fault current.
   1. Fixed circuit-breaker mounting.
      a. The drawout design shall permit breaker to be withdrawn from an engaged position to a test position, and to a disengaged position.

2. Two-step, stored-energy closing.
3. Microprocessor-based trip units with interchangeable rating plug, LED trip indicators, and the following field-adjustable settings:
   a. Instantaneous trip.
   b. Long- and short-time pickup levels.
   c. Long- and short-time time adjustments with I2t response.
   d. Ground-fault pickup level, time delay, and I2t response.
4. Circuit breakers with overcurrent ratings of 1200 amps and above: provide manual switching means to override delay in instantaneous trip sensing elements to reduce the arc flash hazard on the load side of the circuit breaker.
5. Remote trip indication.

2.5 INSTRUMENTATION

A. Instrument Transformers: NEMA EI 21.1, IEEE C57.13, and the following:
   1. Potential Transformers: Secondary voltage rating of 120 V and NEMA accuracy class of 0.3 with burdens of W, X, and Y.
   2. Current Transformers: Ratios shall be as indicated with revenue metering accuracy class and burden suitable for connected relays, meters, and instruments.
   3. Control-Power Transformers: Dry type, mounted in separate compartments for units larger than 3 kV.

2.6 CONTROL POWER

A. Control Circuits: 120 V, supplied through secondary disconnecting devices from control-power transformer.

B. Control-Power Fuses: Primary and secondary fuses for current-limiting and overload protection of transformer and fuses for protection of control circuits.

C. Control Wiring: Factory installed, with bundling, lacing, and protection included. Provide flexible conductors for No. 8 AWG and smaller, for conductors across hinges, and for conductors for interconnections between shipping units.

2.7 IDENTIFICATION

A. Nameplates: Refer to Specification 260553 - Identification.

PART 3 - EXECUTION

3.1 PROTECTION

A. Temporary Heating: Apply temporary heat, to maintain temperature according to manufacturer's written instructions, until switchboard is ready to be energized and placed into service

3.2 EXAMINATION

A. Examine elements and surfaces to receive switchboards for compliance with installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Install switchboards and accessories according to NEMA PB 2.1 and NECA 400.

B. Install and anchor switchboards level on concrete bases. Bolt to floor using 1/2" diameter drilled in concrete anchors with 4 1/2" minimum embedment in structural floor slab.

C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from switchboard units and components.

D. Operating Instructions: Frame and mount the printed basic operating instructions for switchboards, including control and key interlocking sequences and emergency procedures. Fabricate frame of finished wood or metal and cover instructions with clear acrylic plastic. Mount on front of switchboards.

E. Install overcurrent protective devices, transient voltage suppression devices, and instrumentation.
   1. Set field-adjustable switches and circuit-breaker trip ranges in accordance with coordination study.

3.4 WIRING

A. Conform with applicable specification sections. Conductors and terminations shall conform with Section 260519 Low-Voltage Power Conductors and Cables. Secure all conductors to switchboard structure.

3.5 GROUNDING

A. Provide per Section 260526 - Grounding.

3.6 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Section 260553-Identification for Electrical Systems.

B. Switchboard Nameplates: Label each switchboard component with engraved laminated-plastic nameplate mounted with corrosion-resistant screws.

C. Device Nameplates: Label each disconnecting and overcurrent protective device and each meter and control device mounted in compartment doors with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Acceptance Testing Preparation:
   1. Test insulation resistance for each switchboard bus, component, connecting supply, feeder, and control circuit.
   2. Test continuity of each circuit.

C. Tests and Inspections:
   1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
   2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
   3. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

D. Switchboard will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies switchboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.8 ADJUSTING

A. Adjust moving parts and operable components to function smoothly and lubricate as recommended by manufacturer.

3.9 DEMONSTRATION

A. Train owner's maintenance personnel to adjust, operate, and maintain switchboards, overcurrent protective devices, instrumentation, and accessories

END OF SECTION 262413

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Distribution panelboards.
   2. Lighting and appliance branch-circuit panelboards.

1.3 DEFINITIONS

A. SVR: Suppressed voltage rating.

1.4 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
   1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.5 SUBMITTALS

A. Product Data: For each type of panelboard, switching and overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.
   1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
      a. Verify space available with equipment sizes and code required working clearances prior to submitting shop drawings.
   2. Detail enclosure types and details for types other than NEMA 250, Type 1.
   3. Detail bus configuration, current, and voltage ratings.
   4. Short-circuit current rating of panelboards and overcurrent protective devices.
   5. Include evidence of NRTL listing for series rating of installed devices.
   6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
   7. Include wiring diagrams for power, signal, and control wiring.

8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device.

C. Qualification Data: For qualified testing agency.

D. Field Quality-Control Reports:
1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

E. Panelboard Schedules: For installation in panelboards.

F. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. Include the following:
1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.
1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

E. Comply with NEMA PB 1.

F. Comply with CEC.

1.7 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.8 WARRANTY

A. Provide certified letter from manufacturer indicating availability of replacement parts for a minimum period of ten (10) years.

1.9 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Keys: Two spares for each type of panelboard cabinet lock.
   2. Circuit Breakers Including GFCI and Ground Fault Equipment Protection (GFEP) Types: Two spares for each panelboard.
   3. Fuses for Fused Switches: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
   4. Fuses for Fused Power-Circuit Devices: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Square D, General Electric, Cutler Hammer, Siemens, IEM.

B. Or approved equal

2.2 GENERAL REQUIREMENTS FOR DISTRIBUTION, LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Enclosures: Flush or surface-mounted cabinets, as indicated on drawings or panel schedules.
   1. Rated for environmental conditions at installed location.
      a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
   2. Outdoor Locations: NEMA 250, Type 3RHinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Key identically.
   3. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
   4. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
   5. Where two cabinets are located adjacent to each other in finished areas, provide matching trim, same height.
   6. Where remote controlled switch or contactor is mounted in panelboard, mount on same frame as panelboard interior, with dedicated access door and key lock
   7. Finishes:

a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
b. Back Boxes: Same finish as panels and trim.

8. Directory Card: Inside panelboard door, mounted in transparent card holder, type written. Handwritten is not acceptable.

B. Incoming Mains Location: Top or bottom, as determined by contractor unless noted otherwise.

C. Phase, Neutral, and Ground Buses:
1. Material: Tin-plated aluminum.
2. Panelboards shall have full ampacity bussing throughout and shall be full size in regard to number of possible pole spaces. Bussing shall be identified with phases reading left to right.
3. Neutral bus shall be mounted independently of equipment ground bus, and in no case shall neutral bus be used as equipment ground bus, or vice versa.
4. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box and located on back of panelboard. Shall have lug or lugs from equipment grounding conductor from switchboard or distribution board and screw type terminals for connection of equipment green ground wire in same quantity as number of poles in panel.
5. Isolated Ground Bus (where indicated on plans): Adequate for branch-circuit isolated ground conductors; insulated from box.
6. Extra-Capacity Neutral Bus (where indicated on plans): Neutral bus rated 200 percent of phase bus and UL listed as suitable for nonlinear loads.

D. Conductor Connectors: Suitable for use with conductor material and sizes.
1. Material: Tin-plated aluminum.
2. Main and Neutral Lugs: Compression type.
3. Ground Lugs and Bus-Configured Terminators: Mechanical type, UL listed for both steel and aluminum.
4. Feed-Through Lugs (where indicated on plans): Compression type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs (where indicated on plans): Compression type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
6. Extra-Capacity Neutral Lugs (where indicated on plans): Rated 200 percent of phase lugs mounted on extra-capacity neutral bus.

E. Service Equipment Label: NRTL labeled for use as service equipment for panelboards or load centers with one or more main service disconnecting and overcurrent protective devices.

F. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

G. Panelboards rated for 400 amps and above shall accept 225-amp frame circuit breakers.

H. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, listed and labeled for series-connected short-circuit rating by an NRTL.

I. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.
   1. Minimum interrupting ratings shall be 14,000 (RMS Symmetrical) at 480/277V and 10,000 (RMS Symmetrical) at 208/120V.

2.3 OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
   1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 400 A and larger.
   2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
   3. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:
      a. Instantaneous trip.
      b. Long- and short-time pickup levels.
      c. Long- and short-time time adjustments.
      d. Ground-fault pickup level, time delay, and I^2t response.
   4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
   5. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
   6. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
   7. Arc-Fault Circuit Interrupter (AFCI) Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
   8. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
      a. Standard frame sizes, trip ratings, and number of poles.
      b. Lugs: Compression style, suitable for number, size, trip ratings, and conductor materials.
      c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
      d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
      e. Shunt Trip: 120V trip coil energized from separate circuit, set to trip at 55 percent of rated voltage.
      f. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage with field-adjustable 0.1- to 0.6-second time delay.
      g. Auxiliary Contacts: One SPDT switch with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts and "b" contacts operate in reverse of circuit-breaker contacts.
      h. Alarm Switch: Single-pole, normally open contact that actuates only when circuit breaker trips.
      i. Multipole units enclosed in a single housing or factory assembled to operate as a single unit.
      j. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.

B. Circuit breakers shall be the same manufacturer as panelboard.

C. Where spare is indicated, panelboard shall be provided with the specified branch circuit breaker, full ampacity bussing and mounting hardware. Where space is indicated, panelboard shall be provided with full ampacity bussing and mounting hardware to accommodate future installation of branch circuit breaker.

2.4 NAMEPLATES

A. Engraved nameplates per Section 260553 - Identification for Electrical Systems permanently attached to panelboard front. Include panel name with 1/4" letters, area served, voltage, phase and wire (e.g., 2N1, 208Y/120, 3 phase, 4 wire, 480Y/277, 3 phase, 4 wire) in 1/8 inch characters. When project has more than one switchboard include switchboard fed from (e.g., Fed from SWBD. 4BP).

B. Nameplate color: Normal system - white letters on black.
Emergency system - white letters on red.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.

B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

C. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install panelboards and accessories according to NEMA PB 1.1.

B. Equipment Mounting: Install panelboards on concrete bases, 4-inch nominal thickness. Comply with requirements for concrete base specified in Division 03 Section "Cast-in-Place Concrete."
   1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around full perimeter of base.
   2. For panelboards, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
   3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   4. Install anchor bolts to elevations required for proper attachment to panelboards.
   5. Attach panelboard to the vertical finished or structural surface behind the panelboard.

C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.

D. Mount top of trim 90 inches above finished floor unless otherwise indicated. The operable handle of the top-most circuit breaker, in on position shall not be higher than 79 inches above finished floor.

E. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

F. Panelboards installed recessed in fire rated walls shall be adequately boxed or backed with fire rated material and shall be approved by Fire Marshal. The final construction shall equal or exceed fire rating of the wall.

G. Locate in dedicated spaces. Coordinate project construction so piping, ducts, etc. are routed around dedicated spaces above and in front of panelboards per code.

H. Verify space available with equipment sizes and code required working clearances prior to installation.

I. Install overcurrent protective devices and controllers not already factory installed.
   1. Set field-adjustable, circuit-breaker trip ranges.

J. Install filler plates in unused spaces.

K. Arrange conductors in gutters into groups and bundle and wrap with wire ties

L. Comply with NECA 1.

3.3 WIRING

A. Conform to applicable sections of these specifications and NEMA PB 1.1. Conductors and terminations per Section 260519 Low-Voltage Electrical Power Conductors and Cables. Coverplates in open knockouts.

B. Panelboards shall be wired and connected after installation at locations shown. Pre-wiring off site and splicing of branch circuit in wireway above or below panelboard is not permitted.

3.4 CIRCUIT INDEX AND LABELS

A. Typed circuit index with odd circuits on left, even circuits on right, listing each circuit by number with complete load designation, (i.e. Receptacle room ___, lights room ___, etc.). Room names/numbers per actual room identification assigned by owner at project completion (assigned room numbers may differ from drawings). Mount inside door with transparent protective cover. Provide number labels on circuit breakers to match index.

B. Install nameplate as per Part 2.

3.5 GROUNDING

A. Provide per Section 260526 - Grounding and Bonding for Electrical Systems.

3.6 CABINET PAINTING

A. Cabinets furnished prime painted: Field paint to match wall color. (See Division 9 Painting).

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Acceptance Testing Preparation:
   1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
   2. Test continuity of each circuit.

C. Tests and Inspections:
   1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
   2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.8 ADJUSTING

A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.

3.9 CLEANING

A. Prior to final inspection, clean panelboard interiors, adjust trims, covers, hinges and locks and refinish marred or scratched covers to original conditions. Remove paint splatters and other spots. Vacuum dirt and debris; do not use compressed air to assist in cleaning. Repair exposed surfaces to match original finish.

3.10 PROTECTION

A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 262416

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Twist-locking receptacles.
3. Wall-box motion sensors.
4. Isolated-ground receptacles.
5. Weather-resistant receptacles.
6. Communications outlets.
7. Pendant cord-connector devices.
8. Cord and plug sets.
9. Floor service outlets, poke-through assemblies, service poles, and multioutlet assemblies.

1.3 DEFINITIONS

A. EMI: Electromagnetic interference.

B. GFCI: Ground-fault circuit interrupter.

C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.

D. RFI: Radio-frequency interference.

E. UTP: Unshielded twisted pair.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
1. Receptacles for Owner-Furnished Equipment: Match plug configurations.
2. Cord and Plug Sets: Match equipment requirements.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.6 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
1. Cooper Wiring Devices; Division of Cooper Industries, Inc. (Cooper).
2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
3. Leviton Mfg. Company Inc. (Leviton).
4. Pass & Seymour/Legrand (Pass & Seymour).
5. Or approved equal.

B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.

B. Comply with California Title 24.
1. Receptacles controlled by an energy management device shall be marked with the symbol required by California Title 24, Controlled Receptacle Marking. The marking shall consist of imprinting “CONTROLLED” and the NEC symbol on the receptacle

C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:
1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT-BLADE RECEPTACLES

A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.

1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Cooper.
   b. Hubbell.
   c. Pass & Seymour.
   d. Or approved equal.

B. Isolated-Ground, Duplex Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Cooper.
   b. Hubbell.
   c. Leviton.
   d. Pass & Seymour
   e. Or approved equal.
2. Description: Straight blade; equipment grounding contacts shall be connected only to the green grounding screw terminal of the device and with inherent electrical isolation from mounting strap. Isolation shall be integral to receptacle construction and not dependent on removable parts.

2.4 GFCI RECEPTACLES

A. General Description:
1. Straight blade, feedthrough type.
2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A (including auto monitoring and end of life power denial requirements), and FS W-C-596.
3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.

B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:
1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
   a. Cooper.
   b. Hubbell.
   c. Leviton.
   d. Pass & Seymour
   e. Or approved equal.

2.5 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.
1. Plate-Securing Screws: Metal with head color to match plate finish.
2. Material for Finished Spaces: Smooth, high-impact thermoplastic.
3. Material for Unfinished Spaces: Smooth, high-impact thermoplastic.
4. Material for Damp Locations: Thermoplastic with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.

B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with lockable, while-in-use cover.

2.6 FINISHES

A. Device Color:
1. Wiring Devices Connected to Normal Power System: As selected by Architect unless otherwise indicated or required by CEC or device listing.
2. Isolated-Ground Receptacles: Orange.

B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Coordination with Other Trades:
1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
4. Install wiring devices after all wall preparation, including painting, is complete.

B. Conductors:
1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
4. Existing Conductors:
a. Cut back and pigtail, or replace all damaged conductors.
b. Straighten conductors that remain and remove corrosion and foreign matter.
c. Pigtailing existing conductors is permitted, provided the outlet box is large enough.

C. Device Installation:
1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.

7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

D. Receptacle Orientation:
1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the left.

E. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

F. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on bottom.

G. Adjust locations of floor service outlets to suit arrangement of partitions and furnishings.

3.2 RECEPTACLES

A. Provide isolated group receptacles in the locations shown on the drawings.

B. Provide exterior GFCI receptacle within 25’-0” of each roof mounted mechanical equipment, for all outdoor receptacles, and other locations shown on the drawings.

C. Provide tamper resistant receptacles in pediatric care areas, alcoholism and substance abuse treatment areas, exam rooms, and waiting areas.

3.3 GFCI RECEPTACLES

A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.4 IDENTIFICATION

A. Comply with Section 260553 "Identification for Electrical Systems."

B. Identify each receptacle with panelboard identification and circuit number. Use hot, stamped, or engraved machine printing with black filled lettering on face of plate, and durable wire markers or tags inside outlet boxes.
1. For receptacles other than 15 and 20 amp, 120 volts, engrave coverplate or provide separate nameplate with ampere rating, voltage and phase. Minimum lettering size 3/16".

3.5 ENGRAVING

A. Engrave coverplates on all owner furnished equipment and equipment furnished under other divisions with circuit number, panelboard and “emergency” (where applies) as specified in this

section. This includes but is not limited to: headwalls, gas columns and booms, patient consoles, medical rail systems, custom casework with electrical devices, etc.

3.6 CLEANING

A. Remove excess plaster from interior of outlet boxes.

B. Clean devices and coverplates after painting is complete. Replace stained or improperly painted devices or coverplates.

3.7 CORD AND PLUG SETS

A. Provide for all cord connected equipment furnished by the Owner or specified in other sections when equipment is not supplied with an integral cord and plug set.

B. For equipment other than 120 volts, 1∅, replace plug furnished with equipment to match receptacle actually installed (within ampacity rating of equipment).

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:
1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:
1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Receptacle Polarity Test: Test every receptacle installed or reconnected under this contract with a receptacle circuit tester. Tester shall test for open ground, reverse polarity, open hot, open neutral, hot and ground reversed, hot or neutral and hot open. Rewire receptacles with faults and retest. Submit statement of completed testing signed by the electrician that performed the test.
6. Ground-Fault Receptacle Circuit Interrupter Tests: Test each receptacle or branch circuit breaker having ground-fault circuit protection to assure that the ground-fault circuit interrupter will not operate when subjected to a ground-fault current of less than 4 milliamperes and will operate when subjected to a ground-fault current exceeding 6 milliamperes. Perform testing using an instrument specifically designed and manufactured for testing ground-fault circuit interrupters. Apply the test to the receptacle. "TEST" button operation will not be acceptable as a substitute for this test. Replace receptacles that do not shutoff power with 7/1000 of an ampere within 1/40th of a second and retest.
7. Using the test plug, verify that the device and its outlet box are securely mounted.
8. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262726

SECTION 262813 - FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Cartridge fuses rated 600-V ac and less.
   2. Spare-fuse cabinets.

1.3 REFERENCES

A. American National Standards Institute (ANSI)

B. National Electrical Manufacturers Association (NEMA)

C. Underwriters Laboratories (UL)

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material, dimensions, descriptions of individual components, and finishes for spare-fuse cabinets. Include the following for each fuse type indicated:
   1. Dimensions and manufacturer's technical data on features, performance, electrical characteristics, and ratings.
   2. Current-limitation curves for fuses with current-limiting characteristics.
   3. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse
   4. Coordination charts and tables and related data.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fuses to include in emergency, operation, and maintenance manuals. Include the following:
   1. Ambient temperature adjustment information.
   2. Current-limitation curves for fuses with current-limiting characteristics.
   3. Time-current coordination curves (average melt) and current-limitation curves (instantaneous peak let-through current) for each type and rating of fuse
   4. Coordination charts and tables and related data.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.

1.7 QUALITY ASSURANCE

A. Source Limitations: Obtain fuses, for use within a specific product or circuit, from single source from single manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Comply with NEMA FU 1 for cartridge fuses.

D. Comply with UL 248-11 for plug fuses.

1.8 PROJECT CONDITIONS

A. Where ambient temperature to which fuses are directly exposed is less than 40 deg F (5 deg C) or more than 100 deg F (38 deg C), apply manufacturer's ambient temperature adjustment factors to fuse ratings.

1.9 COORDINATION

A. Coordinate fuse ratings with utilization equipment nameplate limitations of maximum fuse size and with system short-circuit current levels.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Eaton, Inc.
   2. Edison Fuse, Inc.
   3. Ferraz Shawmut, Inc.
   4. Littelfuse, Inc.
   5. Or approved equal

2.2 CARTRIDGE FUSES

A. Characteristics: NEMA FU 1, nonrenewable cartridge fuse; class as specified or indicated; current rating as indicated; voltage rating consistent with circuit voltage.

B. Current limiting, 200,000 AIC minimum interrupting capacity, unless noted otherwise.

C. Circuits 601-6000 amps: Class L

D. Circuits 600 amps and less: Class RK1 or Class J

E. Motor Circuits: Class RK5 dual element time delay or Class L (601-6000A)

F. Transformer Primary Circuits: Class RK5

2.3 SPARE FUSE CABINET

A. Wall-mounted 0.05-inch-(1.27-mm-) thick steel unit with full-length, recessed piano-hinged door key-coded cam lock and pull. Cabinet front and lock to match panelboard equipment specified in Section 262416 - Panelboards.
   1. Size: Adequate for orderly storage of spare fuses specified with 10 percent spare capacity minimum.
   2. Finish: Gray baked enamel.
   3. Identification: "SPARE FUSES" in 1-1/2-inch high letters on exterior of door.
   4. Fuse Pullers: For each size of fuse.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine utilization equipment nameplates and installation instructions to verify proper fuse locations, sizes, and characteristics.

B. Examine fuses before installation. Reject fuses that are moisture damaged or physically damaged.

C. Examine holders to receive fuses for compliance with installation tolerances and other conditions affecting performance, such as rejection features.

D. Examine utilization equipment nameplates and installation instructions. Install fuses of sizes and with characteristics appropriate for each piece of equipment.

E. Evaluate ambient temperatures to determine if fuse rating adjustment factors must be applied to fuse ratings.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install fuses in fusible devices at job site just prior to energization. Do not accept equipment with fuses installed at factory.

B. Arrange fuses so rating information is readable without removing fuse.

C. Install spare fuse cabinet in main electrical room or as shown on drawings.

3.3 CLEANING AND INSPECTION

A. Clean fuses, tighten connections and inspect fuse holders prior to energization of the equipment.

3.4 IDENTIFICATION

A. Install labels complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems" and indicating fuse replacement information on inside door of each fused switch and adjacent to each fuse block, socket, and holder.

END OF SECTION 262813

SECTION 265600 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Exterior luminaires with lamps and ballasts.
2. Luminaire-mounted photoelectric relays.
3. Poles and accessories.
4. Luminaire lowering devices.
5. Foundations

B. Substitutions:
1. Bidders requesting approval to provide products other than those specifically listed in the Light Fixture Schedule shall submit requests in writing to the Architect and Lighting Designer 15 days prior to the close of the bid period. Approval will be in the form of an addendum to the specifications issued to all registered plan holders. No requests for substitution will be considered after this date.
2. Substitution request shall include all information required under paragraph 1.5 SUBMITTALS. Requests for approval shall be accompanied by a working fixture sample (including lamps and a cord and plug). Provide the name of at least one installation where each proposed substitute has been installed for at least six months along with the name and phone number of the Architect, Owners representative and the Lighting Designer of Record. If required by the Architect, the proposed substitutes must be installed at the bidders expense in a location selected by the Architect.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color-rendering index.

C. HID: High-intensity discharge.

D. LER: Luminaire efficacy rating.

E. Luminaire: Complete lighting fixture, including ballast, reflector, wiring and housing.

F. Pole: Luminaire support structure, including tower used for large area illumination.

G. Standard: Same definition as "Pole" above.

1.4 REFERENCES

A. National Electrical Manufacturer's Association (NEMA) LE5-1993:
   1. Procedure for determining Luminaire efficiency ratings.

B. Underwriters Laboratories, Inc. (UL):

UL 924:	Emergency Lighting and Power Equipment
UL 1012	Power Units Other Than Class 2
UL 1310	Class Power Units
UL 1598	Luminaires

1.5 SYSTEM DESCRIPTION

A. Light fixture schedule series numbers are a design series reference and do not necessarily represent the exact catalog number, size, voltage, wattage, type of lamp, ballast, finish trim, ceiling type, mounting hardware, ceiling trim or special requirements as specified hereinafter or as required by the particular installations. Provide complete fixtures to correspond with the number of lamps, wattage, light distribution and/or size specified.

B. If there are discrepancies between fixture illustrations and the written description in the fixture schedule, the written description in the fixture schedule shall take precedence.

C. Light fixture voltage shall match voltage of circuit serving the light fixture.

1.6 SUBMITTALS

A. For standard catalog items, provide original product sheets, -neatly and clearly marked- to indicate that light fixture, drivers and lamps fully comply with contract documents. Include photometric report by an independent certified testing laboratory when required in fixture schedule. Manufacturer's test report is not acceptable.

B. Submittals shall have fixture types and project name clearly indicated and shall be prepared by the authorized manufacturer's representative serving the project area. A list of manufacturer's representatives (including address, telephone and fax numbers) identifying which light fixture types they represent shall be included with submittals. Submittals or requests for substitutions not meeting these requirements will be rejected.

C. Pole and Support Component Certificates: Signed by manufacturers of poles, certifying that products are designed for indicated load requirements in AASHTO LTS-5-E and that load imposed by luminaire and attachments has been included in design. The certification shall be based on design calculations by a professional engineer.

1.7 QUALITY ASSURANCE

A. Fixtures and components shall be new and listed by Underwriters Laboratories (UL) or other Nationally Recognized Testing Laboratory (NRTL) acceptable to the local Authority Having Jurisdiction (AHJ).

1.8 WARRANTY

A. Drivers: Provide manufacturer's warranty for a period of not less than five years. Warranty shall include parts and labor to replace defective ballasts.

B. Exit Signs Utilizing LED Lamp Technology: Provide manufacturer's warranty for a period of not less than five years including parts and labor for full replacement of defective product.

C. LED Luminaires: Provide manufacturer's warranty for a period of not less than three years for repair or replacement of defective electrical parts, including light source, drivers and power supplies.

1.9 EXTRA MATERIALS

A. Drivers: Provide one case or 10% (whichever is less) of each type used on the project. Turn over to Owner and obtain signed receipt.

B. Lamps: Provide one case or 10% (whichever is less) of each type used on the project. Turn over to Owner and obtain signed receipt.

C. Fuses: Provide one case or 10% (whichever is less) of each type used on the project. Turn over to Owner and obtain signed receipt.

D. Adjustable Accent Lights (recessed or surface mounted): Provide additional lenses, color filters and other accessories to be used during final focusing, as follows:
   1. 20% or one case (whichever is less) of each lamp type (type, beam spreads, and wattages to be determined by the lighting designer). A spot and a flood lamp of the same wattage are considered to be two different lamp types.
   2. 10% or one dozen each, (whichever is less) lenses, color filters and louvers (to be determined by the lighting designer).

PART 2 - PRODUCTS

2.1 GENERAL MATERIAL REQUIREMENTS

A. Finish mounting hardware and accessories to prevent corrosion and discoloration to adjacent materials.

B. For weatherproof or vaportight installations, painted finishes of fixtures and accessories shall be weather resistant enamel using proper primers or galvanized and bonderized epoxy, so that the entire assembly is completely corrosion resistant for the service intended. Where aluminum parts come into contact with bronze or steel parts, apply a coating material to both surfaces to prevent corrosion.

C. Non-vaportight fixtures to have 1/8" dia. weep holes as required for proper drainage. Weep holes to be configured to prevent light leaks.

D. Fixtures shall be free of light leaks and designed to provide sufficient ventilation of lamps to provide the photometric performance required. Ballasts and transformers shall be adequately vented.

E. Lampholders shall hold lamps securely against normal vibrations and maintenance handling.

F. Reflector Cones:
   1. Provide minimum 45° lamp and lamp image cut-off for all vertically mounted lamps. For horizontal lamps provide minimum 33° cut-off. There shall be no visible lamp flashing in the cone.
   2. Plastic materials shall not be used for reflector cones, unless noted otherwise in the Light Fixture Schedule.
   3. Reflector cones shall not be riveted or welded to housing and shall be removable without tools. Retention devices shall not deform the cone in any manner. Trim shall be flush with finished ceiling without gaps or light leaks. Where the flange trim is separate from the cone, it shall have the same finish as the cone.
   4. Reflector cones shall be of uniform gauge, not less than 0.032-inch thick, high purity aluminum Alcoa 3002 alloy, free of spin marks or other defects.
   5. Manufacture reflector under the Alzak process. Refer to fixture schedule for cone color and specular or diffuse finish requirements. For fixtures using compact fluorescent lamps, provide additional finish equivalent to Color-Chek that eliminates iridescence. Submit one sample of each cone type for review when required in the fixture schedule.

G. Fresnel Lens and Door Assembly:
   1. Lens shall have uniform brightness throughout the entire visible area at angles from 45° to 90° from vertical, without bright spots or striations.
   2. Lens shall have opaque risers painted neutral gray unless otherwise specified in the Light Fixture Schedule.
   3. Finish of regress door shall be matte baked enamel paint in color as selected by the Architect.

H. Light fixtures containing lamps which require protective shielding shall have tempered clear glass lenses, unless noted otherwise in the Light Fixture Schedule.

I. For adjustable fixtures, provide positive locking devices to fix aiming angle. Fixture shall be capable of being relamped without adjusting aiming angle.

J. Fixtures recessed in suspended ceilings where the space above the ceiling is either an air supply or return plenum shall conform with CEC Article 300-22.

K. Safety: Provide safety devices for removable fixture elements (cones, reflectors, lenses, etc.) to support removable elements when not in normal operating position. Safety devices shall be detachable if necessary and shall not interfere with fixture performance, maintenance or the seating of any fixture element, and not be visible during normal fixture operation. Safety device shall be made of corrosion resistant materials.

L. Finishes:
   1. Painted surfaces shall have an outdoor life expectancy of not less than 20 years without any visible rust or corrosion.
   2. Finishes to comply with requirements set by the American Architectural Manufacturers Association (AAMA):

a. Baked on enamel and high performance powder coating finish on aluminum: AAMA 304-05
b. Anodized aluminum: AAMA 611-98
c. Clear coat on aluminum: AAMA 612-02

3. Finish colors shall be as specified.

M. Diffusers: materials shall be UV stabilized.

2.2 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

A. Comply with UL 773 or UL 773A.

B. Contact Relays: Factory mounted, single throw, designed to fail in the on position, and factory set to turn light unit on at 1.5 to 3 fc (16 to 32 lx) and off at 4.5 to 10 fc (48 to 108 lx) with 15-second minimum time delay. Relay shall have directional lens in front of photocell to prevent electric light sources from causing false turnoff.

1. Relay with locking-type receptacle shall comply with ANSI C136.10.
2. Adjustable window slide for adjusting on-off set points.

2.3 LIGHT EMITTING DIODE (LED) FIXTURES:

A. Housing: Rigid aluminum construction.

B. Finish: Visible surfaces. Powder coated paint or natural aluminum as specified in Light Fixture Schedule. Color and finish as selected by architect. Concealed parts, (lamp holders, yokes, brackets, etc.) matte black.

C. Lamp Holder Housing: Cast aluminum with integral heat radiating fins to assure cool lamp base operation, with sufficient heat dissipation to meet device manufacturer's guidelines for junction temperature, certification programs, and test procedures for thermal management.

D. Off-state Power: Luminaires shall not draw power in the off state. Exception: Luminaires with integral occupancy, motion, photo-controls or individually addressable fixtures with external control and intelligence are exempt from this requirement. The power draw for such luminaires shall not exceed 0.5 watts when in the off state.

2.4 WIRING

A. Wiring shall be as required by code for fixture wiring.

B. Flexible cord wiring between fixture components or to electrical receptacle and not in wireways shall have a minimum temperature rating of 105°C.

C. Cords shall be fitted with proper strain reliefs and watertight entries where required by application.

D. No internal wiring shall be visible at normal viewing angles, i.e. above 45° from vertical.

2.5 POWER SUPPLIES:

A. LED Power Supplies:
1. Minimum power factor 90%.
2. Minimum operating temperature of -20°C.
3. Output operating frequency shall be minimum 120 Hz.
4. Power supply shall meet FCC requirements for non-consumer use.
5. Sound rating: Class A.
6. Power supply shall comply with IEEE C.62.41-1991, Class A operation.

2.6 LAMPS

A. Each lamp type in the Project shall be manufactured by the same manufacturer.

B. Light Emitting Diode Type:
1. LED modules/arrays shall have a minimum CRI of 80 unless otherwise specified in the Light Fixture Schedule.
2. Color temperature variation shall not exceed +/- 100 degrees Kelvin at installation, and +/- 200 degrees Kelvin over the life of the module. Provide CCT as noted in the Light Fixture Schedule.
3. LED modules/arrays shall deliver at least 70% of initial lumens, when installed in-situ, for a minimum of 50,000 hours.
4. Mechanically fasten board to heat sink as required to meet LED manufacturer's heat dissipation requirements.
5. Acceptable manufacturers: Cree, Philips (Lumileds), Nichia, Osram, GE.

2.7 EMERGENCY BATTERY PACKS

A. Where fluorescent fixtures are indicated or specified to have self-contained battery backup, provide battery pack(s) with 1100 lumen output for single lamp operation or as indicated. Unit shall have high temperature nickel cadmium battery, automatic transfer switch, battery charger high frequency inverter, installed test/charging indicator and switch, dual voltage, and be UL listed to standard 924. Provide normal switching connection where indicated.

B. Provide extended temperature performing batteries as required based on local historical metrological annual low temperatures at the site.

C. Testing: Apply power for 24 hours, disconnect power observe, measure and record light output for specified 90 minute period. Continue to run on battery until automatic low battery cut-off circuit disconnects battery. Restore normal power and verify battery returns to charging mode.

D. Warranty: Entire unit shall be warranted for 5 years, battery shall have 15 year life expectancy with 5 year full warranty and 7 additional years prorated warranty. Full warranty to cover labor and materials without charge. Prorated warranty to cover material only.

2.8 GENERAL REQUIREMENTS FOR POLES AND SUPPORT COMPONENTS

A. Structural Characteristics: Comply with AASHTO LTS-5-E

1. Wind-Load Strength of Poles: Adequate at indicated heights above grade without failure, permanent deflection, or whipping in steady winds of speed indicated in "Structural Analysis Criteria for Pole Selection" Article.
2. Strength Analysis: For each pole, multiply the actual equivalent projected area of luminaires and brackets by a factor of 1.1 to obtain the equivalent projected area to be used in pole selection strength analysis.

B. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.

C. Mountings, Fasteners, and Appurtenances: Corrosion-resistant items compatible with support components.
1. Materials: Shall not cause galvanic action at contact points.
2. Anchor Bolts, Leveling Nuts, Bolt Caps, and Washers: Hot-dip galvanized after fabrication unless otherwise indicated.
3. Anchor-Bolt Template: Plywood or steel.

D. Handhole: Oval-shaped, with minimum clear opening of 2-1/2 by 5 inches, with cover secured by stainless-steel captive screws.

E. Concrete Pole Foundations: Cast in place, with anchor bolts to match pole-base flange. Concrete, reinforcement, and formwork are specified in Division 03 Section "Cast-in-Place Concrete."

F. Power-Installed Screw Foundations: Factory fabricated by pole manufacturer, with structural steel complying with ASTM A 36/A 36M and hot-dip galvanized according to ASTM A 123/A 123M; and with top-plate and mounting bolts to match pole base flange and strength required to support pole, luminaire, and accessories.

G. Breakaway Supports: Frangible breakaway supports, tested by an independent testing agency acceptable to authorities having jurisdiction, according to AASHTO LTS-4-M.

H. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, applied as stated in AASHTO LTS-5-E.

I. Live Load: Single load of 500 lb. , distributed as stated in AASHTO LTS-5-E

J. Wind Load: Pressure of wind on pole and luminaire and banners and banner arms, calculated and applied as stated in AASHTO LTS-5-E.
1. Basic wind speed for calculating wind load for poles 50 feet high or less is 90 mph.
   a. Wind Importance Factor: 1.0.
   b. Minimum Design Life: 25 years.
   c. Velocity Conversion Factors: 1.0.
   d. Elevated Locations: Include as required per AASHTO LTS-5-E: 3.8.2.1.
   e. Special Wind Regions: Include as required per AASHTO LTS-5-E: 3.8.2.2.

2.9 STEEL POLES

A. Poles: Comply with ASTM A 500, Grade B, carbon steel with a minimum yield of 46,000 psig; one-piece construction up to 40 feet in height with access handhole in pole wall.

1. Shape: Round, straight.
2. Mounting Provisions: Butt flange for bolted mounting on foundation or breakaway support.

B. Brackets for Luminaires: Detachable, cantilever, without underbrace.
1. Adapter fitting welded to pole, allowing the bracket to be bolted to the pole mounted adapter, then bolted together with stainlesssteel bolts.
2. Cross Section: Tapered oval, with straight tubular end section to accommodate luminaire.
3. Match pole material and finish.

C. Pole-Top Tenons: Fabricated to support luminaire or luminaires and brackets indicated, and securely fastened to pole top.

D. Intermediate Handhole and Cable Support: Weathertight, 3-by-5-inch handhole located at midpoint of pole with cover for access to internal welded attachment lug for electric cable support grip.

E. Grounding and Bonding Lugs: Welded 1/2-inch threaded lug, complying with requirements in Division 26 Section "Grounding and Bonding for Electrical Systems," listed for attaching grounding and bonding conductors of type and size listed in that Section, and accessible through handhole.

F. Cable Support Grip: Wire-mesh type with rotating attachment eye, sized for diameter of cable and rated for a minimum load equal to weight of supported cable times a 5.0 safety factor.

G. Galvanized Finish: After fabrication, hot-dip galvanize complying with ASTM A 123/A 123M.

H. Factory-Painted Finish: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, "Solvent Cleaning," to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning," or with SSPC-SP 8, "Pickling."
2. Interior Surfaces of Pole: One coat of bituminous paint, or otherwise treat for equal corrosion protection.
3. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.
a. Color: As selected by Architect from manufacturer's full standard range.

2.10 POLE ACCESSORIES

A. Base Covers: Manufacturers' standard metal units, arranged to cover pole's mounting bolts and nuts. Finish same as pole.

PART 3 - EXECUTION

3.1 LIGHTING FIXTURES, GENERAL

A. Provide mounting accessories and trims as required for wall and ceiling construction types shown in Finish Schedule and on Drawings.

B. Verify weight and mounting method of fixtures and provide suitable supports. Fixture mounting assemblies shall comply with local seismic codes and regulations.

C. Refer to landscape architecture, civil, and architectural plans for coordination of lighting fixture locations with other devices and site elements. Where conflicts occur, coordinate with Architect prior to installing any of the systems.

D. Lighting fixtures located in recessed ceilings with a fire resistive rating of 1-hour or more shall be enclosed in an approved fire-resistive rated box equal to that of the ceiling.

E. Adjust aperture rings on all recessed fixtures to be flush with the finished ceiling.

F. Adjust variable position lampholders for proper lamp position prior to fixture installation.

G. Blemished, damaged or unsatisfactory fixtures or accessories shall be replaced.

H. For pendant mounted fixtures, mounting height is from finished ceiling to top of pendant light fixture. For wall mounted fixtures, center on outlet box unless otherwise noted. Verify mounting provisions and other requirements prior to order of light fixtures and provide as required.

I. In accessible suspended ceilings, provide 72" flexible conduit wiring connection (flexible tubing not permitted) from a rigidly supported junction box.

J. All finishes shall be unmarred upon project completion. Repair or replace damaged finishes.

K. Replace all burned out or inoperative lamps at the end of the construction prior to Owner occupancy.

3.2 DIFFUSERS AND ENCLOSURES

A. Remove protective plastic covers from lighting fixture diffusers only after construction work, painting and clean-up are completed. Remove all dirty lamps, reflectors and diffusers; clean and reinstall. When cleaning "Alzak" reflectors, use a manufacturer recommended cleaning solution. Reflectors damaged or impregnated with fingerprints shall be replaced at no cost to Owner.

B. For LED fixtures, whether surface mounted or recessed, remove all construction dirt and dust from heat sink fins to ensure proper dissipation of heat.

3.3 ADJUSTMENT OF LIGHT FIXTURES

A. Focus all adjustable light fixtures under the direction of the Lighting Designer during a scheduled period of time prior to the completion of the project, after normal business hours if required. Include all equipment and personnel expenses (including overtime) required for adjustment.

3.4 POLE INSTALLATION

A. Alignment: Align pole foundations and poles for optimum directional alignment of luminaires and their mounting provisions on the pole.

B. Clearances: Maintain the following minimum horizontal distances of poles from surface and underground features unless otherwise indicated on Drawings:
   1. Fire Hydrants and Storm Drainage Piping: 60 inches.
   2. Water, Gas, Electric, Communication, and Sewer Lines: 10 feet.
   3. Trees: 15 feet from tree trunk.

C. Foundation-Mounted Poles: Mount pole with leveling nuts, and tighten top nuts to torque level recommended by pole manufacturer.
   1. Use anchor bolts and nuts selected to resist seismic forces defined for the application and approved by manufacturer.
   2. Grout void between pole base and foundation. Use nonshrink or expanding concrete grout firmly packed to fill space.
   3. Install base covers unless otherwise indicated.
   4. Use a short piece of 1/2-inch- diameter pipe to make a drain hole through grout. Arrange to drain condensation from interior of pole.

D. Embedded Poles with Tamped Earth Backfill: Set poles to depth below finished grade indicated on Drawings, but not less than one-sixth of pole height.
   1. Dig holes large enough to permit use of tampers in the full depth of hole.
   2. Backfill in 6-inch layers and thoroughly tamp each layer so compaction of backfill is equal to or greater than that of undisturbed earth.

E. Embedded Poles with Concrete Backfill: Set poles in augered holes to depth below finished grade indicated on Drawings, but not less than one-sixth of pole height.
   1. Make holes 6 inches in diameter larger than pole diameter.
   2. Fill augered hole around pole with air-entrained concrete having a minimum compressive strength of 3000 psi at 28 days, and finish in a dome above finished grade.
   3. Use a short piece of 1/2-inch-diameter pipe to make a drain hole through concrete dome. Arrange to drain condensation from interior of pole.
   4. Cure concrete a minimum of 72 hours before performing work on pole.

F. Poles and Pole Foundations Set in Concrete Paved Areas: Install poles with minimum of 6-inch- wide, unpaved gap between the pole or pole foundation and the edge of adjacent concrete slab. Fill unpaved ring with pea gravel to a level 1 inch below top of concrete slab.

G. Raise and set poles using web fabric slings (not chain or cable).

3.5 CORROSION PREVENTION

A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

B. Steel Conduits: Comply with Division 26 Section "Raceway and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch- thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.6 GROUNDING

A. Ground metal poles and support structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."
   1. Install grounding electrode for each pole unless otherwise indicated.
   2. Install grounding conductor pigtail in the base for connecting luminaire to grounding system.

3.7 FIELD QUALITY CONTROL

A. Inspect each installed fixture for damage. Replace damaged fixtures and components.

B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.
   1. Verify operation of photoelectric controls.

C. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.8 DEMONSTRATION

A. Train owner's maintenance personnel to adjust, operate, and maintain luminaire lowering devices.

END OF SECTION 265600

SECTION 31 11 00 – SITE CLEARING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Provide all labor, material, tools and equipment for site clearing, including clearing and grubbing, removal of existing trees, debris and pavement, walks and curbs.

B. The engineer makes no representation that the survey information is complete or that it addresses every site condition, which may be significant to the proposed work. The provision of the survey information by the contract documents does not relieve the contractor of the responsibility to carefully examine the site and to take into account any conditions or variance with or in addition to the conditions shown on the survey. The contractor shall notify the owner prior to clearing, grubbing, grading or other ground disturbance if any such conditions or variance exist.

1.02 REFERENCES STANDARDS

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. Standard Specifications

1. American National Standards Institute (ANSI), ANSI A10.6, Latest Demolition Operations-Safety Requirements.
2. Standard Specifications for Public Works Construction (Latest Edition), including the Latest Regional and Latest County of San Diego Supplemental Amendments.
3. Standard Specifications for Public Works Construction (Latest Edition), including the Latest Regional and Latest City of San Diego Standard Special Provisions.
4. State of California Department of Transportation (Caltrans) Standard Specifications, Latest Edition.
5. State of California Department of Transportation (Caltrans) "Manual of Traffic Control for Construction and Maintenance Works Zones" (Latest Edition).

B. Standard Drawings

1. San Diego Regional Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.
2. City of San Diego Standard Drawings, as last amended, shall apply to the work to the extent referenced on the drawings.
3. State of California Department of Transportation (Caltrans) Standard Plans, Latest Edition.
4. Standard Plans for Public Works Construction, as last amended, prepared by Southern California Chapter of the American Public Works Association.

1.03 RELATED SECTIONS

A. Section 31 20 00, “Earth Moving”.

1.04 QUALITY ASSURANCE

A. A testing laboratory shall make such site inspections and tests as are deemed necessary. The Contractor shall coordinate with the testing laboratory and schedule work so as to permit a reasonable time for testing as the work progresses.

1.05 START OF WORK

A. Prior to initiating clearing and grubbing operations, field survey and stake the limits of construction.

B. Obtain the Owner's Project Manager's approval of the field survey.

C. Locate and inspect all existing on-site utilities.

D. Install all silt fences, hay bales and environmental fence along the limits of construction as indicated on the Drawings.

E. Obtain approval of proposed dewatering, erosion, sedimentation control measures and discharge procedures of storm water runoff from Owner and regional water resources control agencies.

F. Initiate clearing and grubbing operations.

1.06 SITE INSPECTION AND LOCATION OF EXISTING ON-SITE UTILITIES:

A. Prior to all work of this Section, carefully inspect the entire site and all existing items to be demolished and removed or to be left intact, and determine an orderly sequence for the performance of this work. Exact locations and alignment of existing buried utility lines are not known. Locate all existing utility lines and determine the requirements for disconnection and capping. Locate all active utilities traversing the area of work to be retained and determine the requirements for protection.

B. Locate all overhead utilities and power lines and determine height restrictions. Do not operate equipment in the vicinity of overhead utilities and power lines which may create a safety hazard.

C. Disconnection and protection of utilities: Preserve in operating condition all active utilities traversing the site and servicing adjacent structures. Protect all property including, but not necessarily limited to mains, manholes, catch basins, valve boxes, poles, guys, and other appurtenances.

1.07 PROTECTION

A. The contractor shall notify DIG ALERT at 1-800-227-2600 at least two days prior to starting work and shall coordinate all work with utility company representatives. The existence and locations of existing underground facilities shown on the drawings were obtained from a search of available records. The contractor shall take precautionary measures to protect any existing facility shown on the drawings, and any other which is not of record or not shown on the drawings. The Contractor shall determine the exact location of all existing utilities before commencing the work, and shall be fully responsible for any and all damages which might be occasioned by the Contractor's failure to exactly locate and preserve any and all underground utilities.

B. The Contractor shall pothole all existing utilities at all crossing points and points of connection. The Contractor shall record exact horizontal and vertical locations of all pot-holed underground facilities. Notify the Owner of any conflicts or differences from positions indicated on the drawings. If potholes do not reveal the location of certain existing utilities, or if potholes reveal locations of existing utilities other than expected, the Contractor shall notify the Owner in writing, and shall not proceed further until the Owner provided direction.

C. Minimize production of dust due to clearing operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers.

D. Protection and Restoration of Surface: Protect newly graded areas from traffic, erosion, and settlements. Repair and reestablish damaged or eroded slopes, elevations or grades and restore surface construction prior to acceptance. Provide appropriate erosion control and sediment control measures to prevent water-borne soil from leaving the site. The Storm Water Pollution Prevention Plan will provide erosion and sedimentation control guidance to the contractor; however, the contractor shall be responsible to use the most appropriate Best Management Practices as necessary to ensure pollution and/or illegal discharges of storm water and non-

storm water do not occur from the site. The contractor shall be responsible to clean up any soil deposited in the public right-of-way, public or private storm drain systems, creeks/streams/lakes/ponds and other surface waters, flood control facilities, or on adjacent properties. The contractor shall be responsible to protect storm drain catch basins and to prevent sediment from entering the public or private storm drain system during construction.

1.08 SAFETY DURING CONSTRUCTION

A. The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours. Refer to General Provisions for additional requirements.

1.09 PROTECTION OF ADJACENT AREAS

A. The Contractor shall protect existing facilities and landscape outside the limits of work.

B. The Contractor shall exercise care to avoid damage to existing facilities to remain.

C. The Contractor shall take all means to avoid the spread of dust to adjacent property or the public right-of-way. The Contractor shall be responsible for street sweeping and cleaning of the public right-of-way and adjacent property.

D. Provide weather protection during the construction period to prevent erosion or sedimentation onto the public right-of-way or adjacent property

PART 2 - PRODUCTS

2.01 NOT USED

PART 3 - EXECUTION

3.01 CLEANING

A. In all areas of the project, unless otherwise noted, remove and dispose of trees, snags, stumps, shrubs, brush, limbs, and other vegetative growth. Remove all evidence of their presence from the surface including sticks and branches greater than 1 inch in diameter or thickness. Remove and dispose of trash piles, rubbish, and stockpiled organic material. Protect trees, shrubs, and vegetative growth which are not designated for removal.

B. Clearing limits must be approved by the Owner prior to beginning clearing operations.

C. Do not begin clearing until vegetation to be relocated has been removed.

D. In areas where vegetation must be removed but no construction will occur other than pervious paving, remove vegetation with minimum disturbance of the subsoil

3.02 GRUBBING

A. In all areas of the project, unless otherwise noted, remove all stumps, roots, brush and other debris greater than 1 inch in diameter to a depth of not less than two feet below the subgrade.

B. Fill holes left by removal of stumps and roots and other debris, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.

3.03 COBBLE SALVAGE

A. Scope of work includes the screening existing soils for removal and salvage of existing cobbles (4 to 12-inch material). Separate cobbles out of the material using appropriate earth moving screening equipment. Stockpile material in a convenient location, approved by the Owner, for reinstallation into the proposed site drainage swales and energy dissipators.

B. Any excess cobble or boulders shall be spread onsite in a location selected by the Owner. from the site.

3.04 IRRIGATION

A. Prior to commencing work, survey existing irrigation systems to locate all sprinkler heads and controllers within the area of work.

1. Where controllers control water irrigation completely within the limit of work, remove controller and all associated sprinkler heads and piping.
2. Where extends into the limits of work, but is fed from outside the limits, cap irrigation 10-feet prior to limits of work. Remove abandoned water sprinklers and piping.
3. Where water originates within the limits of work but extends to areas outside the limits, notify the Owner and request direction on how to proceed.

3.05 DISPOSAL OF MATERIALS

A. The Contractor shall not allow any debris to accumulate on-site for more than 48 hours or as directed by the owner representative and shall remove such debris when requested by the Owner's Representative

END OF SECTION 31 11 00

SECTION 31 20 00 – EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Geotechnical Investigation has been performed by Geotechnics, Inc. The findings of their investigation have been incorporated into this document.

1.2 SUMMARY

A. This Section includes the following:

1. Preparing subgrades for pavements supporting the relocatable building.
2. Subbase course for concrete walks and pavements.
3. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

1.3 DEFINITIONS

A. Backfill: Soil materials used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Layer placed between the subgrade and paving.

C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.

E. Excavation: Removal of material encountered above subgrade elevations.

1. Additional Excavation: Excavation below subgrade elevations as directed by Architect. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

F. Fill: Soil materials used to raise existing grades.

G. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to

the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:

1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch- wide, short-tip-radius rock bucket; rated at not less than 120-hp flywheel power with bucket-curling force of not less than 25,000 lbf and stick-crowd force of not less than 18,700 lbf; measured according to SAE J-1179.
2. Bulk Excavation: Late-model, track-mounted loader; rated at not less than 210-hp flywheel power and developing a minimum of 45,000-lbf breakout force; measured according to SAE J-732.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

J. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 QUALITY ASSURANCE

A. Geotechnical Testing Agency: The Owner will retain a testing agency qualified according to ASTM E 329 to conduct soil materials testing and inspection services..

1.5 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner not less than three days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.
3. Contact utility-locator service for area where Project is located before excavating.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM, or a combination of these group symbols; free of rock or gravel larger than 6 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
1. Expansion Index: Not more than 20 as measured by UBC Std. 29-2 and ASTM D4829.
2. Upper 18 inches of subgrade fill under landscaped areas: Soil containing not more than 10% stones or lumps larger than 1-1/2 inches.

C. Unsatisfactory Soils: ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols, or soil classified as expansive by UBC Std. 29-2 and ASTM D4829.

D. Backfill and Fill: Satisfactory soil materials. It is anticipated that existing site soils are suitable for backfill and fill.

E. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve. Pea gravel bedding shall be 3/8 inch.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.

1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials, as directed by the Testing Agency.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface.
3. **Excavation for Pavements Below Relocatable Building**: Remove and recompact existing soils to a depth of 3-feet below existing grade or finished pad grade, whichever is lower. Removal and recompaction shall extend five feet beyond the limits of the proposed building.

3.6 EXCAVATION FOR RETAINING WALL WITH WALKWAY

A. Remove and recompact existing soils under walks and pavements to a depth of 2-feet below finished subgrade.

3.7 EXCAVATION FOR WALKS AND PAVEMENTS

A. Remove and recompact existing soils under walks and pavements to a depth of 12 inches below finished pavement subgrade.

3.8 EXCAVATION FOR LANDSCAPED AREAS

A. Scarify and rip soils in landscaped areas to a minimum depth of 18 inches. Sufficiently break up granitic rock soils to provide soils that comply with Paragraph 2.1B.2 of this Section.

3.9 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches on each side of pipe or conduit.

C. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.10 APPROVAL OF SUBGRADE

A. Notify Testing Agency when excavations have reached required subgrade.

B. If Testing Agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.

D. Reconstruct subgrades damaged by rain, accumulated water, or construction activities, as directed by Testing Agency.

3.11 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Architect.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

3.12 STORAGE OF SOIL MATERIALS

A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.13 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, dampproofing and waterproofing.
2. Surveying locations of underground utilities for record documents.
3. Inspecting and testing underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.14 UTILITY TRENCH BACKFILL

A. Place and compact 6 inch bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
   1. Provide pea gravel bedding for sanitary and storm sewer piping.
   2. Provide sand bedding for water piping.

B. Backfill trenches excavated under footings and within 18 inches of bottom of footings; with concrete to elevation of bottom of footings.

C. Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.

D. Place and compact initial backfill of pea gravel, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.

   1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

E. Coordinate backfilling with utilities testing.

F. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.

G. Place and compact final backfill of satisfactory soil material to final subgrade.

H. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.15 FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

C. Place and compact satisfactory fill material in layers to required elevations.

3.16 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill material on surfaces that are muddy.
2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.17 COMPACTION OF BACKFILLS AND FILLS

A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil to not less than the following percentages of maximum density according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 92 percent.
3. Under lawn or landscaped areas, scarify and recompact top 18 inches below subgrade and compact each layer of backfill or fill material at 90 percent.

3.18 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

D. Turf and Planted Areas: Subgrade shall be 6 inches below finish grade to allow for installation of 6 inch top soil layer.

3.19 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 1000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 50 feet or less of wall length, but no fewer than two tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 50 feet or less of trench length, but no fewer than two tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

C. Where settling occurs before Project warranty period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off District’s property.

END OF SECTION 31 20 00

SECTION 32 12 16 ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Reference Standards:

1. Standard Specifications for the State of California, Department of Transportation (CalTrans Standard Specifications), current edition.

1.2 SUMMARY

A. Section Includes:

1. Cold milling of existing asphalt pavement.
2. Hot-mix asphalt patching.
3. Hot-mix asphalt paving.
4. Hot-mix asphalt overlay.
5. Asphalt surface treatments.
   a. Seal Coats.
   b. Crack Sealants.

1.3 SYSTEM DESCRIPTION

A. Provide hot-mix asphalt pavement according to the materials, workmanship, and other applicable requirements of the standard specifications of the State.

1. Standard Specification: CalTrans.
2. Manual of Tests: CalTrans.
3. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.4 PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1. Review methods and procedures related to hot-mix asphalt paving, including:

   a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
   b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include technical data and tested physical and performance properties.
2. Job-Mix Designs: For each job mix proposed for the Work.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For each manufacturer.

B. Material Certificates: For each paving material. Submit certificate for each paving material, signed by manufacturer certifying that each material complies with requirements. Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials.

C. Material Test Reports: For each paving material, by a qualified testing agency.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by the California Department of Transportation (CalTrans).

B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of the California Department of Transportation (CalTrans) for asphalt paving work.

1. Comply with requirements of local jurisdictions where more stringent than CalTrans requirements.
2. Measurement and payment provisions and safety program submittals included in CalTrans standard specifications do not apply to this Section.
3. Comply with the applicable standards of the San Diego County Air Pollution Control District for quantities of volatile organic compounds (VOC's) used in all materials.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.

B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
1. Tack Coat: Minimum surface temperature of 60 deg F.

2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.
4. Seal coat: At time of placement, minimum ambient temperature 55 deg F, minimum surface temperature 60 deg F.

PART 2 - PRODUCTS

2.1 AGGREGATES

A. General: Use materials and gradations that have performed satisfactorily in previous installations.

B. Base Coarse Aggregate: Class 2 Aggregate Base mineral aggregate, 3/4-inch maximum size, as specified in CalTrans Standard Specifications.

C. Asphalt Aggregate: Type B Aggregate, as specified in CalTrans Standard Specifications.

1. 3/4-inch maximum size for base course.
2. 1/2-inch maximum size for surface course.
3. 3/8-inch Fine for surface course for playgrounds and similar areas.

2.2 ASPHALT MATERIALS

A. Asphalt Binder: Steam Refined, material. PG 64-10 conforming to CalTrans Standard Specifications.

B. Tack Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397 cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.

C. Seal Coat: Emulsified asphalt with a minimum 2 percent to 3 percent latex or copolymer added with 2 to 4 lbs of grade #30 silica sand added per gallon and mechanically agitated.

D. Water: Potable.

2.3 AUXILIARY MATERIALS

A. Recycled Materials for Hot-Mix Asphalt Mixes: Reclaimed asphalt pavement from sources and gradations that have performed satisfactorily in previous installations, equal to performance of required hot-mix asphalt paving produced from all new materials.

B. Herbicide: Commercial chemical for weed control, registered by the Environmental Protection Agency (EPA), and not classified as "restricted use" for locations and conditions of application. Provide in granular, liquid, or wettable powder form.

C. Sand: ASTM D 1073 or AASHTO M 29, Grade No. 2 or No. 3.

D. Crack Sealer: Rubberized joint sealant complying with Federal Standards ASTM D 5329 Parking Lot Crack Sealer.

2.4 MIXES

A. Hot-Mix Asphalt: Dense, hot-laid, hot-mix asphalt plant mixes; designed according to procedures in AI MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types"; and complying with the following requirements:

1. Comply with CalTrans Standard Specifications.
2. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

B. Base Course: Comply with CalTrans Standard Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Ensure that any air handling system that is likely to ingest fumes is protected and that windows near paving operations are closed.

B. Verify that subgrade is dry and in suitable condition to begin paving.

C. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Geotechnical Testing Agency, and replace with compacted backfill or fill as directed.

D. Notify Construction Manager in writing of any unsatisfactory conditions. Proceed with paving only after unsatisfactory conditions have been corrected.

E. Verify that utilities, traffic loop detectors, and other items requiring a cut and installation beneath the asphalt surface have been completed and that asphalt surface has been repaired flush with adjacent asphalt prior to beginning installation of imprinted asphalt.

3.2 COLD MILLING

A. Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.

1. Mill to a uniform finished surface free of excessive gouges, grooves, and ridges.

2. Control rate of milling to prevent tearing of existing asphalt course.
3. Repair or replace curbs, manholes, and other construction damaged during cold milling.
4. Excavate and trim unbound-aggregate base course, if encountered, and keep material separate from milled hot-mix asphalt.
5. Handle milled asphalt material according to approved waste management plan.
6. Keep milled pavement surface free of loose material and dust.
7. Do not allow milled materials to accumulate on-site.

3.3 PATCHING

A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Scarify and recompact the upper 12 inches of subgrade to 95% of maximum density. Excavate rectangular or trapezoidal patches, extending 12 inches into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.

B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseat concrete pieces firmly.

1. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into perimeter of adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Recompact existing unbound-aggregate base course to form new subgrade.

C. Tack Coat: Before placing patch material, apply tack coat uniformly to vertical asphalt surfaces abutting the patch. Apply at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

D. Patching, Single Asphalt Course: Fill excavated pavement areas with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

E. Patching, Separate Asphalt Courses: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.4 REPAIRS

A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1-inch in existing pavements.

1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.

B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4-inch.

1. Clean cracks and joints in existing hot-mix asphalt pavement.

2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4-inch wide. Fill flush with surface of existing pavement and remove excess.
3. Use hot-applied joint sealant to seal cracks and joints more than 1/4-inch wide. Fill flush with surface of existing pavement and remove excess.

3.5 SURFACE PREPARATION

A. General: Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.

1. Sweep loose granular particles from surface of unbound-aggregate base course. Do not dislodge or disturb aggregate embedded in compacted surface of base course.

B. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

C. Tack Coat: Apply uniformly to surfaces of existing pavement at a rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.6 PLACING BASE COURSE

A. Place base course as follows:

1. Compact base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.
2. Shape base to required crown elevations and cross-slope grades.
3. When thickness of compacted base course is 6 inches or less, place materials in a single layer.
4. When thickness of compacted base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches or less than 3 inches thick when compacted.

3.7 PLACING HOT-MIX ASPHALT

A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.

1. When thickness of asphalt course is 4 inches or less, place materials in a single layer.
2. When thickness of asphalt course exceeds 4 inches, place material in equal layers, with no layer more than 4 inches or less than 2 inches thick when compacted.
3. Spread mix at a minimum temperature of 250 deg F.
4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.

5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.

B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.

1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.

C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.8 JOINTS

A. Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.

1. Clean contact surfaces and apply tack coat to joints.
2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
3. Offset transverse joints, in successive courses, a minimum of 24 inches.
4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints using either "bulkhead" or "papered" method according to AI MS-22, for both "Ending a Lane" and "Resumption of Paving Operations."
5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
6. Compact asphalt at joints to a density within 2 percent of specified course density.

3.9 COMPACTION

A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.

1. Complete compaction before mix temperature cools to 185 deg F.

B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Use a vibratory roller with dynamic force of 93,000 lbs, or weighing 21,000 lbs. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Repair surfaces by loosening displaced material, filling with hot-mix asphalt, and rerolling to required elevations. Correct laydown and rolling operations to comply with requirements.

C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:

1. Average Density (Marshall Test Method): 96 percent of reference laboratory density according to ASTM D 6927 or AASHTO T 245, but not less than 94 percent or greater than 100 percent.
2. Average Density (Rice Test Method): 92 percent of reference maximum theoretical density according to ASTM D 2041, but not less than 90 percent nor greater than 96 percent.

D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.

E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.

F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.10 INSTALLATION TOLERANCES

A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:

1. Base Course: Plus or minus 1/2-inch.
2. Surface Course: Plus 1/4-inch, no minus.

B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:

1. Base Course: 1/4-inch.
2. Surface Course: 1/8-inch.
3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4-inch.

3.11 CRACK REPAIR

A. Remove vegetation and treat with herbicide.

B. Rout cracks in accordance with SHRP H348 and H349.

C. Fill cracks with hot-applied joint sealant. Apply with a wand from a double jacketed melter.

1. Over-fill cracks and squeegee level with pavement

3.12 SURFACE TREATMENTS

A. Seal Coat: Apply first coat at rate of 0.125 to 0.185 gal./sq. yd. After first coat has dried, apply second coat at rate of 0.100 to 0.185 gal./sq. yd.

1. Seal coating new pavements should be delayed 30 days after installation or as recommended by manufacturer.
2. Preparation: All area shall be power-swept, vacuumed and cleared of loose material.
3. Standing water shall be spread out and allowed to dry. Do not apply seal coat to wet or damp surfaces.
4. Oil spots shall be manually scraped and cleaned with a mild detergent. Apply primer over highly saturated petroleum areas.
5. Cover and protect items within paved area that are not to be coated, such as valve boxes, manholes and concrete.

3.13 FIELD QUALITY CONTROL

A. Testing Agency: District will engage a qualified testing agency to perform tests and inspections and to prepare test reports.

B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.

C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

D. Replace and compact hot-mix asphalt where core tests were taken.

E. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.

3.14 WASTE HANDLING

A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow milled materials to accumulate on-site.

END OF SECTION 32 12 16

SECTION 32 12 43 – FLEXIBLE POROUS PAVING

PART 1 - GENERAL

1.1 SCOPE

A. This specification provides requirements for the construction of flexible porous paving.

B. In case the requirements of this specification conflict with the contract documents, this document shall govern.

1.2 DEFINITIONS

A. Exposure Condition, Moderate: Exposure to a climate where the paving will not be in a saturated condition when exposed to freezing and will not be exposed to deicing agents or other aggressive chemicals.

B. Exposure Condition, Severe: Exposure to deicing chemicals or other aggressive agents or where the paving can become saturated by continual contact with moisture or free water before freezing.

C. Base Reinforcement: The use of a geosynthetic within the aggregate base course to enhance the performance of a paving

D. Geogrid: Biaxial or triaxial woven polypropylene material for base course reinforcement and confinement, and subgrade stabilization and increased subgrade load capacity E. Panel: An individual paving slab bordered by joints or slab edges.

F. Porous/Pervious Paving: A paving comprising material with sufficient continuous voids to allow water to pass from the surface to the underlying layers.

G. Porous/Pervious: The property of a material which permits movement of water through it under ordinary hydrostatic pressure.

H. Flexible Porous Paving: Paving system comprised of three components: recycled passenger car tires, aggregate, and urethane binder that provides a strong, pervious, yet flexible paving.

I. Subbase: A layer in a paving system between the subgrade and the base course, or between the subgrade and a flexible pervious paving.

J. Subgrade: The soil prepared and compacted to support a structure or paving system.

1.3 REFERENCED STANDARDS

A. ASTM standards:

1. ASTM C 666/C 666M-03, "Standard Test Method for Resistance of Concrete to Freezing and Thawing, Procedure A - freezing and Thawing in Water." Samples shall indicate only minimal mass change results after 300 nominal freeze-thaw cycles, and visual examination of the test specimens shall indicate no cracks or breaks.
   a. D 3385-03 Standard Test Method for Infiltration Rate of Soils in Field Using Double-Ring Infiltrometer.
   b. D 3665-06 Standard Practice for Random Sampling of Construction Materials E 329-06a Specification for Agencies Engaged in Construction Inspection and/or Testing.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Flexible Porous Paving installer shall be currently certified by the Manufacturer.

2. Flexible Porous Paving installer shall employ no less than two Manufacturer-certified Flexible Porous Paving technicians on staff who directly oversee or perform the installations during all Flexible Porous Paving placement, unless otherwise specified.

1.5 SUBMITTALS

A. Qualification Data

1. For Porous Paving Installer:

   a. Provide a list of successfully installed Flexible Porous Paving projects, as required herein, including the address, square footage, and photographs for each project.
   b. Manufacturer's Certifications.

B. Proposed Mix Design. Submit product data for the proposed mix design.

C. Samples for Verification: Provide one 6” diameter sample, full thickness.

1.6 PROJECT CONDITIONS

A. Traffic Control: Maintain access for pedestrian traffic as required for other construction activities.

B. Schedule placements to minimize exposure to wind and heat before curing materials are applied.

C. Avoid placing porous paving if rain, snow, or frost is forecast within 24 hours unless measures are taken as described later. Always protect fresh paving from moisture and freezing.

PART 2 - PRODUCTS

2.1 SUBBASE

A. Coarse aggregates shall meet the durability requirements of ASTM C 33.

2.2 FLEXIBLE POROUS PAVING

A. Bonding: Have the capacity to bind with: wood; steel; concrete; aluminum; compacted aggregate; enamel tile, or; fiberglass

B. Resistance to degradation: Resistant to: chlorine; ozone; bromine; muriatic acid; salt water; oil; transmission oil, and; hydraulic oil.

C. Aggregate:

1. Stone: Triple-washed coarse aggregate, No. 8 coarse aggregate (3/8 to ½ inch) per ASTM C 33. Bagged and labeled as tested and certified by Flexible Porous Paving Manufacturer.

    a. Nominal maximum aggregate size shall not exceed ⅓ of the specified paving thickness.

2. Rubber: Recycled passenger tires ground to ⅜” nominal with the wire remnants removed.

D. Binding agent: urethane liquid prepolymer based upon Diphenylmethane-Diisocyanate.

E. Air Entraining Agents: Prohibited.

F. Mix Design: Using materials acceptable to the Manufacturer design a tentative mix and test for the consistency intended for use on the work and specified.

1. The volume by weight of aggregate per cu. yd. shall be 50% of the total dry mix.
2. The volume by weight of the rubber product per cu. yd. shall be 50% of the total dry mix.
3. Permeability: Pervious infiltration rate of 2,000 gallons/square foot/hour

2.3 FORMS

A. Make forms with steel, wood, or other material that is sufficiently rigid to maintain specified tolerances, and capable of supporting concrete and mechanical concrete placing equipment.

B. Forms shall be clean and free of debris of any kind, rust, and hardened concrete.

C. Form release: Diesel, Bio-diesel or vegetable oil coating.

PART 3 - EXECUTION

3.1 SUBGRADE PREPARATION

A. Prepare subgrade as specified in the contract documents.

B. Construct subgrade to ensure that the required paving thickness is obtained in all locations.

C. Keep all traffic off of the subgrade during construction to the maximum extent practical. Regrade subgrade disturbed by delivery vehicles or other construction traffic, as needed.

D. Compact the material added to obtain final subgrade elevation.

E. Determine subgrade permeability in accordance with ASTM D3385 before porous paving placement. Confirm that subgrade permeability meets requirements of Contract Documents.

3.2 SUBBASE

A. Prepare subbase in accordance with contract documents.

3.3 SETTING FORMWORK

A. Set, align, and brace forms so that the hardened paving meets the tolerances specified herein.

B. Apply form release agent to the form face which will be in contact with porous paving, immediately before placing paving.

C. The vertical face of previously placed concrete may be used as a form.

1. Protect previously placed paving from damage.
2. Do not apply form release agent to previously placed concrete.
3. Apply liquid urethane bonding agent to face of surfaces when adhesion is desired.

D. Placement width shall be as specified in Contract Documents.

3.4 BATCHING, MIXING, AND DELIVERY

A. Batch and mix on site in compliance with Manufacturer's written specifications, except that discharge shall be completed within 5 minutes of the introduction of urethane to the dry products .

3.5 PLACING AND FINISHING PAVING

A. Do not place porous paving on frozen or wet subgrade or subbase

B. Deposit porous paving either directly onto the subgrade or subbase by wheelbarrow or by material handler onto the subgrade or subbase, unless otherwise specified.

C. Deposit porous paving between the forms to an approximately uniform height.

D. Spread the porous paving using a come-along, short-handle, square-ended shovel or rake.

E. Use steel trowels to finish to the elevations and thickness specified in Contract Documents.

3.6 FINAL SURFACE TEXTURE

A. Final surface of porous paving shall be smoothed with bull float and magnesium trowels.

3.7 EDGING

A. When forms are not used, bevel the edge of the top surface to a 45° slope

3.8 CURING

A. Begin curing within 20 minutes of paving discharge, unless longer working time is accepted by the Manufacturer.

B. Completely cover the paving surface with a minimum 4 mil thick polyethylene sheet only if rain or sprinklers are imminent within 20 minutes. Cut sheeting to a minimum of a full placement width.

1. Cover all exposed edges of paving with polyethylene sheet.
2. Secure curing cover material without using dirt.

C. Cure paving for a minimum of 24 uninterrupted hours, unless otherwise specified.

3.9 HOT- AND COLD-WEATHER CONSTRUCTION

A. When hot weather is anticipated up to 95 degrees Fahrenheit, no special procedures are necessary.

B. In cold weather when temperatures may fall below freezing just after an installation, utilize a fan to maintain airflow over porous paving during the curing process.

3.10 OPENING TO TRAFFIC

A. Do not open the paving to light vehicular traffic until the porous paving has cured for at least 24 hours during warm weather, and 48 hours during very cold temperatures at or near freezing and not until the porous paving is accepted by the Owner for opening to traffic. Paving should be checked and verified to be sufficiently hardened after the curing period as relative humidity can alter the curing time in some regions.

END OF SECTION 32 12 43

SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Chain-link fences and swing gates, polymer-coated (Black).

1.3 PERFORMANCE REQUIREMENTS

A. Lightning Protection System: Maximum grounding-resistance value of 25 ohms under normal dry conditions.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for chain-link fences and gates.

1. Fence and gate posts, rails, and fittings.
2. Chain-link fabric, reinforcements, and attachments.
3. Accessories: Privacy slats.
4. Gates and hardware.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Show accessories, hardware, gate operation, and operational clearances.

C. Samples for Initial Selection: For components with factory-applied color finishes.

D. Samples for Verification: Prepared on Samples of size indicated below:

1. Polymer-Coated Components: In 6-inch lengths for components and on full-sized units for accessories.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Product Certificates: For each type of chain-link fence, operator, and gate, from manufacturer.

C. Product Test Reports: For framing strength according to ASTM F 1043.

D. Field quality-control reports.

E. Warranty: Sample of special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For the following to include in emergency, operation, and maintenance manuals:

1. Polymer finishes.
2. Gate hardware.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing fence grounding. Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for gates with automatic gate operators serving as a required means of access.

C. Accessibility:

1. Gates that are part of the accessible route shall meet all the requirements of an accessible door in compliance with **CBC Section 11B-404**.
2. The lever of lever actuated latches or locks for an accessible gate shall be curved with a return to within ½" of the (face of) gate to prevent catching on the clothing of persons. **California References Standards code. T-24, Part 12, Section 12-10-202, Item (F)**.
3. Swing doors and gate surfaces within 10" of the finish floor or ground shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16" of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped. **CBC Section 11B-404.2.10**.

D. Mockups: Build mockups to set quality standards for fabrication and installation.

1. Include 10-foot length of fence and gate. Accepted mock-up may be included as part of the completed project work.

E. Preinstallation Conference: Conduct conference at Project site.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.9 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer, Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: Five, 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist. Comply with CLFMI Product Manual and with requirements indicated below:

1. Fabric Height: As indicated on Drawings.
2. Steel Wire Fabric: Wire with a diameter of 0.148 inch.

a. Mesh Size: 2 inches at perimeter fence and 1-3/4 inches at fencing around playfields.
b. Polymer-Coated Fabric: ASTM F 668, Class 2a or Class 2b over zinc-coated steel wire.

1) Color: Black.

c. Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer's standard clear protective coating.

3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMING

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 or ASTM F 1083 based on the following:

1. Fence Height: As indicated on Drawings.
2. Heavy Industrial Strength: Material Group IA, round steel pipe, Schedule 40.

a. Line Post: 2.375 inches in diameter.
b. End, Corner and Pull Post: 2.875 inches in diameter.

3. Horizontal Framework Members: Top and bottom rails complying with ASTM F 1043.

a. Top Rail: 1.66 inches in diameter.

4. Brace Rails: Comply with ASTM F 1043.
5. Metallic Coating for Steel Framing:

    a. Type A, consisting of not less than minimum 2.0-oz./sq. ft. average zinc coating per ASTM A 123/A 123M; internal and external; hot-dipped after fabrication.

6. Polymer coating over metallic coating.

    a. Color: Black, complying with ASTM F 934.

2.3 TENSION WIRE

A. Polymer-Coated Steel Wire: 0.177-inch- diameter, tension wire complying with ASTM F 1664, Class 2a or Class 2b over zinc-coated steel wire.

1. Color: Match chain-link fabric, complying with ASTM F 934.

2.4 SWING GATES

A. General: Comply with ASTM F 900 for gate posts and single and double swing gate types. Provide automated vehicular gates that comply with ASTM F 2200.

1. Gate Leaf Width: As indicated.
2. Gate Fabric Height: As indicated.

B. Pipe and Tubing:

1. Polymer coating over metallic coating: Comply with ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framing.
2. Gate Posts: Round tubular steel.
3. Gate Frames and Bracing: Round tubular steel.

C. Frame Corner Construction: Welded, with 5/16-inch diameter adjustable truss rods for panels 5 feet wide or wider.

D. Hardware:

1. Hinges: 180-degree inward, 180-degree outward, 360-degree inward and outward swing.
2. Latches permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.
3. Padlock and Chain: Provide means of padlocking gates in the open position where indicated that gate must locked in open position during activity hours.
4. Lock: Manufacturer's standard internal device.

2.5 FITTINGS

A. General: Comply with ASTM F 626.

B. Post Caps: Provide for each post.

1. Provide line post caps with loop to receive tension wire or top rail.

C. Rail and Brace Ends: For each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:

1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, Aluminum, Fiberglass, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.

H. Tie Wires, Clips, and Fasteners: According to ASTM F 626.

1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:

a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. zinc.

a. Polymer coating over metallic coating.

2.6 PRIVACY SLATS

A. Material: PVC, UV-light stabilized, flame resistant, four ply, not less than 0.006 inch, 0.023 inch thick; attached to not less than 0.0475-inch- diameter, twisted galvanized wire; hedge-type lattice; sized to fit mesh specified for direction indicated.

B. Color: As selected by Architect from manufacturer's full range.

2.7 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with potable water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended in writing by manufacturer, for exterior applications.

2.8 FENCE GROUNDING

A. Conductors: Bare, solid wire for No. 6 AWG and smaller; stranded wire for No. 4 AWG and larger.

1. Material above Finished Grade: Copper, Aluminum.
2. Material on or below Finished Grade: Copper.
3. Bonding Jumpers: Braided copper tape, 1 inch wide, woven of No. 30 AWG bare copper wire, terminated with copper ferrules.

B. Connectors and Grounding Rods: Comply with UL 467.

1. Connectors for Below-Grade Use: Exothermic welded type.
2. Grounding Rods: Copper-clad steel, 5/8 by 96 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

1. Install fencing on established boundary lines inside property line.

3.4 CHAIN-LINK FENCE INSTALLATION

A. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.

B. Post Setting: Set posts in concrete, with mechanical anchors, by mechanically driving into soil at indicated spacing into firm, undisturbed soil.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.

2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.

    a. Exposed Concrete: Extend 2 inches above grade; shape and smooth to shed water.
    b. Concealed Concrete: Top 2 inches below grade as indicated on Drawings to allow covering with surface material.
    c. Posts Set into Concrete in Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, and finished sloped to drain water away from post.
    d. Posts Set into Voids in Concrete: Form or core drill holes not less than 5 inches deep and 3/4 inch larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, and finished sloped to drain water away from post.

3. Mechanically Driven Posts: Drive into soil to depth of 36 inches. Protect post top to prevent distortion.

C. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.

D. Line Posts: Space line posts uniformly at 10 feet on center.

E. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at mid-height of fabric 72 inches or higher, on fences with top rail and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

F. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch- diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:

1. Extended along bottom of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.

G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

H. Intermediate and Bottom Rails: Install and secure to posts with fittings.

I. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 2 inches between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to

posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts with tension bands spaced not more than 15 inches o.c.

K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.

1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.

L. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

M. Privacy Slats: Install slats in direction indicated, securely locked in place.

1. Vertically, Horizontally, for privacy factor of 70 to 75.
2. Diagonally, for privacy factor of 80 to 85.
3. Direction and privacy factor as indicated.

3.5 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.6 GROUNDING AND BONDING

A. Fence Grounding: Install at maximum intervals of 1500 feet except as follows:

1. Fences within 100 Feet of Buildings, Structures, Walkways, and Roadways: Ground at maximum intervals of 750 feet.

a. Gates and Other Fence Openings: Ground fence on each side of opening.

1) Bond metal gates to gate posts.
2) Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches below finished grade.

B. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a maximum distance of 150 feet on each side of crossing.

C. Fences Enclosing Electrical Power Distribution Equipment: Ground as required by IEEE C2 unless otherwise indicated.

D. Grounding Method: At each grounding location, drive a grounding rod vertically until the top is 6 inches below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at the grounding location, including the following:

1. Make grounding connections to each barbed wire strand with wire-to-wire connectors designed for this purpose.
2. Make grounding connections to each barbed tape coil with connectors designed for this purpose.

E. Bonding Method for Gates: Connect bonding jumper between gate post and gate frame.

F. Connections: Make connections to minimize possibility of galvanic action or electrolysis. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
2. Make connections with clean, bare metal at points of contact.
3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

G. Bonding to Lightning Protection System: If fence terminates at lightning-protected building or structure, ground the fence and bond the fence grounding conductor to lightning protection down conductor or lightning protection grounding conductor complying with NFPA 780.

3.7 FIELD QUALITY CONTROL

A. Grounding-Resistance Testing: Owner will engage a qualified testing agency to perform tests and inspections.

1. Grounding-Resistance Tests: Subject completed grounding system to a megger test at each grounding location. Measure grounding resistance no fewer than two full days after last trace of precipitation, without soil having been moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural grounding resistance. Perform tests by two-point method according to IEEE 81.
2. Excessive Grounding Resistance: If resistance to grounding exceeds specified value, notify Architect promptly. Include recommendations for reducing grounding resistance and a proposal to accomplish recommended work.
3. Report: Prepare test reports certified by a testing agency of grounding resistance at each test location. Include observations of weather and other phenomena that may affect test results.

3.8 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 32 31 13

SECTION 33 11 00 - WATER DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes piping and specialties for potable-water laterals and appurtenances and fire-protection water service outside the building.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Minimum Working Pressures: The following are minimum pressure requirements for piping and specialties, unless otherwise indicated:
   1. Potable water service: 150 psig
   2. Fire protection service: 200 psig

1.4 SUBMITTALS

A. Product Data: For the following:

   1. Backflow preventers.
   2. Pipe and fittings.
   3. Valves.
   4. Fire Hydrants.

B. Record Drawings: At Project closeout of installed water-service piping according to the requirements of the project General Conditions.

C. Test Reports: As specified in "Field Quality Control" Article in Part 3.

D. Purging and Disinfecting Reports: As specified in "Cleaning" Article in Part 3.

E. Maintenance Data: For specialties to include in the maintenance manuals specified in Division 1. Include data for the following:

   1. Backflow preventers.
   2. Valves.
   3. Fire hydrants.

1.5 QUALITY ASSURANCE

A. Comply with requirements of utility agency supplying water (City of San Diego). Includes tapping of water mains and piping up to backflow prevention device.

B. Where Water Agency requirements are more restrictive that those specified herein, comply with Water Agency requirements. It is the Contractor's responsibility to be familiar with the Water Agency requirements.

C. Comply with standards of authorities having jurisdiction for potable water-service piping. Include materials, installation, testing, and disinfection.

D. Comply with NSF 61, "Drinking Water System Components - Health Effects," for materials for potable water.

E. Comply with standards of authorities having jurisdiction for fire-protection water-service piping. Include materials, hose threads, installation, and testing.

F. Comply with NFPA 24, "Installation of Private Fire Service Mains and Their Appurtenances," for materials, installations, tests, flushing, and valve and hydrant supervision.

G. Provide listing/approval stamp, label, or other marking on piping and specialties made to specified standards.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Transport: Prepare valves according to the following:

1. Ensure that valves are dry and internally protected against rust and corrosion.
2. Protect valves against damage to threaded ends and flange faces.
3. Set valves in best position for handling. Set valves closed to prevent rattling.

B. During Storage: Use precautions for valves according to the following:

1. Do not remove end protectors, unless necessary for inspection; then reinstall for storage.
2. Protect from weather. Store indoors and maintain temperature higher than ambient dew-point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.

C. Handling: Use sling to handle valves whose size requires handling by crane or lift. Rig valves to avoid damage to exposed valve parts. Do not use hand wheels or stems as lifting or rigging points.

D. Deliver piping with factory-applied end-caps. Maintain end-caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.

E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.

F. Protect flanges, fittings, and specialties from moisture and dirt.

G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.7 PROJECT CONDITIONS

A. Verify existing utility locations. Contact utility-locating service for area where Project is located.

B. Verify that water-service piping may be installed to comply with original design and referenced standards.

C. Verify system pressure and size according to lowest pressure and regulate to highest pressure.

1.8 SEQUENCING AND SCHEDULING

A. Coordinate connection to water main with owner and the Water Agency.

B. Coordinate piping materials, sizes, entry locations, and pressure requirements with building water distribution piping.

C. Coordinate with other utility work.

D. Coordinate inspections with the Water Agency.

PART 2 - PRODUCTS

2.1 PIPES AND TUBES

A. General: Applications of the following pipe and tube materials are indicated in Part 3 "Piping Applications".

B. Copper Tube: ASTM B 88, seamless water tube, annealed temper.

C. PVC Plastic Pipe: ASTM D 1785, Schedule 80, with marking "NSF-pw" according to NSF 14.

D. Ductile-Iron, Mechanical-Joint Pipe: AWWA C151, with cement-mortar lining and seal coat according to AWWA C104. Include gland, rubber gasket, and bolts and nuts according to AWWA C111.

E. PVC Plastic, Fire-Service Mains Pipe: UL 1285 and AWWA C900. Include elastomeric seal according to ASTM F 477

2.2 PIPE AND TUBE FITTINGS

A. General: Applications of the following pipe and tube fitting materials are indicated in Part 3 "Piping Applications" Article.

B. Copper Fittings: ASME B16.22; wrought-copper, solder-joint pressure type.

C. Cast-Copper-Alloy Flanges: ASME B16.24, Class 150, as required for system operating pressure.

D. Fittings for PVC, schedule 80 pipe shall be socket solvent weld type meeting the requirements of ASTM D2466.

E. Ductile-Iron, Mechanical-Joint Fittings: AWWA C110, ductile-iron or cast-iron; or AWWA C153, ductile-iron, compact type. Include cement-mortar lining and seal coat according to AWWA C104 and glands, rubber gaskets, and bolts and nuts according to AWWA C111.

F. Ductile-Iron, Flanged Fittings: AWWA C110, with cement-mortar lining and seal coat according to AWWA C104 or epoxy, interior coating according to AWWA C550. Include gaskets and bolts and nuts.

G. Cast-Iron Flanged Fittings: ASME B16.1, class 125, unless otherwise indicated.

H. Ductile-Iron Fittings for PVC Pipe: AWWA C110, ductile-iron or cast-iron; or AWWA C153, ductile-iron, compact type, mechanical-joint type. Include dimensions matching PVC pipe, cement-mortar lining and seal coat according to AWWA C104, and rubber compression gaskets according to AWWA C111.

2.3 JOINING MATERIALS

A. General: Applications of the following piping joining materials are indicated in Part 3 "Piping Applications" Article.

B. Ductile-Iron Piping: The following materials apply:
   1. Mechanical Joints: AWWA C111 ductile-iron or gray-iron glands, high-strength steel bolts and nuts, and rubber gaskets.
   2. Flanged Joints: AWWA C115 ductile-iron or gray-iron pipe flanges, rubber gaskets, and high-strength steel or brass bolts and nuts.
      a. Gaskets: Rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.
      b. Flange Bolts and Nuts: ASME B18.2.1, carbon steel or brass, unless otherwise indicated.
   3. Keyed Couplings: AWWA C606, consisting of ASTM A 536 ductile-iron housing with enamel finish, with synthetic-rubber gasket with central-cavity, pressure-responsive design, with carbon-steel bolts and nuts to secure grooved pipe and fittings and gasket suitable for hot water, unless otherwise indicated.

C. Brazing Filler Metal: AWS A5.8, BCuP series

D. Solder Filler Metal: ASTM B 32, Alloy Sn95, Alloy Sn94, or Alloy E, with 0.10 percent maximum lead content.

E. Pipe Couplings: Iron-body sleeve assembly, fabricated to match OD of pipes to be joined.
   1. Sleeve: ASTM A 126, Class B, gray iron.
   2. Followers: ASTM A 47, malleable iron; or ASTM A 526, ductile iron.
   3. Gaskets: Rubber.
   4. Bolts and Nuts: AWWA C111.
   5. Finish: Enamel paint.

F. Coatings: Grease, Never-Sieze, or equivalent for application to all nuts and bolts.
   1. Encasement: Fittings shall be wrapped and sealed with minimum 6 mil polyvinyl sheathing.

G. Welding solvent for PVC pipe and Fittings: ASTM D2564.

2.4 PIPING SPECIALTIES

A. Dielectric Fittings: Assembly or fitting with insulating material isolating joined dissimilar metals to prevent galvanic action and corrosion.

1. Description: Combination of copper alloy and ferrous; threaded, solder, plain, and weld-neck end types and matching piping system materials.
2. Dielectric Unions: Factory-fabricated union assembly, designed for 250-psig minimum working pressure at 180 deg F. Include insulating material isolating dissimilar metals and ends with inside threads according to ASME B1.20.1.
3. Dielectric Flanges: Factory-fabricated companion-flange assembly, for 150- or 300-psig minimum pressure to suit system pressures.
4. Dielectric-Flange Insulation Kits: Field-assembled companion-flange assembly, full-face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

    a. Provide separate companion flanges and steel bolts and nuts for 150- or 300-psig minimum working pressure to suit system pressures.

5. Dielectric Couplings: Galvanized-steel couplings with inert and noncorrosive thermoplastic lining, with threaded ends and 300-psig minimum working pressure at 225 deg F.
6. Dielectric Nipples: Electroplated steel nipples with inert and noncorrosive thermoplastic lining, with combination of plain, threaded, or grooved end types and 300-psig working pressure at 225 deg F.

2.5 PE ENCASEMENT

A. PE Encasement for Ductile-Iron Piping: ASTM A 674 or AWWA C105, PE film, 0.008-inch minimum thickness, tube or sheet.

2.6 VALVES

A. Nonrising-Stem, Resilient-Seated Gate Valves, 3-Inch NPS and Larger: AWWA C509, gray- or ductile-iron body and bonnet; with bronze or gray- or ductile-iron gate, resilient seats, bronze stem, and stem nut. Include 200-psig minimum working-pressure design, interior coating according to AWWA C550, and push-on- or mechanical-joint ends.

B. Nonrising-Stem Gate Valves, 4-Inch NPS and Larger: UL 262, FM approved, iron body and bonnet with flange for indicator post, bronze seating material, inside screw, 175-psig working pressure, and mechanical-joint ends. Provide with flanged ends for pit installation.

C. Valve Boxes: Cast-iron box with top section and cover with lettering "WATER," bottom section with base of size to fit over valve and barrel approximately 5 inches in diameter, and adjustable cast-iron extension of length required for depth of bury of valve.

1. Provide steel tee-handle operating wrench with each valve box. Include tee handle with one pointed end, stem of length to operate valve, and socket-fitting valve-operating nut.

D. Curb Stops: Bronze body, ground-key plug or ball, and wide tee head, with inlet and outlet to match service piping material.

E. Service Boxes for Curb Stops: Cast-iron box with telescoping top section of length required for depth of bury of valve. Include cover with lettering "WATER," and bottom section with base of size to fit over curb-stop and barrel approximately 3 inches in diameter.

1. Provide steel tee-handle shutoff rod with each service box. Include tee handle with one pointed end, stem of length to operate curb stop, and slotted end fitting curb-stop head.

F. Tapping Saddle for Fire Service: Complete assembly, stainless steel, including hardware. Basis of Design: Basis of Design: Mueller, model number H-304, or approved equal.`

G. Potable Water Service Saddle and Corporation Stops: Complete assembly, bronze saddle with stainless steel straps and hardware. Include service clamp and stop compatible with drilling machine.

1. Service Saddle: Stainless steel with gasket and AWWA C800 threaded outlet for corporation stop, and threaded end straps. Basis of Design: Mueller J-965, or approved equal.
2. Corporation Stops: Full-port bronze body and ground-key plug, with AWWA C800 threaded inlet and outlet matching service piping material.
3. Manifold: Copper with 2 to 4 inlets as required, with ends matching corporation stops and outlet matching service piping.

H. Check Valves: AWWA C508, with 175-psig working-pressure rating. Include interior coating according to AWWA C550.

2.7 FIRE HYDRANTS

A. General: Comply with fire department and Water Agency requirements where they exceed or differ from the following requirements.

B. Description: Cast-iron body, compression-type valve, opening against pressure and closing with pressure, 6-inch mechanical-joint inlet, and 150-psig minimum working-pressure design.

C. Outlet threads: NFPA 1963, with external hose thread used by fire department. Include cast-iron caps with steel chains.

D. Exterior finish: Red alkyd-gloss enamel paint, unless otherwise indicated.

2.8 BACKFLOW PREVENTERS

A. General: Manufactured backflow preventers, of size indicated for maximum flow rate. Comply with requirements of the Water Agency.

B. 2-Inch NPS and Smaller: Bronze body with threaded ends.

C. 2-1/2-Inch NPS and Larger: Bronze, cast-iron, steel, or stainless-steel body with flanged ends.

D. Interior Lining: AWWA C550, epoxy coating for backflow preventers with cast-iron or steel body.

E. Interior Components: Corrosion-resistant materials.

F. Strainer on inlet if strainer is indicated.

G. Hose-Connection Vacuum Breakers: ASSE 1011, nickel plated, with nonremovable and manual drain features, and ASME B1.20.7, 3/4-11.5NH threads for garden hose on outlet. Units attached to rough-bronze-finish hose connections may be rough bronze.

2.9 ANCHORAGES

A. General: Comply with Water Agency requirements where they exceed or differ from the following requirements.

B. . Clamps, straps, and washers: ASTM A 506, steel.

C. Rods: ASTM A 575, steel.

D. Rod couplings: ASTM A 197, malleable iron.

E. Bolts: ASTM A 307, steel.

F. Washers: ASTM A 126, gray iron.

G. Concrete Reaction Backing: Portland cement concrete mix, 3000 psi.

1. Cement: ASTM C 150, Type I.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

2.10 IDENTIFICATION

A. Refer to Division 31 Section "Earth Moving" for underground warning tape materials.

B. Arrange for detectable warning tapes made of solid blue film with metallic core and continuously printed black-letter caption "CAUTION--WATER LINE BURIED BELOW."

C. Nonmetallic Piping Label: Engraved, plastic-laminate label at least 1 by 3 inches, with caption "CAUTION--THIS STRUCTURE HAS NONMETALLIC WATER-SERVICE PIPING," for installation on main electrical meter panel.

PART 3 - EXECUTION

3.1 GENERAL

A. Water mains for the project are contained within an easement to the Water Agency. All water main piping and appurtenances fall under the jurisdiction of the Water Agency. Comply with all requirements of the Public Utility drawings developed for this project. Consult with the Water Agency prior to ordering materials and commencing work.

B. Conduct preconstruction conference with the Water Agency to determine all requirements and protocol for executing and the work, including inspection and testing.

3.2 EARTHWORK

A. Refer to Division 31 Section "Earth Moving" for excavation, trenching, and backfilling.

B. Install piping a minimum of 30 inches below finish grade, unless specified or indicated otherwise, except shut-off valves 3 inches and smaller shall be brought up into meter boxes 6 inches below grade, unless otherwise indicated or required by authority having jurisdiction.

3.3 PIPING APPLICATIONS

A. General: Use pipe, fittings, and joining methods for piping systems according to the following applications, unless otherwise indicated or required by authority having jurisdiction.

B. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used in applications below, unless otherwise indicated.

C. Do not use flanges or keyed couplings for underground piping.
1. Exception: Piping in boxes and structures, but not buried, may be joined with flanges or keyed couplings.

D. Flanges, keyed couplings, and special fittings may be used on aboveground piping.

E. Potable Water-Service Piping: Use the following:

1. 3/4- to 3-Inch NPS: Copper tube, Type L; copper fittings; and soldered joints.
2. 4-Inch NPS: Ductile-iron, mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints.
3. 6-Inch NPS: Ductile-iron, mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints.
4. PVC: AWWA Class 200 pipe; PVC, AWWA Class 200 fabricated

F. Fire-Protection Water-Service Piping: Use the following as required the Water Agency and the Fire Department:
1. 4- to 8-Inch NPS: Ductile-iron, mechanical-joint pipe; ductile-iron, mechanical-joint fittings; and mechanical joints. Note: ductile iron pipe is required by the fire department for final segment of piping before the sprinkler riser.
2. 4- to 8-Inch NPS: PVC plastic, C900 Class 200, fire-service pipe; ductile-iron fittings for PVC plastic pipe; and gasketed joints.

G. Ductile-Iron Piping, Gasketed Joints for Fire-Service Piping: According to UL 194 and AWWA C600.

H. Flanged Joints: Align flanges and install gaskets. Assemble joints by sequencing bolt tightening. Use lubricant on bolt threads.

I. Threaded Joints: Thread pipes with tapered pipe threads according to ASME B1.20.1, apply tape or joint compound, and apply wrench to fitting and valve ends into which pipes are being threaded.

J. Copper Tubing, Soldered Joints: According to AWS's "Soldering Manual," Chapter "The Soldering of Pipe and Tube."

K. PVC Piping, Gasketed Joints: Use joining materials according to AWWA C900. Construct joints with elastomeric seals and lubricant according to ASTM D 2774 or ASTM D 3139 and pipe manufacturer's written instructions.

L. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, OD, and system working pressure. Refer to "Piping Systems - Common Requirements" Article below for joining piping of dissimilar metals.

3.4 PIPING SYSTEMS - COMMON REQUIREMENTS

A. General Locations and Arrangements: Drawings indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, unless deviations to layout are approved on Coordination Drawings.

B. Install piping at indicated slope.

C. Install components with pressure rating equal to or greater than system operating pressure.

D. Install piping free of sags and bends.

E. Locate groups of pipes parallel to each other, spaced to permit valve servicing.

F. Install fittings for changes in direction and branch connections.

G. Piping Connections: Unless otherwise indicated, make piping connections as specified below:

1. Install unions, in piping 2-inch NPS and smaller, adjacent to each valve and at final connection to each piece of equipment with 2-inch NPS or smaller threaded pipe connection.
2. Install dielectric fittings to connect piping of dissimilar metals.
3. Install flanges, in piping 2-1/2-inch NPS and larger, adjacent to flanged valves and at final connection to each piece of equipment with flanged pipe connection

H. Fitting Protection: Wrap all metal fittings with polyvinyl sheathing. Coat all bolts and nuts with grease or Never Sieze.

3.5 SERVICE ENTRANCE PIPING

A. Extend water-service piping and connect to water-supply source and building water piping systems at outside face of building wall in locations and pipe sizes indicated.

1. Terminate water-service piping at building wall until building water piping systems are installed. Terminate piping with caps or plugs as required for piping material. Make connections to building water piping systems when those systems are installed.

B. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.6 PIPING INSTALLATION

A. Water-Main Connection: Tap water main with size and in location as indicated according to requirements of Water Agency.

B. Install AWWA PVC plastic pipe according to AWWA M23 and ASTM F 645.

C. Bury piping with depth of cover over top at least 30 inches

D. Comply with NFPA 24 for fire-protection water-service piping materials and installation.

E. Install ductile-iron piping according to AWWA C600.

1. Encase piping with PE film according to ASTM A 674 or AWWA C105.

3.7 ANCHORAGE INSTALLATION

A. Install anchorages for tees, plugs and caps and bends. Include anchorages for the following piping systems:

1. Gasketed-Joint, Ductile-Iron, Potable-Water Piping: According to AWWA C600.
2. Gasketed-Joint, PVC Potable-Water Piping: According to AWWA M23.
3. Fire-Service Piping: According to NFPA 24.

B. Apply full coat of asphalt or other acceptable corrosion-retarding material to surfaces of installed ferrous anchorage devices.

C. Install concrete thrust blocks at all pipe tees, plugs and caps, and horizontal and vertical bends per Water Agency Standards.

3.8 VALVE INSTALLATION

A. General Application: Use mechanical-joint-end valves for 3-inch NPS and larger underground installation. Use nonrising-stem UL/FM gate valves for installation with indicator posts. Use full-port bronze corporation stops and ball valves, with ends compatible with piping, for 2-1/2 inch NPS and smaller installation.
1. 3-piece valves are not allowed underground.

B. AWWA-Type Gate Valves: Comply with AWWA C600. Install underground valves with stem pointing up and with cast-iron valve box.

C. UL/FM-Type Gate Valves: Comply with NFPA 24. Install underground valves and valves in pits with stem pointing up and with vertical cast-iron indicator post.

D. Bronze Corporation Stops and Curb Stops: Comply with manufacturer's written instructions. Install underground curb stops with head pointed up and with cast-iron curb box.

3.9 FIRE HYDRANT INSTALLATION

A. General: Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.

3.10 WATER-METER INSTALLATION

A. Install water meters, piping, and specialties according to Water Agency requirements.

3.11 BACKFLOW PREVENTER INSTALLATION

A. Install backflow preventers of type, size, and capacity indicated. Include valves and test cocks. Install according to plumbing and health department authorities as well as Water Agency having jurisdiction.

B. Do not install bypass around backflow preventer.

C. Support backflow preventers, valves, and piping on concrete piers.

3.12 IDENTIFICATION INSTALLATION

A. Install continuous plastic underground warning tape during back-filling of trench for underground water-service piping. Locate 12 inches below finished grade, directly over piping.

B. Attach nonmetallic piping label permanently to main electrical meter panel.

3.13 FIELD QUALITY CONTROL

A. General: Comply with all inspection requirements from Water Agency. Do not backfill trenches until installed piping and appurtenances have been inspected and approved by the Water Agency.

B. Piping Tests: Conduct piping tests before joints are covered and after thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.

C. Hydrostatic Tests: Test at not less than 1-1/2 times working pressure (150 psig minimum) for 2 hours.

1. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for one hour; decrease to 0 psig. Slowly increase again to test pressure and hold for one more hour. No perceptable leakage shall be observed. Remake leaking joints with new materials and repeat test until leakage is within above limits.

D. Prepare reports for testing activities.

3.14 CLEANING

A. Clean and disinfect water distribution piping as follows:

1. Purge new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
2. For fire water, use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by that authority, use procedure described in

NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.

a. For potable water, use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities, use procedure described in AWWA C651

B. Prepare reports for purging and disinfecting activities.

END OF SECTION 33 11 00 - 11

SECTION 33 31 00 - EXTERIOR SANITARY SEWER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes gravity-flow, non-pressure sanitary sewerage outside the building, with the following components:

1. PVC piping cleanouts.
2. Tie-in into existing deep sewer manhole.

1.3 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. EPDM: Ethylene-propylene-diene-monomer rubber.

C. FRP: Fiberglass-reinforced plastic.

D. LLDPE: Linear low-density, polyethylene plastic.

E. PE: Polyethylene plastic.

F. PP: Polypropylene plastic.

G. PVC: Polyvinyl chloride plastic.

H. RTRF: Glass-fiber-reinforced, thermosetting-resin fitting.

I. RTRP: Glass-fiber-reinforced, thermosetting-resin pipe.

J. TPE: Thermoplastic elastomer.

1.4 PERFORMANCE REQUIREMENTS

A. Gravity-Flow, Nonpressure, Drainage-Piping Pressure Rating: 10-foot head of water (30 kPa)

1.5 SUBMITTALS

A. Product Data: For the following:

1. Pipe and fittings.

2. Cleanout cover assemblies.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

1.7 PROJECT CONDITIONS

A. Interruption of Existing Sanitary Sewerage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify the Construction Manager no fewer than five working days in advance of proposed interruption of service.
2. Do not proceed with interruption of service without Construction Manager's written permission.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2.2 PVC PIPE AND FITTINGS

A. PVC Sewer Pipe and Fittings, NPS 15 (DN 375) and Smaller: ASTM D 3034, SDR 35, with bell-and-spigot ends for gasketed joints with ASTM F 477, elastomeric seals.

2.3 NONPRESSURE-TYPE PIPE COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

1. For Concrete Pipes: ASTM C 443 (ASTM C 443M), rubber.
2. For Cast-Iron Soil Pipes: ASTM C 564, rubber.
3. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
4. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

C. Shielded, Flexible Couplings: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

2.4 CONCRETE

A. General: Cast-in-place concrete according to ACI 318/318R, ACI 350R, and the following:

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi (27.6 MPa) minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (420 MPa), deformed steel.

C. Ballast and Pipe Supports: Portland cement design mix, 3000 psi (20.7 MPa) minimum, with 0.58 maximum water/cementitious materials ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.
2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (420 MPa), deformed steel.

2.5 MISCELLANEOUS MATERIALS

A. Paint: SSPC-Paint 16.

B. PE Sheeting: ASTM D 4397, with at least 8-mil (0.2-mm) thickness or other equivalent, impervious material.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Division 31 Section "Earth Moving."

3.2 PIPING APPLICATIONS

A. Pipe couplings and special pipe fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.

1. Use nonpressure-type flexible couplings where required to join gravity-flow, nonpressure sewer piping, unless otherwise indicated.
    a. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.

B. Special Pipe Fittings: Use for pipe expansion and deflection. Pipe couplings and special pipe fittings with pressure ratings at least equal to piping rating may be used in applications below, unless otherwise indicated.

C. Gravity-Flow, Nonpressure Sewer Piping: Use the following pipe materials for each size range:

1. NPS 3 (DN 80) up to NPS 15 (DN 375) PVC sewer pipe and fittings, gaskets, and gasketed joints.

3.3 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground sanitary sewerage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream.

C. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.

D. Install cleanouts for changes in direction, both horizontal and vertical.. Use fittings for branch connections, unless direct tap into existing sewer is indicated.

E. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

F. Install gravity-flow, nonpressure, drainage piping according to the following:

1. Install piping pitched down in direction of flow, at minimum slope of 1 percent, unless otherwise indicated.
2. Install PVC sewer piping according to ASTM D 2321 and ASTM F 1668.

G. Clear interior of piping of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.4 PIPE JOINT CONSTRUCTION

A. Follow piping manufacturer's written instructions.

B. Join gravity-flow, nonpressure, drainage piping according to the following:

1. Join PVC sewer piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-seal joints or ASTM D 3034 for elastomeric-gasket joints.
2. Join dissimilar pipe materials with nonpressure-type, flexible couplings.

3.5 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318/318R.

3.6 CLEANOUT INSTALLATION

A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.

1. Use extra-heavy-duty, top-loading classification cleanouts for all cleanouts.

B. Set cleanout frames and covers in earth in cast-in-place-concrete block, 18 by 18 by 12 inches (450 by 450 by 300 mm)] deep. Set with tops 1 inch (25 mm) above surrounding grade.

C. Set cleanout frames and covers in concrete pavement with tops flush with pavement surface.

3.7 CONNECTIONS

A. Connect nonpressure, gravity-flow drainage piping to building's sanitary building drains.

B. Make connections to existing piping and underground manholes.

1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch (150-mm) overlap, with not less than 6 inches (150 mm) of concrete with 28-day compressive strength of 3000 psi (20.7 MPa).

a. Use concrete that will attain minimum 28-day compressive strength of 3000 psi (20.7 MPa), unless otherwise indicated.

2. Protect existing piping and manholes to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

C. Backfill to grade according to Division 31 Section "Earth Moving."

3.8 IDENTIFICATION

A. Materials and their installation are specified in Division 31 Section "Earth Moving." Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.

1. Use detectable warning tape over all piping.

3.9 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches (600 mm) of backfill is in place, and again at completion of Project.

1. Submit separate report for each system inspection.
2. Defects requiring correction include the following:

a. Alignment: Less than full diameter of inside of pipe is visible between structures.
b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.

c. Crushed, broken, cracked, or otherwise damaged piping.
d. Infiltration: Water leakage into piping.
e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction. All onsite piping shall be the jurisdiction of the Leucadia Wastewater District.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Hydrostatic Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction and the following:

a. Allowable leakage is maximum of 50 gal./inch of nominal pipe size per mile (4.6 L/millimeter of nominal pipe size per kilometer) of pipe, during 24-hour period.
b. Close openings in system and fill with water.
c. Purge air and refill with water.
d. Disconnect water supply.
e. Test and inspect joints for leaks.

6. Air Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction, UNI-B-6, and the following:

a. Option: Test plastic gravity sewer piping according to ASTM F 1417.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.10 CLEANING

A. Clean interior of piping of dirt and superfluous material. Flush with potable water.

END OF SECTION 33 31 00

SUPPLEMENTARY SPECIAL PROVISIONS

APPENDICES

APPENDIX A

NOTICE OF EXEMPTIONS

NOTICE OF EXEMPTION

(Check one or both)

TO: _____ Recorder/County Clerk
P.O. Box 1750, MS A-33
1600 Pacific Hwy, Room 260
San Diego, CA 92101-2400

_____ Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

FROM: City of San Diego
Engineering & Capital Projects Department
525 B Street, Suite 750, MS 908A
San Diego, CA 92101

Project Name: Alvarado Laboratory Improvements **WBS No.:** L-22000.1.02.06

Project Location-Specific: The project is located within the Alvarado Water Treatment Plant (5540 Kiowa Drive, San Diego, CA 91949) within the Navajo Community Planning Area (Council District 7).

Project Location-City/County: San Diego/San Diego

Description of nature and purpose of the Project: The project will remodel an approximately 43,400-square-foot existing laboratory facility, construct an approximately 31,400-square-foot two-story addition to the laboratory building, construct approximately 18,000 square feet of underground parking, improve an existing adjacent surface parking lot, and install a photovoltaic solar array system. The project will also rehabilitate an existing 72-inch diameter pressurized water pipe underneath the laboratory building and install a new drainage system.

Name of Public Agency Approving Project: City of San Diego

Name of Person or Agency Carrying Out Project: City of San Diego
Engineering and Capital Projects Department
Contact: Peter Fogec, Senior Planner (OCA)
Email/Phone No.: Pfogec@sandiego.gov / (619) 533-5118
525 B Street, Suite 750 (MS 908A), San Diego, CA 92101

Exempt Status:

( ) Ministerial (Sec. 21080(b)(1); 15268);
( ) Declared Emergency (Sec. 21080(b)(3); 15269(a));
( ) Emergency Project (Sec. 21080(b)(4); 15269 (b)(c))
(X) Categorical Exemption: 15301 (Existing Facilities), 15332 (Infill Development Projects)
( ) Statutory Exemptions:

Reasons why project is exempt: The City of San Diego conducted an environmental review which determined that the project meets the categorical exemption criteria set forth in CEQA State Guidelines, Section 15301 (Existing Facilities), which allows for the minor alteration of existing public structures, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination, such as remodeling and improvements to existing laboratory facilities, improvements to the existing parking lot and rehabilitation of an existing pressurized water pipe; Section 15332 (Infill Development), which allows for in-fill development that is consistent with the applicable general plan, occurs within city limits on a site no more than five acres, occurs on a site that has no value as habitat for endangered, rare, or threatened species, would not result in any significant effects relating to traffic, noise, air quality, or water quality, and would be adequately served by all required utilities and public services, such as construction of a new two-story laboratory building addition, underground parking, and photovoltaic system; and where the exceptions listed in Section 15300.2 would not apply.

Lead Agency Contact Person: Peter Fogec, Senior Planner (OCA) Telephone: (619) 533-5118

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a notice of exemption been filed by the public agency approving the project? ( ) Yes ( ) No

It is hereby certified that the City of San Diego has determined the above activity to be exempt from CEQA.

Carrie Purcell

Carrie Purcell, Deputy Director

4/7/25

Date

Check One:
(X) Signed By Lead Agency
( ) Signed by Applicant

Date Received for Filing with County Clerk or OPR:

Revised August 2020

NOTICE OF EXEMPTION

(Check one or both)

TO: __X__ Recorder/County Clerk
P.O. Box 1750, MS A-33
1600 Pacific Hwy, Room 260
San Diego, CA 92101-2400

_____ Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

FROM: City of San Diego
Engineering & Capital Projects Department
525 B Street, Suite 750, MS 908A
San Diego, CA 92101

Project Name: Alvarado Laboratory Improvements Temporary Trailers **WBS No.:** L-22000.3.02.06

Project Location-Specific: The project is located within the Alvarado Water Treatment Plant at 5540 Kiowa Drive within the Navajo Community Planning Area (Council District 7).

Project Location-City/County: San Diego/San Diego

Description of nature and purpose of the Project: The project will install a pre-engineered temporary office trailer at the southern boundary of the Alvarado Water Treatment Plant and includes a concrete foundation pad, concrete curbing, parking striping, accessible ramps, accessible directional signage, light fixtures, handrails, swales, sewer lateral connections, water service connections, and electrical connections.

Name of Public Agency Approving Project: City of San Diego

Name of Person or Agency Carrying Out Project: City of San Diego
Engineering and Capital Projects Department
Contact: Juan Baligad
Email/Phone No.: JBaligad@sandiego.gov / (619) 533-5473
525 B Street, Suite 750 (MS 908A), San Diego, CA 92101

Exempt Status:

( ) Ministerial (Sec. 21080(b)(1); 15268);
( ) Declared Emergency (Sec. 21080(b)(3); 15269(a));
( ) Emergency Project (Sec. 21080(b)(4); 15269 (b)(c))
(X) Categorical Exemption: Sections 15303 (New Construction) and 15304 (Minor Alteration to Land)
( ) Statutory Exemptions:

Reasons why project is exempt: The City of San Diego conducted an environmental review which determined that the project meets the categorical exemption criteria set forth in CEQA State Guidelines, Section 15303 (New Construction), which allows for the construction and location of limited numbers of new, small structures, such as the installation of a pre-engineered temporary office trailer, concrete foundation pad, concrete curbing, parking striping, accessible ramps, accessible directional signage, light fixtures, handrails, swales, sewer lateral connections, water service connections, and electrical connections; Section 15304 (Minor Alteration to Land), which allows for minor public alterations in the condition of land which do not involve removal of healthy, mature, scenic trees except for forestry of agricultural purposes, such as trenching for the installation of swales, sewer lateral connections, water service connections, and electrical connections; and where the exceptions listed in Section 15300.2 would not apply.

Lead Agency Contact Person: Juan Baligad Telephone: (619) 533-5463

If filed by applicant:

1. Attach certified document of exemption finding.
2. Has a notice of exemption been filed by the public agency approving the project? ( ) Yes ( ) No

It is hereby certified that the City of San Diego has determined the above activity to be exempt from CEQA.

Carrie Purcell, Deputy Director

2/14/24
Date

Check One:
(X) Signed By Lead Agency
( ) Signed by Applicant

Date Received for Filing with County Clerk or OPR:

APPENDIX B

FIRE HYDRANT METER PROGRAM

CITY OF SAN DIEGO CALIFORNIA DEPARTMENT INSTRUCTIONS	NUMBER **DI** 55.27	DEPARTMENT Water Department
SUBJECT **FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)**	**PAGE** 1 **OF** 10	**EFFECTIVE DATE** October 15, 2002
	SUPERSEDES **DI** 55.27	**DATED** April 21, 2000

1. **PURPOSE**

1.1 To establish a Departmental policy and procedure for issuance, proper usage and charges for fire hydrant meters.

2. **AUTHORITY**

2.1 All authorities and references shall be current versions and revisions.

2.2 San Diego Municipal Code (NC) Chapter VI, Article 7, Sections 67.14 and 67.15

2.3 Code of Federal Regulations, Safe Drinking Water Act of 1986

2.4 California Code of Regulations, Titles 17 and 22

2.5 California State Penal Code, Section 498B.0

2.6 State of California Water Code, Section 110, 500-6, and 520-23

2.7 Water Department Director

Reference

2.8 State of California Guidance Manual for Cross Connection Programs

2.9 American Water Works Association Manual M-14, Recommended Practice for Backflow Prevention

2.10 American Water Works Association Standards for Water Meters

2.11 U.S.C. Foundation for Cross Connection Control and Hydraulic Research Manual

3. **DEFINITIONS**

3.1 **Fire Hydrant Meter:** A portable water meter which is connected to a fire hydrant for the purpose of temporary use. (These meters are sometimes referred to as Construction Meters.)

3.2 **Temporary Water Use:** Water provided to the customer for no longer than twelve (12) months.

3.3 **Backflow Preventor:** A Reduced Pressure Principal Assembly connected to the outlet side of a Fire Hydrant Meter.

4. POLICY

4.1 The Water Department shall collect a deposit from every customer requiring a fire hydrant meter and appurtenances prior to providing the meter and appurtenances (see Section 7.1 regarding the Fees and Deposit Schedule). The deposit is refundable upon the termination of use and return of equipment and appurtenances in good working condition.

4.2 Fire hydrant meters will have a 2 ½" swivel connection between the meter and fire hydrant. The meter shall not be connected to the 4" port on the hydrant. All Fire Hydrant Meters issued shall have a Reduced Pressure Principle Assembly (RP) as part of the installation. Spanner wrenches are the only tool allowed to turn on water at the fire hydrant.

4.3 The use of private hydrant meters on City hydrants is prohibited, with exceptions as noted below. All private fire hydrant meters are to be phased out of the City of San Diego. All customers who wish to continue to use their own fire hydrant meters must adhere to the following conditions:

a. Meters shall meet all City specifications and American Water Works Association (AWWA) standards.

b. Customers currently using private fire hydrant meters in the City of San Diego water system will be allowed to continue using the meter under the following conditions:

1. The customer must submit a current certificate of accuracy and calibration results for private meters and private backflows annually to the City of San Diego, Water Department, Meter Shop.

2. The meter must be properly identifiable with a clearly labeled serial number on the body of the fire hydrant meter. The serial number shall be plainly stamped on the register lid and the main casing. Serial numbers shall be visible from the top of the meter casing and the numbers shall be stamped on the top of the inlet casing flange.

3. All meters shall be locked to the fire hydrant by the Water Department, Meter Section (see Section 4.7).

4. All meters shall be read by the Water Department, Meter Section (see Section 4.7).

5. All meters shall be relocated by the Water Department, Meter Section (see Section 4.7).

6. These meters shall be tested on the anniversary of the original test date and proof of testing will be submitted to the Water Department, Meter Shop, on a yearly basis. If not tested, the meter will not be allowed for use in the City of San Diego.

7. All private fire hydrant meters shall have backflow devices attached when installed.

8. The customer must maintain and repair their own private meters and private backflows.

9. The customer must provide current test and calibration results to the Water Department, Meter Shop after any repairs.

10. When private meters are damaged beyond repair, these private meters will be replaced by City owned fire hydrant meters.

11. When a private meter malfunctions, the customer will be notified and the meter will be removed by the City and returned to the customer for repairs. Testing and calibration results shall be given to the City prior to any re-installation.

12. The register shall be hermetically sealed straight reading and shall be readable from the inlet side. Registration shall be in hundred cubic feet.

13. The outlet shall have a 2 ½ "National Standards Tested (NST) fire hydrant male coupling.

14. Private fire hydrant meters shall not be transferable from one contracting company to another (i.e. if a company goes out of business or is bought out by another company).

4.4 All fire hydrant meters and appurtenances shall be installed, relocated and removed by the City of San Diego, Water Department. All City owned fire hydrant meters and appurtenances shall be maintained by the City of San Diego, Water Department, Meter Services.

4.5 If any fire hydrant meter is used in violation of this Department Instruction, the violation will be reported to the Code Compliance Section for investigation and appropriate action. Any customer using a fire hydrant meter in violation of the requirements set forth above is subject to fines or penalties pursuant to the Municipal Code, Section 67.15 and Section 67.37.

4.6 **Conditions and Processes for Issuance of a Fire Hydrant Meter**

Process for Issuance

a. Fire hydrant meters shall only be used for the following purposes:

1. Temporary irrigation purposes not to exceed one year.

2. Construction and maintenance related activities (see Tab 2).

b. No customer inside or outside the boundaries of the City of San Diego Water Department shall resell any portion of the water delivered through a fire hydrant by the City of San Diego Water Department.

c. The City of San Diego allows for the issuance of a temporary fire hydrant meter for a period not to exceed 12 months (365 days). An extension can only be granted in writing from the Water Department Director for up to 90 additional days. A written request for an extension by the consumer must be submitted at least 30 days prior to the 12 month period ending. No extension shall be granted to any customer with a delinquent account with the Water Department. No further extensions shall be granted.

d. Any customer requesting the issuance of a fire hydrant meter shall file an application with the Meter Section. The customer must complete a "Fire Hydrant Meter Application" (Tab 1) which includes the name of the company, the party responsible for payment, Social Security number and/or California ID, requested location of the meter (a detailed map signifying an exact location), local contact person, local phone number, a contractor's license (or a business license), description of specific water use, duration of use at the site and full name and address of the person responsible for payment.

e. At the time of the application the customer will pay their fees according to the schedule set forth in the Rate Book of Fees and Charges, located in the City Clerk's Office. All fees must be paid by check, money order or cashiers check, made payable to the City Treasurer. Cash will not be accepted.

f. No fire hydrant meters shall be furnished or relocated for any customer with a delinquent account with the Water Department.

g. After the fees have been paid and an account has been created, the

meter shall be installed within 48 hours (by the second business day). For an additional fee, at overtime rates, meters can be installed within 24 hours (within one business day).

4.7 **Relocation of Existing Fire Hydrant Meters**

a. The customer shall call the Fire Hydrant Meter Hotline (herein referred to as "Hotline"), a minimum of 24 hours in advance, to request the relocation of a meter. A fee will be charged to the existing account, which must be current before a work order is generated for the meter's relocation.

b. The customer will supply in writing the address where the meter is to be relocated (map page, cross street, etc). The customer must update the original Fire Hydrant Meter Application with any changes as it applies to the new location.

c. Fire hydrant meters shall be read on a monthly basis. While fire hydrant meters and backflow devices are in service, commodity, base fee and damage charges, if applicable, will be billed to the customer on a monthly basis. If the account becomes delinquent, the meter will be removed.

4.8 **Disconnection of Fire Hydrant Meter**

a. After ten (10) months a "Notice of Discontinuation of Service" (Tab 3) will be issued to the site and the address of record to notify the customer of the date of discontinuance of service. An extension can only be granted in writing from the Water Department Director for up to 90 additional days (as stated in Section 4.6C) and a copy of the extension shall be forwarded to the Meter Shop Supervisor. If an extension has not been approved, the meter will be removed after twelve (12) months of use.

b. Upon completion of the project the customer will notify the Meter Services office via the Hotline to request the removal of the fire hydrant meter and appurtenances. A work order will be generated

for removal of the meter.

c. Meter Section staff will remove the meter and backflow prevention assembly and return it to the Meter Shop. Once returned to the Meter Shop the meter and backflow will be tested for accuracy and functionality.

d. Meter Section Staff will contact and notify Customer Services of the final read and any charges resulting from damages to the meter and backflow or its appurtenance. These charges will be added on the customer's final bill and will be sent to the address of record. Any customer who has an outstanding balance will not receive additional meters.

e. Outstanding balances due may be deducted from deposits and any balances refunded to the customer. Any outstanding balances will be turned over to the City Treasurer for collection. Outstanding balances may also be transferred to any other existing accounts.

5. EXCEPTIONS

5.1 Any request for exceptions to this policy shall be presented, in writing, to the Customer Support Deputy Director, or his/her designee for consideration.

6. MOBILE METER

6.1 Mobile meters will be allowed on a case by case basis. All mobile meters will be protected by an approved backflow assembly and the minimum requirement will be a Reduced Pressure Principal Assembly. The two types of Mobile Meters are vehicle mounted and floating meters. Each style of meters has separate guidelines that shall be followed for the customer to retain service and are described below:

a) **Vehicle Mounted Meters**: Customer applies for and receives a City owned Fire Hydrant Meter from the Meter Shop. The customer mounts the meter on the vehicle and brings it to the Meter Shop for

inspection. After installation is approved by the Meter Shop the vehicle and meter shall be brought to the Meter Shop on a monthly basis for meter reading and on a quarterly basis for testing of the backflow assembly. Meters mounted at the owner's expense shall have the one year contract expiration waived and shall have meter or backflow changed if either fails.

b) **Floating Meters**: Floating Meters are meters that are not mounted to a vehicle. **(Note: All floating meters shall have an approved backflow assembly attached.)** The customer shall submit an application and a letter explaining the need for a floating meter to the Meter Shop. The Fire Hydrant Meter Administrator, after a thorough review of the needs of the customer, (i.e. number of jobsites per day, City contract work, lack of mounting area on work vehicle, etc.), may issue a floating meter. At the time of issue, it will be necessary for the customer to complete and sign the "Floating Fire Hydrant Meter Agreement" which states the following:

    1) The meter will be brought to the Meter Shop at 2797 Caminito Chollas, San Diego on the third week of each month for the monthly read by Meter Shop personnel.

    2) Every other month the meter will be read and the backflow will be tested. This date will be determined by the start date of the agreement.

If any of the conditions stated above are not met the Meter Shop has the right to cancel the contract for floating meter use and close the account associated with the meter. The Meter Shop will also exercise the right to refuse the issuance of another floating meter to the company in question.

Any Fire Hydrant Meter using reclaimed water shall not be allowed use again with any potable water supply. The customer shall incur the cost of replacing the meter and backflow device in this instance.

7. FEE AND DEPOSIT SCHEDULES

7.1 **Fees and Deposit Schedules:** The fees and deposits, as listed in the Rate Book of Fees and Charges, on file with the Office of the City Clerk, are based on actual reimbursement of costs of services performed, equipment and materials. Theses deposits and fees will be amended, as needed, based on actual costs. Deposits, will be refunded at the end of the use of the fire hydrant meter, upon return of equipment in good working condition and all outstanding balances on account are paid. Deposits can also be used to cover outstanding balances.

All fees for equipment, installation, testing, relocation and other costs related to this program are subject to change without prior notification. The Mayor and Council will be notified of any future changes.

8. UNAUTHORIZED USE OF WATER FROM A HYDRANT

8.1 Use of water from any fire hydrant without a properly issued and installed fire hydrant meter is theft of City property. Customers who use water for unauthorized purposes or without a City of San Diego issued meter will be prosecuted.

8.2 If any unauthorized connection, disconnection or relocation of a fire hydrant meter, or other connection device is made by anyone other than authorized Water Department personnel, the person making the connection will be prosecuted for a violation of San Diego Municipal Code, Section 67.15. In the case of a second offense, the customer's fire hydrant meter shall be confiscated and/or the deposit will be forfeited.

8.3 Unauthorized water use shall be billed to the responsible party. Water use charges shall be based on meter readings, or estimates when meter readings are not available.

8.4 In case of unauthorized water use, the customer shall be billed for all applicable charges as if proper authorization for the water use had been obtained, including but not limited to bi-monthly service charges, installation charges and removal charges.

8.5 If damage occurs to Water Department property (i.e. fire hydrant meter, backflow, various appurtenances), the cost of repairs or replacements will be charged to the customer of record (applicant).

Water Department Director

Tabs: 1. Fire Hydrant Meter Application
2. Construction & Maintenance Related Activities With No Return To Sewer
3. Notice of Discontinuation of Service

APPENDIX

Administering Division: Customer Support Division

Subject Index:
Construction Meters
Fire Hydrant
Fire Hydrant Meter Program
Meters, Floating or Vehicle Mounted
Mobile Meter
Program, Fire Hydrant Meter

Distribution: DI Manual Holders

Application for Fire Hydrant Meter (EXHIBIT A)

City of San Diego PUBLIC UTILITIES Water & Wastewater

(For Office Use Only)

NS REQ	FAC#
DATE	BY

METER SHOP (619) 527-7449

Application Date	Requested Install Date:

Meter Information

Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) Zip:	T.B.	G.B. (CITY USE)
Specific Use of Water:		
Any Return to Sewer or Storm Drain, If so , explain:		
Estimated Duration of Meter Use:	☐	Check Box if Reclaimed Water

Company Information

Company Name:			
Mailing Address:			
City:	State:	Zip:	Phone: ( )
*Business license#	*Contractor license#		
A Copy of the Contractor's license OR Business License is required at the time of meter issuance.			
Name and Title of Billing Agent: (PERSON IN ACCOUNTS PAYABLE)			Phone: ( )
Site Contact Name and Title:			Phone: ( )
Responsible Party Name:			Title:
Cal ID#			Phone: ( )
Signature:	Date:		

Guarantees Payment of all Charges Resulting from the use of this Meter. Insures that employees of this Organization understand the proper use of Fire Hydrant Meter

☐ Fire Hydrant Meter Removal Request	Requested Removal Date:	
Provide Current Meter Location if Different from Above:		
Signature:	Title:	Date:
Phone: ( )	Pager: ( )	

☐ City Meter	☐ Private Meter		
Contract Acct #:	Deposit Amount: $ 936.00	Fees Amount: $ 62.00	
Meter Serial #	Meter Size: 05	Meter Make and Style: 6-7	
Backflow #	Backflow Size:	Backflow Make and Style:	
Name:	Signature:	Date:	

WATER USES WITHOUT ANTICIPATED CHARGES FOR RETURN TO SEWER

Auto Detailing
Backfilling
Combination Cleaners (Vactors)
Compaction
Concrete Cutters
Construction Trailers
Cross Connection Testing
Dust Control
Flushing Water Mains
Hydro Blasting
Hydro Seeing
Irrigation (for establishing irrigation only; not continuing irrigation)
Mixing Concrete
Mobile Car Washing
Special Events
Street Sweeping
Water Tanks
Water Trucks
Window Washing

Note:

1. If there is any return to sewer or storm drain, then sewer and/or storm drain fees will be charges.

Date

Name of Responsible Party
Company Name and Address
Account Number:_____

Subject: Discontinuation of Fire Hydrant Meter Service

Dear Water Department Customer:

The authorization for use of Fire Hydrant Meter #_____, located at *(Meter Location Address)* ends in 60 days and will be removed on or after *(Date Authorization Expires)*. Extension requests for an additional 90 days must be submitted in writing for consideration 30 days prior to the discontinuation date. If you require an extension, please contact the Water Department, or mail your request for an extension to:

City of San Diego
Water Department
Attention: Meter Services
2797 Caminito Chollas
San Diego, CA 92105-5097

Should you have any questions regarding this matter, please call the Fire Hydrant Hotline at (619)_____-_____.

Sincerely,

Water Department

APPENDIX C

MATERIALS TYPICALLY ACCEPTED BY CERTIFICATE OF COMPLIANCE

MATERIALS TYPICALLY ACCEPTED BY CERTIFICATE OF COMPLIANCE

1. Soil amendment
2. Fiber mulch
3. PVC or PE pipe up to 16 inch diameter
4. Stabilizing emulsion
5. Lime
6. Preformed elastomeric joint seal
7. Plain and fabric reinforced elastomeric bearing pads
8. Steel reinforced elastomeric bearing pads
9. Waterstops (Special Condition)
10. Epoxy coated bar reinforcement
11. Plain and reinforcing steel
12. Structural steel
13. Structural timber and lumber
14. Treated timber and lumber
15. Lumber and timber
16. Aluminum pipe and aluminum pipe arch
17. Corrugated steel pipe and corrugated steel pipe arch
18. Structural metal plate pipe arches and pipe arches
19. Perforated steel pipe
20. Aluminum underdrain pipe
21. Aluminum or steel entrance tapers, pipe downdrains, reducers, coupling bands and slip joints
22. Metal target plates
23. Paint (traffic striping)
24. Conductors
25. Painting of electrical equipment
26. Electrical components
27. Engineering fabric
28. Portland Cement
29. PCC admixtures
30. Minor concrete, asphalt
31. Asphalt (oil)
32. Liquid asphalt emulsion
33. Epoxy

APPENDIX D

SAMPLE CITY INVOICE

City of San Diego, CM&FE Div., 9573 Chesapeake Drive, SD CA 92123
Project Name:
Work Order No or Job Order No.
City Purchase Order No.
Resident Engineer (RE):
RE Phone#: Fax#:

Contractor's Name:
Contractor's Address:
Contractor's Phone #:
Contractor's fax #:
Contact Name:

Invoice No.
Invoice Date:
Billing Period: (To)

Trigger Asset	Item #	Item Description	Contract Authorization				Previous Totals To Date		This Estimate		Totals to Date		Amount Remaining
			Unit	Price	Qty	Extension	%/QTY	Amount	% / QTY	Amount	% / QTY	Amount	
	1				1.00	$ -		$0.00		$0.00	0.00	$0.00	$ -
	2				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	3				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	4				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	5				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	6				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	7				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	8				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	5				1.00	$ -		$0.00		$0.00	0.00%	$0.00	$ -
	6					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	7					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	8					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	9					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	10					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	11					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	12					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	13					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	14					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	15					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	16					$ -		$0.00		$0.00	0.00%	$0.00	$ -
	17					$ -		$0.00		$0.00	0.00%	$0.00	$ -
						$ -		$0.00		$0.00	0.00%	$0.00	$ -
		CHANGE ORDER No.				$ -		$0.00		$0.00	0.00%	$0.00	$ -
						$ -		$0.00		$0.00	0.00%	$0.00	$ -
		Total Auhtorized Amount (Original)				$ -		$0.00		$0.00		$0.00	$ -
		Total Authorized Amount (including approved Change Order)				**$ -**		$0.00		$0.00	**Total Billed**	$0.00	Total Amount Remaining
													$ -

SAMPLE

SUMMARY

A. Original Contract Amount	$0.00
B. Approved Change Order #00 Thru #00	$0.00
C. Total Authorized Amount (A+B)	$0.00
D. Total Billed to Date	$0.00
E. Less Total Retention (5% of D)	$0.00
F. Less Total Previous Payments	$0.00
G. Payment Due Less Retention	**$0.00**
H. Remaining Authorized Amount	$0.00

I certify that the materials have been received by me, or services have been rendered, in the quality and quantity specified per the approved contracted amounts, and is approved for payment

_____
Resident Engineer **Date**

_____
Construction Engineer **Date**

Retention and/or Escrow Payment Schedule

Total Retention Required as of this billing (Item E)	$0.00
Previous Retention Withheld in PO or in Escrow	$0.00
Add'l Amt to Withhold in PO/Transfer in Escrow:	***$0.00***
Amt to Release to Contractor from PO/Escrow:	$0.00

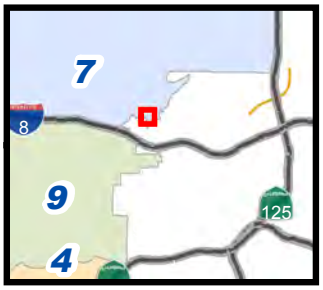
Contractor Signature and Date: _____

1/10/2024 Rev

APPENDIX E

LOCATION MAPS

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SD Engineering & Capital Projects

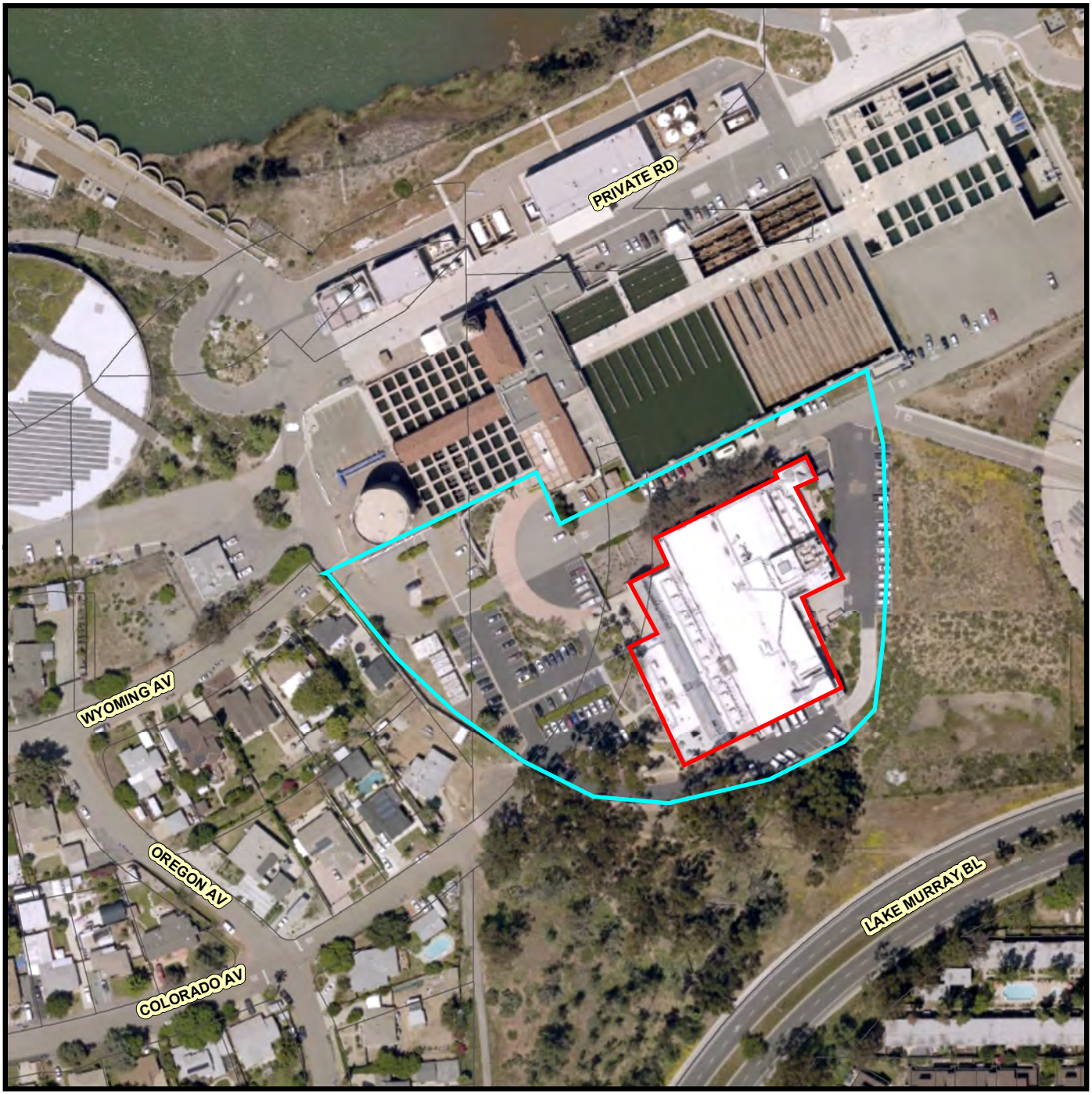
ALVARADO LABORATORY IMPROVEMENTS

SENIOR ENGINEER
EDGAR LOZANO
(619) 433-5587

PROJECT MANAGER
JOULIANA ALYASHAI
(619) 533-5457

PROJECT ENGINEER
SOPHIA DOWELL
(619) 243-6723

LOCATION MAP



Laboratory Building

Limits of Work

N
W
E
S

No Scale

Document Path: S:\PITS\PITS-CIP-Preliminary-Engineering-and-Program-Coordination\Drafting\Water & Sewer Projects\Facility Projects\Alvarado Laboratory Improvements\CIP Tracking\Predesign Location Maps\Predesign Location Map (8-19-2022).mxd

COMMUNITY NAME: Navajo

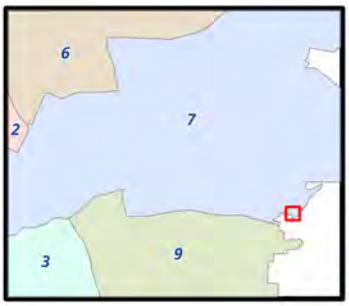
COUNCIL DISTRICT: 7

SAP ID: L22000.1

Date: 6/5/2025

SanGIS Last updated by: RDeGuzman on 4/4/2024 at 7:30:05 AM

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Engineering & Capital Projects

Alvarado Laboratory Improvement Trailer Project

SENIOR ENGINEER
EDGAR LOZANO
(619) 433-5587

PROJECT MANAGER
JOULIANA ALYASHAI
(619) 533-5457

PROJECT ENGINEER
SOPHIA DOWELL
(619) 533-3897

FOR QUESTIONS ABOUT THIS PROJECT
Call: (619) 533-4207
Email: engineering@sandiego.gov

LOCATION MAP



LEGEND

Project Location

N
W
E
S

No Scale

COMMUNITY NAME: Navajo

COUNCIL DISTRICT: 7

WBS #: L-22000.3

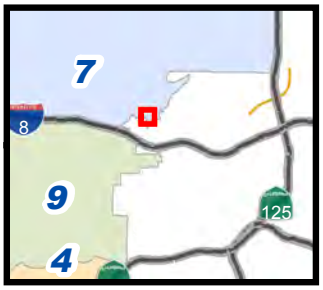
Date: 1/29/2025

PROGRAM & PROJECT DEVELOPMENT DIVISION

APPENDIX F

ADJACENT PROJECTS MAP

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Engineering & Capital Projects

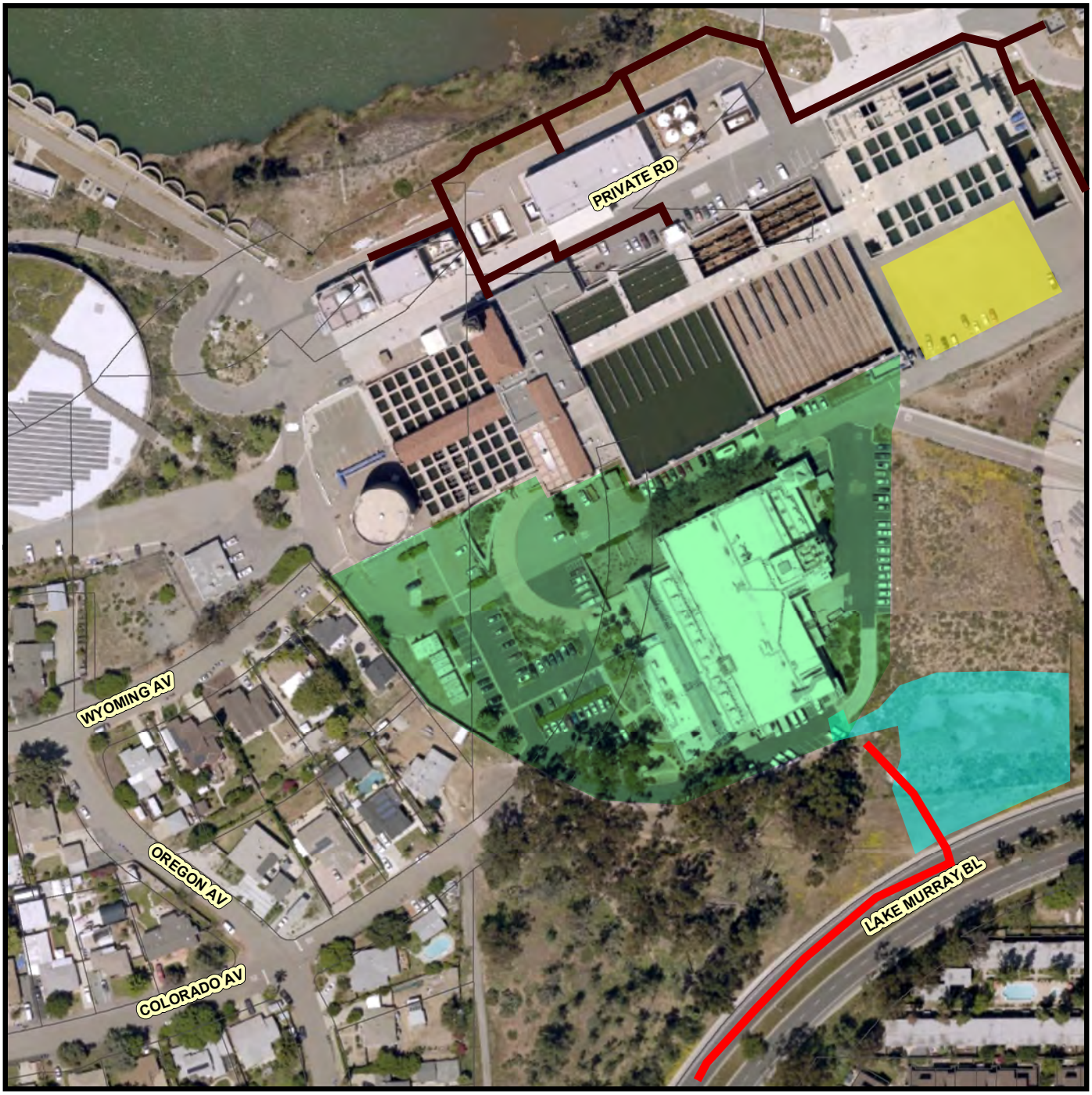
ALVARADO LABORATORY IMPROVEMENTS

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PROJECT MANAGER
JOULIANA ALYASHAI
(619) 533-5457

PROJECT ENGINEER
SOPHIA DOWELL
(619) 243-6723

ADJACENT PROJECTS



S-11026 Montezuma Mid-City Pipeline Project

L-22000.3 Alvarado Lab Trailer

B-23051 Alvarado WTP Chemical Piping Replacement

WTP Disinfection Conversion Project

L-22000.1 Alvarado Laboratory Improvements Project

N
W
E
S

No Scale

Document Path: S:\PTS\PTS-C P-Preliminary-Engineering-and-Program-Coordination\Drafting\Water & Sewer Projects\Facility Projects\Alvarado Laboratory Improvements\CIP Tracking\Predesign Location Maps\Predesign Location Map (8-19-2022).mxd

COMMUNITY NAME: Navajo

COUNCIL DISTRICT: 7

SAP ID: L22000.1

Date: 2/5/2025

SanGIS Last updated by: RDeGuzman on 4/4/2024 at 7:30:05 AM

APPENDIX G

MONTHLY DRINKING WATER DISCHARGE MONITORING FORM

DRINKING WATER DISCHARGE MONITORING FORM

(Use for All Discharges to the Storm Drain)

All discharge activities related to this project comply with the State Water Resources Control Board ORDER WQ 2014-0194-DWQ, STATEWIDE GENERAL NPDES PERMIT FOR DRINKING WATER SYSTEMS DISCHARGES as referenced by (http://www.waterboards.ca.gov/water_issues/programs/npdes/docs/drinkingwater/final_statewide_wqo2014_0194_dwq.pdf), and as follows:

Project Name:		WBS No.:		Watershed No.	
Qualified Person Conducting Tests:		signature			

BMPs MUST BE IN PLACE PRIOR TO ANY SCHEDULED DISCHARGE

By signing, I certify that all of the statements and conditions for drinking water discharge events are correct.

Event #1

Discharge Location[1]	Catergory[2] (Select one)	Notification[3] (Select all that apply)	BMPs in Place[4] (Select all that apply)	Volume[5] (gal)	Sampling[6] (take samples at 10 mins, 50-60 mins & last 10 mins)				Exceedence[7]			Notes
					Measure	Unit	Time	Result	Limit	No	Yes	Report exceedence to RE & complete page 2 of 2
Inlet Location	☐ Superchlorinated (Chlorine added for disinfection)	☐ TSW (All Categories)	☐ Sweep flow path (gutter, street, etc.)	**Total**	*Chlorine*	mg/L			0.1 mg/L= Exceedance			
	☐ Large Volume (≥ 325,850 gal)	☐ PUD (All Categories)	☐ Dechlorination (diffusers, chemicals, etc.)	**Reused** (if any)								
Start Date: Time:	☐ Well Dev/Rehab (Not Typical)	☐ Water Board (Large Volume Only)	☐ Inlet Protection		*Turbidity*	NTU			20 NTU= Exceedance 225 NTU= Exceedance for Ocean			
			☐ Erosion Controls									
End Date: Time:	☐ Small Volume/Other (No Sampling Required)	☐ County (≥100,000 gal & within ¼ mile of ocean/bay; or if enters the County's MS4)	☐ Sediment Controls		*pH*	Unit			Range 6.5 to 8.5			

Event #2

Discharge Location[1]	Catergory[2] (Select one)	Notification[3] (Select all that apply)	BMPs in Place[4] (Select all that apply)	Volume[5] (gal)	Sampling[6] (take samples at 10 mins, 50-60 mins & last 10 mins)				Exceedence[7]			Notes
					Measure	Unit	Time	Result	Limit	No	Yes	Report exceedence to RE & complete page 2 of 2
Inlet Location	☐ Superchlorinated (Chlorine added for disinfection)	☐ TSW (All Categories)	☐ Sweep flow path (gutter, street, etc.)	**Total**	*Chlorine*	mg/L			0.1 mg/L= Exceedance			
	☐ Large Volume (≥ 325,850 gal)	☐ PUD (All Categories)	☐ Dechlorination (diffusers, chemicals, etc.)	**Reused** (if any)								
Start Date: Time:	☐ Well Dev/Rehab (Not Typical)	☐ Water Board (Large Volume Only)	☐ Inlet Protection		*Turbidity*	NTU			20 NTU= Exceedance 225 NTU= Exceedance for Ocean			
			☐ Erosion Controls									
End Date: Time:	☐ Small Volume/Other (No Sampling Required)	☐ County (≥100,000 gal & within ¼ mile of ocean/bay; or if enters the County's MS4)	☐ Sediment Controls		*pH*	Unit			Range 6.5 to 8.5			

Instructional Notes found on the Page 2 of 2

Submit completed Form to RE

Receiving Water Monitoring

(Complete only if limits exceed on Page 1 of 2)

Event #1		
1) Go to the location where the discharge enters the receiving water.		
☐ Accessible ☐ Unable to Determine ☐ No Safe Access		
2) If accessible, take photos and complete the visual monitoring below. If unable to determine, stop here. If no safe access, stop here.		
3) Visual Monitoring: Is the discharge into the receiving water…		
…causing erosion	☐ Yes	☐ No
…carrying floating or suspended matter	☐ Yes	☐ No
…causing discoloration	☐ Yes	☐ No
…causing and impact to the aquatic life present	☐ Yes	☐ No
…observed with visible film	☐ Yes	☐ No
…observed with an sheen or coating	☐ Yes	☐ No
…causing potential nuisance conditions	☐ Yes	☐ No
3) If all answers are NO, stop here.		
4) If any answers are YES, Notify the RE immediately for further action		

Event #2		
1) Go to the location where the discharge enters the receiving water.		
☐ Accessible ☐ Unable to Determine ☐ No Safe Access		
2) If accessible, take photos and complete the visual monitoring below. If unable to determine, stop here. If no safe access, stop here.		
3) Visual Monitoring: Is the discharge into the receiving water…		
…causing erosion	☐ Yes	☐ No
…carrying floating or suspended matter	☐ Yes	☐ No
…causing discoloration	☐ Yes	☐ No
…causing and impact to the aquatic life present	☐ Yes	☐ No
…observed with visible film	☐ Yes	☐ No
…observed with an sheen or coating	☐ Yes	☐ No
…causing potential nuisance conditions	☐ Yes	☐ No
3) If all answers are NO, stop here.		
4) If any answers are YES, Notify the RE immediately for further action		

Instructional Notes

1) Log the location of the inlet or discharge point. For example: Albatross St & 5th Av. Log the start date and time and the end date and time of the discharge.
2) Log the discharge category. "Superchlorinated" are discharges where additional chlorine is added in order to adequately disinfect and sanitize drinking water system facilities. This does NOT include potable water containing residual chlorine from the water treatment process. "Large Volume" discharges are greater than 325,850 gallons of total volume for one event. "Well Dev/Rehab" are discharges of potable ground water from a well. This is not typical. If none of these categories apply, then select "Small Volume/Other."
3) Notifications of the location, date, time, category, and estimated volume of discharge must be made to the contacts and per the requirements below:

Contact	When to Notify	Email
TSW	3 days prior to all discharges	SWPPP@SanDiego.gov
PUD	3 days prior to all discharges	CompReports@SanDiego.gov Rdavenport@SanDiego.gov
San Diego Water Board	3 days prior to Large Volume discharges	SanDiego@WaterBoards.ca.gov Ben.Neill@WaterBoards.ca.gov
County of San Diego	3 days prior if 100,000 gal and within 1/4 mile of ocean/bay	DEH: Joseph.Palmer@SDCounty.ca.gov Dominique.Edwards@SDCounty.ca.gov
	3 days prior if enter county MS4 or unincorporated County	WPP:Nicholas.DeValle@SDCounty.ca.gov LUEG.Watersheds@sdcounty.ca.gov

4) At a minimum, sweep gutters prior to starting discharge and use dechlorination BMPs. The contractor and RE must monitor and determine if BMPs need to be removed or modified. For example if inlet protection is causing flooding at a storm drain inlet, contractor may elect to remove BMPs. Document any modification to BMPs in the notes
5) Total volume must be logged for all discharges. If discharge water is reused for other purposes such as watering a golf course, log that volume under "Reused"
6) Sampling is required for categories per the following table:

Category	Measure	Sample Frequency
Superchlorinated	Chlorine, Turbidity, pH	first 10 min, 50-60 min, last 10 min
Large Volume	Chlorine Turbidity	first 10 min, 50-60 min, last 10 min
Well Dev/Rehab	Chlorine Turbidity	first 10 min, 50-60 min, last 10 min
Small Volume/Other	None required	N/A

7) Effluent limitations must be monitored not to exceed per the following table:

Measure	Method	Limit
Chlorine	Field Measure	0.10 mg/L-Cl
Turbidity	Visual Estimate	20 NTU for inland waters 225 NTU for ocean 100 NTU for wells
pH	Field Meausre	6.5 - 8.5

APPENDIX H

HAZARDOUS WASTE LABEL/FORMS


HAZARDOUS
WASTE
STATE AND FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY
AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY
OR THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES
GENERATOR NAME
ADDRESS
24 HR. PHONE
CITY
STATE
ZIP
EPA ID NO.
MANIFEST DOCUMENT NO.
EPA WASTE NO.
CA WASTE NO.
ACCUMULATION START DATE
CONTENTS, COMPOSITION
PROPER DOT SHIPPING NAME
TECHNICAL NAME (S)
UN/NA NO. WITH PREFIX
PHYSICAL STATE
SOLID
LIQUID
HAZARDOUS PROPERTIES
CORROSIVE
FLAMMABLE
REACTIVE
TOXIC
OTHER
HANDLE WITH CARE!
CONTAINS HAZARDOUS OR TOXIC WASTES

INCIDENT/RELEASE ASSESSMENT FORM [1]

If you have an emergency, Call 911

Handlers of hazardous materials are required to report releases. The following is a tool to be used for assessing if a release is reportable. Additionally, a non-reportable release incident form is provided to document why a release is not reported (see back).

Questions for Incident Assessment:	YES	NO
1. Was anyone killed or injured, or did they require medical care or admitted to a hospital for observation?	❒	❒
2. Did anyone, other than employees in the immediate area of the release, evacuate?	❒	❒
3. Did the release cause off-site damage to public or private property?	❒	❒
4. Is the release greater than or equal to a reportable quantity (RQ)?	❒	❒
5. Was there an uncontrolled or unpermitted release to the air?	❒	❒
6. Did an uncontrolled or unpermitted release escape secondary containment, or extend into any sewers, storm water conveyance systems, utility vaults and conduits, wetlands, waterways, public roads, or off site?	❒	❒
7. Will control, containment, decontamination, and/or clean up require the assistance of federal, state, county, or municipal response elements?	❒	❒
8. Was the release or threatened release involving an unknown material or contains an unknown hazardous constituent?	❒	❒
9. Is the incident a threatened release (a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment)?	❒	❒
10. Is there an increased potential for secondary effects including fire, explosion, line rupture, equipment failure, or other outcomes that may endanger or cause exposure to employees, the general public, or the environment?	❒	❒

If the answer is YES to any of the above questions – report the release to the California Office of Emergency Services at 800-852-7550 and the local CUPA daytime: (619) 338-2284, after hours: (858) 565-5255. Note: other state and federal agencies may require notification depending on the circumstances.

Call 911 in an emergency

If all answers are NO, complete a Non Reportable Release Incident Form (page 2 of 2) and keep readily available. Documenting why a "no" response was made to each question will serve useful in the event questions are asked in the future, and to justify not reporting to an outside regulatory agency.

If in doubt, report the release.

[1] This document is a guide for accessing when hazardous materials release reporting is required by Chapter 6.95 of the California Health and Safety Code. It does not replace good judgment, Chapter 6.95, or other state or federal release reporting requirements.

NON REPORTABLE RELEASE INCIDENT FORM

1. RELEASE AND RESPONSE DESCRIPTION Incident #_____

Date/Time Discovered	Date/Time Discharge	Discharge Stopped ☐ Yes ☐ No
Incident Date / Time:		
Incident Business / Site Name:		
Incident Address:		
Other Locators (Bldg, Room, Oil Field, Lease, Well #, GIS)		
Please describe the incident and indicate specific causes and area affected. Photos Attached?: ☐Yes ☐No		
Indicate actions to be taken to prevent similar releases from occurring in the future.		

2. ADMINISTRATIVE INFORMATION

Supervisor in charge at time of incident:	Phone:
Contact Person:	Phone:

3. CHEMICAL INFORMATION

Chemical	Quantity ☐ GAL ☐ LBS ☐ FT^3
Chemical	Quantity ☐ GAL ☐ LBS ☐ FT^3
Chemical	Quantity ☐ GAL ☐ LBS ☐ FT^3
Clean-Up Procedures & Timeline:	
Completed By:	Phone:
Print Name:	Title:

EMERGENCY RELEASE FOLLOW - UP NOTICE REPORTING FORM

A

BUSINESS NAME	FACILITY EMERGENCY CONTACT & PHONE NUMBER ( ) -

B

INCIDENT DATE MO DAY YR	TIME OES NOTIFIED (use 24 hr time)	OES CONTROL NO.

C

INCIDENT ADDRESS LOCATION	CITY / COMMUNITY	COUNTY ZIP

D

CHEMICAL OR TRADE NAME (print or type)	CAS Number

CHECK IF CHEMICAL IS LISTED IN 40 CFR 355, APPENDIX A ☐	CHECK IF RELEASE REQUIRES NOTIFI - CATION UNDER 42 U.S.C. Section 9603 (a) ☐

PHYSICAL STATE CONTAINED ☐ SOLID ☐ LIQUID ☐ GAS	PHYSICAL STATE RELEASED ☐ SOLID ☐ LIQUID ☐ GAS	QUANTITY RELEASED

ENVIRONMENTAL CONTAMINATION ☐ AIR ☐ WATER ☐ GROUND ☐ OTHER	TIME OF RELEASE	DURATION OF RELEASE ___DAYS ___HOURS ___MINUTES

E

ACTIONS TAKEN

F

KNOWN OR ANTICIPATED HEALTH EFFECTS (Use the comments section for addition information)

☐ ACUTE OR IMMEDIATE (explain) _____

☐ CHRONIC OR DELAYED (explain) _____

☐ NOTKNOWN (explain)

G

ADVICE REGARDING MEDICAL ATTENTION NECESSARY FOR EXPOSED INDIVIDUALS

H

COMMENTS (INDICATE SECTION (A - G) AND ITEM WITH COMMENTS OR ADDITIONAL INFORMATION)

I

CERTIFICATION: I certify under penalty of law that I have personally examined and I am familiar with the information submitted and believe the submitted information is true, accurate, and complete.

REPORTING FACILITY REPRESENTATIVE (print or type) _____

SIGNATURE OF REPORTING FACILITY REPRESENTATIVE _____ DATE: _____

EMERGENCY RELEASE FOLLOW-UP NOTICE
REPORTING FORM INSTRUCTIONS

GENERAL INFORMATION:

Chapter 6.95 of Division 20 of the California Health and Safety Code requires that written emergency release follow-up notices prepared pursuant to 42 U.S.C. § 11004, be submitted using this reporting form. Non-permitted releases of reportable quantities of Extremely Hazardous Substances (listed in 40 CFR 355, appendix A) or of chemicals that require release reporting under section 103(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 [42 U.S.C. § 9603(a)] must be reported on the form, as soon as practicable, but no later than 30 days, following a release. The written follow-up report is required in addition to the verbal notification.

BASIC INSTRUCTIONS:

- The form, when filled out, reports follow-up information required by 42 U.S.C § 11004. Ensure that all information requested by the form is provided as completely as possible.
- If the incident involves reportable releases of more than one chemical, prepare one report form for each chemical released.
- If the incident involves a series of separate releases of chemical(s) at different times, the releases should be reported on separate reporting forms.

SPECIFIC INSTRUCTIONS:

Block A: Enter the name of the business and the name and phone number of a contact person who can provide detailed facility information concerning the release.

Block B: Enter the date of the incident and the time that verbal notification was made to OES. The OES control number is provided to the caller by OES at the time verbal notification is made. Enter this control number in the space provided.

Block C: Provide information pertaining to the location where the release occurred. Include the street address, the city or community, the county and the zip code.

Block D: Provide information concerning the specific chemical that was released. Include the chemical or trade name and the Chemical Abstract Service (CAS) number. Check all categories that apply. Provide best available information on quantity, time and duration of the release.

Block E: Indicate all actions taken to respond to and contain the release as specified in 42 U.S.C. § 11004(c).

Block F: Check the categories that apply to the health effects that occurred or could result from the release. Provide an explanation or description of the effects in the space provided. Use Block H for additional comments/information if necessary to meet requirements specified in 42 U.S.C. § 11004(c).

Block G: Include information on the type of medical attention required for exposure to the chemical released. Indicate when and how this information was made available to individuals exposed and to medical personnel, if appropriate for the incident, as specified in 42 U.S.C. § 11004(c).

Block H: List any additional pertinent information.

Block I: Print or type the name of the facility representative submitting the report. Include the official signature and the date that the form was prepared.

MAIL THE COMPLETED REPORT TO:

State Emergency Response Commission (SERC)
Attn: Section 304 Reports
Hazardous Materials Unit
3650 Schriever Avenue
Mather, CA 95655

NOTE: Authority cited: Sections 25503, 25503.1 and 25507.1, Health and Safety Code. Reference: Sections 25503(b)(4), 25503.1, 25507.1, 25518 and 25520, Health and Safety Code.

APPENDIX I

SAMPLE OF PUBLIC NOTICE

FOR SAMPLE REFERENCE ONLY

The City of SAN DIEGO



CONSTRUCTION NOTICE

PROJECT TITLE

Work on your street will begin within one week to replace the existing water mains servicing your community.

The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
- Streets where trenching takes place will be resurfaced and curb ramps will be upgraded to facilitate access for persons with disabilities where required.
- This work is anticipated to be complete in your community by December 2016.

How your neighborhood may be impacted:

- Water service to some properties during construction will be provided by a two-inch highline pipe that will run along the curb. To report a highline leak call 619-515-3525.
- Temporary water service disruptions are planned. If planned disruptions impact your property, you will receive advance notice.
- Parking restrictions will exist because of the presence of construction equipment and materials.
- "No Parking" signs will be displayed 72 hours in advance of the work.
- Cars parked in violation of signs will be TOWED.

Hours and Days of Operation:
Monday through Friday X:XX AM to X:XX PM.

City of San Diego Contractor:
Company Name, XXX-XXX-XXXX

To contact the City of San Diego: SD Public Works
619-533-4207 | engineering@sandiego.gov | sandiego.gov/CIP
This information is available in alternative formats upon request.

The City of SAN DIEGO



CONSTRUCTION NOTICE

PROJECT TITLE

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The work will consist of:

- Saw-cutting and trench work on Ingulf Street from Morena Boulevard to Galveston Street to install new water mains, water laterals and fire hydrants.
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City of San Diego Contractor:
Company Name, XXX-XXX-XXXX

To contact the City of San Diego: SD Public Works
619-533-4207 | engineering@sandiego.gov | sandiego.gov/CIP
This information is available in alternative formats upon request.

APPENDIX J

ADVANCED METERING INFRASTRUCTURE (AMI) DEVICE PROTECTION

Protecting AMI Devices in Meter Boxes and on Street Lights

The Public Utilities Department (PUD) has begun the installation of the Advanced Metering Infrastructure (AMI) technology as a new tool to enhance water meter reading accuracy and efficiency, customer service and billing, and to be used by individual accounts to better manage the efficient use of water. **All AMI devices shall be protected per Section 402-2, "Protection", of the 2021 Whitebook.**

AMI technology allows water meters to be read electronically rather than through direct visual inspection by PUD field staff. This will assist PUD staff and customers in managing unusual consumption patterns which could indicate leaks or meter tampering on a customer's property.

Three of the main components of an AMI system are the:

A. Endpoints, see Photo 1:

Photo 1



B. AMI Antenna attached to Endpoint (antenna not always required), see Photo 2:

Photo 2



Network Devices, see Photo 3:

Photo 3



AMI endpoints transmit meter information to the AMI system and will soon be on the vast majority of meters in San Diego. These AMI devices provide interval consumption data to the PUD's Customer Support Division. If these devices are damaged or communication is interrupted, this Division will be alerted of the situation. The endpoints are installed in water meter boxes, coffins, and vaults adjacent to the meter. A separate flat round antenna may also be installed through the meter box lid. This antenna is connected to the endpoint via cable. The following proper installation shall be implemented when removing the lid to avoid damaging the antenna, cable, and/or endpoint. Photo 4 below demonstrates a diagram of the connection:

Photo 4



The AMI device ERT/Endpoint/Transmitter shall be positioned and installed as discussed in this Appendix. If the ERT/Endpoint/Transmitter is disturbed, it shall be re-installed and returned to its original installation with the end points pointed upwards as shown below in Photo 5.

The PUD's code compliance staff will issue citations and invoices to you for any damaged AMI devices that are not re-installed as discussed in the Contract Document
Photo 5 below shows a typical installation of an AMI endpoint on a water meter.

Photo 5

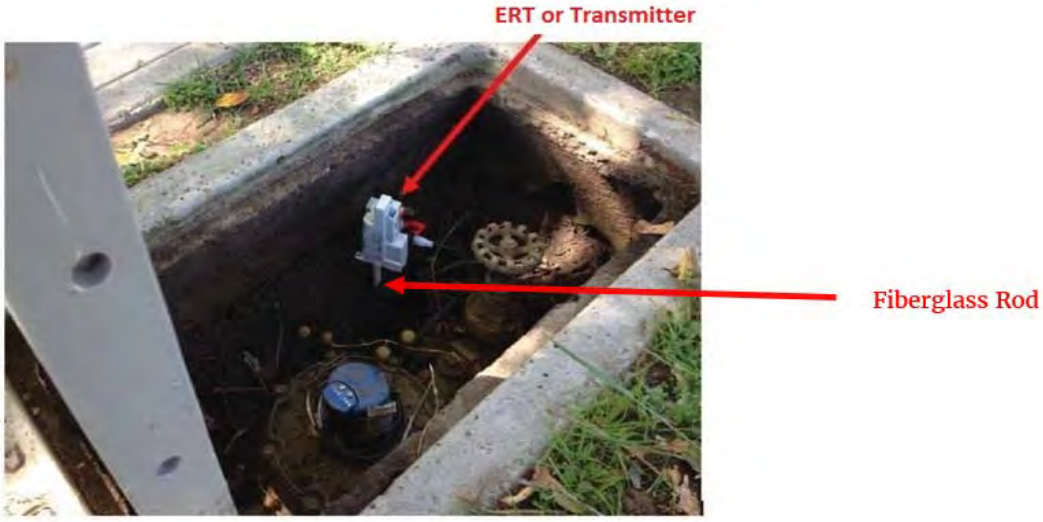


Photo 6 below is an example of disturbance that shall be avoided:

Photo 6



You are responsible when working in and around meter boxes. If you encounter these endpoints, use proper care and do not disconnect them from the registers on top of the water meter. If the lid has an antenna drilled through, do not change or tamper with the lid and inform the Resident Engineer immediately about the location of that lid. Refer to Photo 7 below:

Photo 7



Another component of the AMI system are the Network Devices. The Network Devices are strategically placed units (mainly on street light poles) that collect interval meter reading data from multiple meters for transmission to the Department Control Computer. **If you come across any of these devices on street lights that will be removed or replaced (refer to Photos 8 and 9 below), notify Elvira Santiesteban, Compliance & Metering Manager 619-380-3804 and Kevin Wilson, Senior Water Utility Supervisor 619-857-8257 immediately.**

Photo 8 shows an installed network device on a street light. On the back of each Network Device is a sticker with contact information. See Photo 9. **Call PUD Water Emergency Repairs at 619-515-3525 if your work will impact these street lights.** These are assets that belong to the City of San Diego and you shall be responsible for any costs of disruption of this network.

Photo 8



Photo 9



If you encounter any bad installations, disconnected/broken/buried endpoints, or inadvertently damage any AMI devices or cables, notify the Resident Engineer immediately. The Resident Engineer will then immediately contact Elvira Santiesteban, Compliance & Metering Manager 619-380-3804 and Kevin Wilson, Senior Water Utility Supervisor 619-857-8257.

Rev. 9.11.2023

APPENDIX K

SWPPP CONSTRUCTION BMP MAINTENANCE LOG

SWPPP Construction BMP Maintenance Log

Examples of construction BMP maintenance activites include but are not limited to tasks listed below. The contractor is ultimately responsible for compliance with the Storm Water Standards Manual and/or the Construction General Permit, and for ensuring all BMPs function per manufacturer's specifications. Use the attached log to schedule and document maintenance activities. The log shall be kept with the project SWPPP document at all times.

Construction BMP Maintenance Acitivities

- Maintain stabilized construction entrances/exits
- Redress gravel/rock to full coverage and remove any sediment accumulation
- Remove and replace geotextile/compost blanket/plastic with holes or tears
- Redress and restabilize erosion or rilling greater than 1-inch deep
- Reapply hydraulic stabilization products to full coverage
- Remove and replace silt fence/fiber roll/gravel bags/etc. with holes or tears
- Reinstall or replace silt fence/fiber roll/etc. with sags
- Remove sediment accumulation from perimeter controls
- Remove sediment accumulation from storm drain inlet protection and check dams
- Remove sediment accumulation from energy dissipators
- Repair or remove any vehicle/equipment that leaks
- Remove any accumulation in drip pans or containment
- Empty concrete washouts when they reach 75% capacity
- Empty waste disposal containers when they reach 95% capacity

Construction BMP Maintenance Log

Project Title:
WBS/IO No:
WDID:

Scheduled Date/Time	Completion Date/Time	Location	Maintenance Tasks Performed	Logged By

APPENDIX L

SAMPLE CONTRACTOR PERFORMANCE EVALUATION (CPE) FORM

CITY OF SAN DIEGO
CONTRACTOR PERFORMANCE EVALUATION (CPE) FORM

Date:_____

☐ **INTERIM EVALUATION:** at _____% of a _____ ☐ Working Day ☐ Calendar Day
☐ **FINAL EVALUATION:** Submitted at completion of a _____ ☐ Working Day ☐ Calendar Day

TITLE OF CONTRACT: Title of Contract

CONTRACT AMOUNT (ORIGINAL/FINAL) _____/_____

FIRM NAME: Contractor Firm Name

FIRM ADDRESS: _____

CONTRACTOR REPRESENTATIVE'S NAME: _____

CONTRACTOR SUPERINTENDENT'S NAME: _____

CONTRACTOR FOREMAN'S NAME: _____

WBS #: **BID #:**

TYPE OF WORK (CHECK ALL THAT APPLY):

TREATMENT PLANT	☐	PUMP STATION	☐	SEWER MAIN	☐	STORM DRAIN	☐
WATER MAIN	☐	FLOOD CONTROL	☐	ENVTL. MITIGATION	☐	BRIDGE	☐
STREETS/HIGHWAYS	☐	TRAFFIC SIGNAL	☐	STREET LIGHTS	☐	PARK	☐
BUILDING [specify]	☐	PIPING SYSTEM	☐	OTHER (SPECIFY)	☐	____	

CPE are one of the tools the City uses to determine if a contractor has the quality, fitness, and capacity to perform proposed work satisfactorily and is, therefore, a responsible contractor. *See* San Diego Municipal Code sections 22.3003 and 22.3004. This evaluation represents the observations and conclusions of the City of San Diego, prepared by City staff in the course of their official duties. The Contractor may agree with or dispute the contents and conclusions of this evaluation. Anyone not affiliated with the City of San Diego should conduct his/her investigation to confirm or dispel the conclusions expressed herein.

Notes:
- **The Contractor will be allowed (60) calendar days after notice of the final performance evaluation pursuant to SDMC 22.0806 to protest this evaluation in writing; otherwise, the City will deem the evaluation accepted by the Contractor.**
- **Refer to the end of the form for definitions used in this evaluation.**

SAMPLE

1. Contract Administration

The Contractor's overall rating for Section 1 is (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

2. Compliance with Contract Documents

SAMPLE

The Contractor's overall rating for Section 2 is (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

3. Construction Workmanship

The Contractor's overall rating for Section 3 is (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

4. Safety

The Contractor's overall rating for Section 4 is (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

SAMPLE

5. Storm Water / BMP Compliance

The Contractor's overall rating for Section 5 is (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

6. Cooperation, Professionalism, Communication & Public Outreach

SAMPLE

The Contractor's overall rating for Section 6 is (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

7. Subcontracting Performance and Management

The Contractor's overall rating for Section 7 is (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

OVERALL EVALUATION

THE OVERALL EVALUATION IS DERIVED FROM THE HOLISTIC REVIEW OF THE SEVEN FACTORS ABOVE.

The Contractor's overall rating (check one):

☐ Outstanding ☐ Above Satisfactory ☐ Satisfactory ☐ Needs Improvement ☐ Unsatisfactory

OVERALL SUMMARY:

SAMPLE

RESIDENT ENGINEER	SUPERVISOR
By:	
(signature / date)	(signature / date)
(print name)	(print name)

Section Head's Initial_____

Asst. Deputy Director's Initials_____

ADD:

Date:_____

cc:

- Contractor
- Program Coordinator, Engineering & Capital Projects/Contracting Group, Pre-qualification Program
- Director, Purchasing & Contracting
- Deputy Director, Purchasing & Contracting
- eFile CityHub/SDShare

SAMPLE

Definitions:

1. **Performance Areas -** These include the Contractor's record of conforming to the requirements and standards of *Contract Administration*, *Compliance with Contract Documents*, *Construction Workmanship*, *Safety*, *Stormwater Best Management Practices*, *Cooperation, Professionalism*, *Communication* and *Public Outreach*, and *Subcontracting Performance and Management*.

   Here are definitions for the specified terms within the context of contractor performance areas:

   - *Contract Administration*: Managing all aspects of a construction contract to ensure compliance with its terms and conditions. This includes handling project documentation, managing changes or modifications, e.g., requests for changes, processing payments, monitoring timelines, requests for information, submittals, resolving disputes, and ensuring all parties fulfill their contractual obligations.
   - *Compliance with Contract Documents:* Adherence to the plans, specifications, and other legally binding documents that outline the scope of work, quality standards, and technical requirements. This involves ensuring all construction activities align with approved designs, materials, and regulations specified in the contract.
   - *Construction Workmanship:* The quality and standard of the physical work performed on the project. It reflects the Contractor's ability to deliver durable, precise, and code-compliant construction through skilled labor and proper techniques specified in the contract.
   - *Safety:* Implementing and maintaining measures to protect workers, site visitors, and the public from hazards. This includes compliance with Occupational Safety and Health Administration standards, site-specific safety plans, and accident prevention strategies throughout the project lifecycle.
   - *Stormwater Best Management Practices (BMPs):* Techniques and measures used to control and reduce the impact of stormwater runoff during and after construction. This includes erosion control, sediment barriers, proper waste management, and other strategies to minimize pollution and protect water quality in compliance with environmental regulations.
   - *Cooperation:* The Contractor's ability to work collaboratively and effectively with the City, subcontractors, government agencies, and other stakeholders. This involves being responsive and adaptable and maintaining a solution-oriented approach to project challenges.
   - *Professionalism:* Demonstrating ethical conduct, integrity, and respect in all aspects of the Contractor's work. It includes maintaining a positive work environment, adhering to industry standards, and fostering trust through reliable and responsible business practices.
   - *Communication and Public Outreach:* Providing clear, timely, and accurate information to stakeholders and the public as specified in the Contract Documents. This involves regular project updates, responding to concerns, and maintaining transparency to build positive community relations and ensure all parties remain informed.
   - *Subcontracting Performance and Management:* The contractor's ability to select, oversee, and coordinate Subcontractors to ensure their work meets quality standards, deadlines, and compliance requirements. Effective management includes monitoring performance, enforcing contractual terms, and resolving issues to maintain project continuity.

   The above criteria are not equally weighted. For example, though the Contractor may receive an outstanding rating for Contract Administration, Cooperation, Professionalism and/or Communication, the frequent lapses in safety on the job site or disregard for stormwater compliance resulting in serious injury or damages on site justify the Contractor receiving an overall unsatisfactory rating. Therefore, in the context of the Contractor performance ratings, the definitions can be adjusted to focus more on the quality of the Work, timeliness, and adherence to safety standards than other areas.

2. **Performance Rating -** See below for a breakdown of the Contractor's performance rating definitions. These definitions provide a set of expectations across multiple areas of the Contractor's performance, ensuring the Contractor is evaluated holistically on various critical aspects of contract execution.

   a) Outstanding:

   - Contract Administration: Consistently submits all required documentation on time and maintains proper documentation. Fully adheres to the contract's terms and proactively resolves any issues.
   - Compliance with Contract Documents: Demonstrates full understanding of and strict adherence to Contract Documents. Any changes or deviations are well-communicated and documented.
   - Construction Workmanship: The quality of the Work consistently exceeds expectations, with few to no defects, attention to detail, and thorough craftsmanship.

SAMPLE

- Safety: Safety is a top priority, with zero safety incidents, proactive safety training, and implementing additional safety measures beyond required.
- Storm Water Best Management Practices: Consistently implements and exceeds all environmental guidelines for stormwater management and addresses issues before they arise.
- Cooperation: Fully cooperative with all stakeholders, including the client, Subcontractors, and suppliers, with a strong emphasis on team collaboration and problem-solving.
- Professionalism: Maintains the highest standards of conduct, integrity, and respect in all dealings with stakeholders and regulatory agencies.
- Communication and Public Outreach: Regularly updates stakeholders, responds promptly to concerns, and engages with the public in a respectful and transparent manner. Issues are resolved proactively.
- Subcontracting Performance and Management: Subcontractors are managed effectively, adhering to contract terms and producing high-quality work. Coordination between Subcontractors is seamless.

b) Above Satisfactory:

- Contract Administration: Completes necessary documentation with minimal errors and on time. Any issues or changes are addressed promptly.
- Compliance with Contract Documents: Follows Contract Documents well, with only minor discrepancies or deviations that are communicated and resolved.
- Construction Workmanship: Work quality is generally excellent, with a few minor issues or areas for improvement that are promptly corrected.
- Safety: Strong safety record, with minor issues addressed quickly. Safety practices generally meet or exceed expectations.
- Stormwater Best Management Practices: Stormwater management practices are followed effectively, with few issues. Implements best practices and corrects problems when they arise.
- Cooperation: Works well with all parties, addressing issues with minimal conflict. Collaboration is generally smooth.
- Professionalism: Maintains a professional demeanor, resolving conflicts appropriately, and adhering to industry standards.
- Communication and Public Outreach: Communication is proactive and responsive, with timely updates to stakeholders and the public. Public outreach is effective but could be more frequent.
- Subcontracting Performance and Management: Subcontractors are effectively managed, but minor coordination issues may arise. Work is generally on time and meets the standards.

c) Satisfactory:

- Contract Administration: Documentation is completed as required, with occasional delays or missing information. Issues are resolved, but reminders may be required.
- Compliance with Contract Documents: Generally, complies with contract documents, with occasional deviations addressed upon discovery but may result in delays or minor issues.
- Construction Workmanship: Meets the minimum expected quality, with some defects or areas that could be improved. Issues are typically addressed once raised.
- Safety: Safety protocols are followed, though there may be occasional minor incidents or near-misses. The overall safety record is acceptable but not exemplary.
- Stormwater Best Management Practices: Meets basic requirements for stormwater management but may not always go above and beyond to exceed environmental standards.
- Cooperation: Cooperation with others is generally acceptable but may not be proactive. Occasionally requires intervention to resolve conflicts or issues.

SAMPLE

- Professionalism: Conducts business professionally, though there may be occasional lapses in communication or judgment.
- Communication and Public Outreach: Provides regular updates but may not always engage proactively with stakeholders or the public. Responses are typically timely but occasionally delayed.
- Subcontracting Performance and Management: Subcontractors are managed adequately, though there may be some delays or quality issues. Coordination could be improved.

d) Needs Improvement:

- Contract Administration: Frequently submits documentation late or incomplete. Requires frequent reminders to stay on track with contract requirements.
- Compliance with Contract Documents: Regularly deviates from contract documents or fails to follow specifications. Changes or deviations are not always communicated effectively.
- Construction Workmanship: Work quality does not consistently meet the minimum standards. There are frequent defects or the need for rework.
- Safety: Safety violations occur, or safety protocols are inconsistently followed. There are notable safety incidents or risks that need to be addressed.
- Stormwater Best Management Practices: Fails to comply consistently with stormwater management practices, leading to potential environmental concerns or violations.
- Cooperation: Struggles to cooperate with others, leading to frequent conflicts, delays, or miscommunications.
- Professionalism: Displays unprofessional behavior, including poor communication, lack of respect for other stakeholders, or failure to resolve conflicts properly.
- Communication and Public Outreach: Communication is often reactive rather than proactive, failing to inform stakeholders or the public promptly or transparently.
- Subcontracting Performance and Management: Subcontractors are not properly managed, leading to frequent delays, quality issues, or resource mismanagement.

e) Unsatisfactory:

- Contract Administration: Consistently fails to submit required documentation, and there are significant discrepancies or ongoing issues with contract compliance.
- Compliance with Contract Documents: Major deviations from contract documents are frequent and unaddressed. The Contractor fails to follow essential specifications or standards.
- Construction Workmanship: The quality of the Work is consistently poor, with widespread defects and the need for significant rework. It is below industry standards.
- Safety: Serious safety violations or significant incidents affecting worker safety or project progress. Safety regulations are often ignored or not implemented.
- Stormwater Best Management Practices: Failure to implement or adhere to environmental best practices leads to violations or significant environmental impacts.
- Cooperation: Exhibits a lack of cooperation, leading to frequent conflicts with stakeholders, delays, and disruptions in project progress.
- Professionalism: Consistently unprofessional behavior, lack of integrity, failure to meet basic expectations for respect and conduct.
- Communication and Public Outreach: Poor or nonexistent communication, leaving stakeholders or the public uninformed. Issues are ignored or not addressed on time.
- Subcontracting Performance and Management: Subcontractors are poorly managed, leading to significant delays, quality issues, or violations of contract terms. Coordination and oversight are lacking.

SAMPLE

APPENDIX M

SURVEY DELIVERABLES CHECKLIST

Engineering and Capital Projects

Survey Deliverables Checklist at 60%, 90 and/or 100% Submittal

Project Name:_____
WBS#:_____ **CIP#:**_____ **D-Sheet:**_____
Project Engineer:_____ **Date:**_____
Resident Engineer:_____ **Date:**_____

COVER SHEET				
YES	**NO**	**N/A**	**ITEMS**	**COMMENTS**
			1. Design file working units are set to Survey Feet.	
			2. The design file is geospatially correct and referenced with the preliminary topo. The survey file deliverable shall be one Master.dgn and one Master.alg file containing all external reference files as separate models, geospatially referenced. Multiple asset-specific files will be acceptable, so long as they have appropriate file naming conventions. The file naming convention shall be WBS_Prop_Asset.dgn/.alg (e.g. B19175_Prop_WTR.dgn, B19175_Prop_SWR.dgn, B19175_Prop_CURB.dgn, B19175_Prop_SD.dgn, etc.).	
			3. Design line work is clean. Only the latest design line work is shown with no gaps or overlaps on lines that should be connected.	
			4. The .alg file contains horizontal alignments for all design line work. All Computer Aided Drafting (CAD) work must be done in accordance with Citywide CADD Standards and must utilize the City's seed files (.job, .txt, .dgn, .alg, .raw, .fwd, .dtm, .pdf, .docx, .xlsx, .tif, and .jpg).	
			5. Cogo buffer (if applicable) contains all points with coordinates shown on the plans. All cogo points on the plans are annotated with their assigned point numbers.	
			6. There are no duplicate point numbers.	
			7. All alignments are free of "non-coincident" and "transpose" integrity issues.	
			8. The line work in the .dgn file matches the data in the .alg file (Alignments in the .alg file highlight directly over the line work in .dgn file when reviewed.). All line work and stationing matching both the plans and the project geometry .(.alg) files or .xml file.	
			9. The .alg files match all data on the plans.	
			10. All right of way lines are based on field survey measurements and a boundary analysis by a Licensed Land Surveyor.	

COVER SHEET				
YES	**NO**	**N/A**	**ITEMS**	**COMMENTS**
			11. Topography Source. (Topo Name, Work Order Number, Company Name and Date).	
			12. Basis of Bearing. (As tied to ROS 14492 or equivalent, based on CCS 1983, Zone 6).	
			13. Bench Mark. (Vertical Datum must be NGVD 29 in accordance with the City of San Diego Vertical Bench book).	

TITLE BLOCK				
YES	**NO**	**N/A**	**ITEMS**	**COMMENTS**
			14. Final Plans are signed by a DCE.	

LEGEND				
YES	**NO**	**N/A**	**ITEMS**	**COMMENTS**
			15. All Survey Monuments are shown on the plans with symbols showing both well monuments and the property markers. (This can be shown on the cover sheet legend or in a legend on the Monumentation Sheet). A separate monument sheet is not required if monuments are shown on the improvement plan sheets.	
			16. Monumentation note on the cover sheet or on its own Monumentation sheet.	

PLAN VIEW				
YES	NO	N/A	ITEMS	COMMENTS
			17. Street center line and record width right-of-way lines, including all pertinent easements, vacations and dedications where applicable.	
			18. All record, non-record monuments, and Bench Marks shall be shown on the plans. When boundary analysis is required for the project, monuments will control the boundary determination. These monuments must be shown on a Monumentation Map, and all monuments within construction limits must be shown (see City of San Diego Bulletin 591). All monuments in the topo survey files must be geospatially referenced in the design .dgn file and be on its own level.	
			19. All proposed improvements are designed within the right of way or easements.	
			20. Any necessary set-aside easements are in place for infrastructure crossing in to city owned property.	
			21. Plans show survey data for Easements, Temporary construction areas, jurisdictional waterways delineations (if applicable), etc.	
			22. All linear objects not parallel with center line have independent layout line alignments. For site specific design, provide layout line alignments along the curb line (e.g. detailed curb ramp design).	
			23. Non-Concentric features for proposed construction must have .alg files generated in InRoads or .xml files generated in AutoCAD. Horizontal alignments must be provided for all linear objects such as, sewer, water, storm drain, face of curb, walls, street center line, etc. However, horizontal alignment reports and vertical profiles must be shown on the plans.	
			24. All station callouts are within the alignment limits.	
			25. All appurtenances are drawn in the .dgn and called out on the plans.	
			26. All cleanouts, inlets and structures are drawn to scale. (Storm drain).	
			27. Storm drain alignments run along centerline of pipe and through the center of structure via the ends of pipe at the inside face of structure.	
			28. Alignment Reports on plans. (Stations and Coordinates with Bearings and Angles formatted to Degrees, Minutes, and Seconds).	
			29. Station and Offset callouts on plans.	
			30. Station equations. (If needed)	
			31. Vertical Profiles on plans stationed along layout lines.	
			32. For Curbs: All proposed curb returns and pop-outs showing design elevations on the plans must have their own layout line alignment along the face of curb line with their own stationing. All horizontal event points must be called out on the plan view and all horizontal alignment reports of the face of curb alignments must be shown on the plans. Finish surface elevations may be included when applicable, with dimension callouts from the face of curb line and slope percentages. The profile view must show the stations and elevations of all proposed top of curb and vertical event points.	
			33. Non-Standard Curb Ramps: When only showing the location of a single proposed non-standard ramp within an existing curb return, where most of the return will remain undisturbed, the station of the centerline of the ramp along the face of curb alignment must be called out. The face of the curb alignment must run the length of the curb return and the horizontal alignment report must be shown on the plans. When the curb return follows a standard drawing it must be clearly labeled that it is per standard drawings and no horizontal or vertical alignment needs to be shown. Dimension callouts from the face of curb line and slope percentages to ramp features may be shown if applicable. Non-radial or directional ramps require an additional station and offset callout from the face of curb alignment to the centerline of the ramp at the back of ramp.	

PROFILE VIEW				
YES	NO	N/A	ITEMS	COMMENTS
			34. All tie in points are taken from the preliminary topo. (No GIS data).	
			35. All profiles show percentages along lines and design grades at vertical event points except for water lines if minimum depth governs.	
			36. All storm drain profiles show station and IE grades at all vertical angle points, in's and out's, dissipaters and structures.	
			37. For Curbs: The profile view must show the stations and elevations of all proposed top of curb and flow line grade breaks along with slope percentages. Existing top of curb and flowline must also be shown on the profile view.	

Notes:

1. City CADD seed files can be accessed at the following link: https://www.sandiego.gov/publicworks/edocref/drawings

2. Resource files will be provided by the City Project Manager or designee to Design Consultant if requested. The City's AutoCad seed files and cell Libraries must be used and have been created to City Standards for Consultant use. If the Consultant chooses to use the City AutoCad resource files, the City will accept AutoCad file submittals without conversion to Microstation only for projects outside of the City right of Way (IE. Parks, major buildings), except for Public Utilities Projects. Microstation shall be used for all projects related to Public Utilities Department.. The City AutoCad seed file must be used.

3. When receiving preliminary topographic surveys from consultants, a 3D surface model showing break lines and spot elevations must be provided along with all planimetric features and appurtenances that are necessary for the project, which may include, including but not limited to, water valves, meters, vaults, manholes, fire hydrants, utility boxes, cleanouts, poles, etc., as defined in the scope.

4. Surveys performed must list the basis of bearings as tied to Record of Survey 14492 or equivalent, based on the California Coordinate System of 1983, Zone 6, U.S. Survey foot, epoch 1991.35. The vertical datum used must be NGVD 29 in accordance with the City of San Diego Vertical Bench book.

APPENDIX N

STIPEND AGREEMENT

STIPEND AGREEMENT

This stipend agreement [Stipend Agreement] is made and entered into this day of , 20xx, by and between The City of San Diego [City], a municipal corporation, and **INSERT NAME OF DB FIRM** [Design-Builder], for the purpose of submitting fully developed proposal for the **Alvarado Laboratory Improvements and Alvarado Laboratory Improvements Trailer** in the amount of Fifty Thousand Dollars and zero cents **($50,000)**. The City and Design-Builder are referred to herein as the "Parties".

RECITALS

A. On **August 14, 2024**, City issued a Request for Qualifications [RFQ] for the Alvarado Laboratory Improvements to short list qualified Design-Build teams; and

B. The Request for Proposal [RFP] for **K-26-2318-DB2-3-C** includes the option for each Design-Builder to complete and deliver a Stipend Agreement to the City in conjunction with submission of Technical Proposal to be eligible for payment; and

C. This Stipend Agreement is attached as Appendix N in the RFP and states that the City will pay a $50,000.00 stipend to each unsuccessful Design-Builder that is deemed responsive by the City; and

D. The purpose of the Stipend Agreement is to encourage competition, increase responsiveness, and obtain higher quality Technical Proposals for the Project.

In consideration of the above recitals and the mutual covenants and conditions set forth in this Stipend Agreement, and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties as agree.

STIPEND AGREEMENT

1. Work Product

1.1 The City seeks to have Design-Builder prepare and submit, a Technical Proposal that the City determines fully responds to and satisfies all of the material requirements of the RFP and satisfies the provisions set forth in the RFP.

1.2 All work performed by Design-Builder and its team members pursuant to this Stipend Agreement shall be considered "work made for hire" as defined in Section 101 of Title 17 of the U.S. Code ("Copyright Law"), and the Work Product (as defined below) shall, upon receipt by the City, become the property of the City without any restriction or limitation on its use. Neither Design-Builder nor any of its team members shall copyright any of the Work Product developed under this Stipend Agreement.

1.3 Work Product: Design-Builder agrees that all Work Product is, the property of the City once provided to the City in response to the RFP. The term "Work Product" shall mean all submittals made by Design- Builder during the RFP process, including the Technical Proposal, exchanges of information during the pre-proposal and post-proposal period, and information exchanged during site investigations and site surveys. However, the term "Work Product" shall specifically exclude patented rights in previously existing proprietary technology.

1.4 Ownership of Work Product. In consideration for the City's payment of the Stipend under this Stipend Agreement, Design-Builder agrees that the City shall own all rights, title and license in the Work Product and be entitled to use all Work Product, without any further compensation or consideration to the Design-Builder, in connection with the RFP, its addenda, the Project, or any future procurements by the City.

1.5 Design Build Contract. In no event shall City be obligated to award or enter a design-build contract. City reserves the right to award a design-build contract with parties other than Design-Builder. City shall not be responsible to Design-Builder for any claims or damages resulting from City's failure to award a design-build contract with Design-Builder, or if the City decides to not award a design-build contract at all.

2. Compensation and Payment

2.1 A one-time compensation payable to Design-Builder for the Work Product described in the Stipend Agreement shall not exceed **$50,000.00**, if all the following conditions are met:

2.1.1 Design-Builder's Proposal was **NOT** selected for award.

2.1.2 Design-Builder's Proposal is responsive to the RFP and any addenda as determined by the City

2.1.3 Design-Builder's Proposal contains Schematic Design Drawings and a Revit 3D Model which shall include, but not be limited to the following:

2.1.3.1 All drawings are to be to scale. Plans and elevations are to be dimensioned. The format of the drawings is at the discretion of the Design-Builder. These are minimum requirements, any additional exhibits, including special design features proposed, may be submitted at the Design-Builder's discretion.

2.1.3.2 The following schematic architectural drawings and models delineating and detailing design features, materials, and options are required for compliance with this RFP: Submit one (1) set of full-size (D sheet), color drawings, in pdf format that includes the following:

a. Site Plan: a site plan showing all buildings, site features, and onsite improvements.

b. Floor / Space Plans: a schematic floor plan for each building floor level with general representation of all core elements and structure, and all enclosed spaces. Show conceptual furniture on floor plans.

c. Elevations: a minimum of four (4) color exterior building elevations of the building including indication and Limits of all material types and colors, and any shading devices. Sections: a minimum of two (2) building cross sections showing the building's elevations in relationship to the other site improvements or ground planes.

d. Interior Perspective: a minimum of two (2) sketch interior perspective, either freehand or computer generated. Massing 3D Study Model: a 3-D massing study model with ability to rotate and explore or a walkthrough video of the proposed building. Include elements adjacent to the building(s) for context and scale. Other: diagrams, charts, and photos to further illustrate the proposal are acceptable, but not required.

e. The items above will help the panel score the Design-Builder's technical proposal according to the scoring criteria in Attachment G of the RFP.

2.1.4 Design-Builder shall make a presentation to the selection panel, if required in the RFP.

2.1.5 Design-Builder shall provide the proposed design and construction schedule.

2.2 In the event all the conditions of 2.1 above cannot be met. The City may at its sole discretion determine compensation to the Design-Builder for this Stipend Agreement under the following conditions:

2.2.1 Design-Builder meeting the criteria identified in Sections 1 and 2.1, above.

2.2.2 The amount paid to the Design-Builder under this Stipend Agreement will be determined by the City in its sole discretion, up to an amount not to exceed $50,000.00

2.2.3 City shall have access to all books, records, documents, and other evidence and accounting principles and practices sufficient to allow the City Auditor access to the entity's records as needed to verify compliance with the terms specified in this Stipend Agreement.

2.2.4 Any Design-Builder shall submit the completed Stipend Agreement to the City in conjunction with submission of Technical Proposal.

2.2.5 If the procurement is canceled prior to the Bid Opening Date, Design- Builders will be provided the opportunity, at their option, of delivering to the City the Work Product of their Proposal preparations to date. If the procurement is canceled at any time after the Bid Opening Date, the City in its sole discretion will determine the appropriate amount of compensation the Design-Builder may be eligible to receive under this agreement.

There is no specific format required for such Work Product. Those Design-Builders that choose to deliver their Work Product may be paid an amount that the City deems, in its sole discretion, to be appropriate consideration for the Work Product. No portion of the stipend amount will be paid in the event a Design-Builder chooses not to deliver its Work Product.

2.2.6 Invoices must be received within 30 days of notification by the City of eligibility to receive the Stipend under this Stipend Agreement. Payment of compensation

will be made within 60 days after receipt of an acceptable invoice submitted to the City under this section.

2.2.7 City's financial obligations under this Stipend Agreement shall be limited to the payment of the Stipend provided in this Agreement. The City shall not be liable, regardless of whether any claim is based on contract or tort, for any special, consequential, indirect or incidental damages, including, but not limited to, lost profits or revenue, arising out of or in connection with this Stipend Agreement for the work performed in connection with this Stipend Agreement.

3. Indemnification

3.1 Other than in the performance of design professional services which shall be solely as addressed in Section 4 below, to the fullest extent permitted by law, Design Builder shall defend with legal counsel approved by the City, indemnify and hold harmless the City and its officers, agents, departments, officials, and employees (Indemnified Parties) from and against all claims, losses, costs, damages, injuries (including, without limitation, injury to or death of an employee of Design Professional or its subcontractors), expense and liability of every kind, nature and description (including, without limitation, incidental and consequential damages, court costs, attorneys' fees, litigation expenses and fees of expert consultants or expert witnesses incurred in connection therewith and costs of investigation) that arise out of, pertain to, or relate to, directly or indirectly, in whole or in part, any services performed under this Stipend Agreement by the Design Builder, any subcontractor, anyone directly or indirectly employed by them, or anyone that they control. The Design Builder's duty to defend, indemnify, protect and hold harmless shall not include any claims or liabilities arising from the active negligence, sole negligence or sole willful misconduct of the Indemnified Parties.

3.2 This indemnity shall not apply with respect to any claims, demands or suits arising from use of any work product by the City or City's consultants

4. Design Professional Services Indemnification and Defense.

4.1 Design Professional Services Indemnification. To the fullest extent permitted by law (including, without limitation, California Civil Code Section 2782.8), with respect to the performance of Design Professional services performed by Design-Builder, Design-Builder shall indemnify and hold harmless the City, its officers, or employees, from all claims, demands or liability that arise out of, pertain to or relate to the negligence, recklessness, or willful misconduct of Design-Builder or Design-Builder's officers or employees.

4.2 Design Professional Services Defense. The Parties will work in good faith to procure applicable insurance coverage for the cost of any defense arising from all claims, demands or liability that arise out of, pertain to or relate to the negligence, recklessness, or willful misconduct of Design-Builder or Design-Builder's officers or employees.

4.3 Insurance. The provisions of this Section are not limited by the requirements of RFP Section 5-4.2 of the Supplementary Special Provisions related to insurance requirements.

4.4 Enforcement Costs. The Design-Builder agrees to pay all costs the City incurs enforcing the indemnity and defense provisions set forth in this Section.

5. Compliance with Laws

5.1 Design-Builder shall comply with all federal, state, and local laws, ordinances, rules, and regulations applicable to the work performed or paid for under this Stipend Agreement and covenants and agrees that it and its employees shall be bound by the standards of conduct provided in applicable laws, ordinance, rules, and regulations as they relate to work performed under this Stipend Agreement. Design-Builder agrees to incorporate the provisions of this paragraph in any subcontract into which it might enter with reference to the work performed pursuant to this Stipend Agreement. The Design-Builder agrees (1) not to discriminate in any manner against an employee or applicant for employment because of race, color, religion, creed, age, sex, marital status, national origin, ancestry or disability of a qualified individual with a disability; (2) to include a provision similar to that contained in subsection (1) above in any subcontract; and (3) to post and to cause subcontractors to post in conspicuous places available to employees and applicants for employment, notices setting forth the substance of this clause.

6. Assignment

6.1 Design-Builder shall not assign this Stipend Agreement without the City's prior written consent. Any assignment of this Stipend Agreement without such consent shall be null and void.

7. Miscellaneous

7.1 Design-Builder and the City agree that Design-Builder, its team members, and all Design-Builder's employees, agents, contractors, subcontractors, consultants, and subconsultants shall not be considered officers, officials, employees or agents of the City as a result of this Stipend Agreement.

7.2. All words used herein in the singular form shall extend to and include the plural. All words used in the plural form shall extend and include the singular. All words used in any gender shall extend to and include all genders.

7.3. This Stipend Agreement together with the RFP and addenda, embodies the entire agreement of the Parties with respect to the subject matter hereof. There are no promises, terms, conditions, or obligations other than those contained herein or in the RFP. This Stipend Agreement shall supersede all previous communications, representation, or agreements, either verbal or written, between the parties herein.

7.4. It is understood and agreed by the Parties hereto that if any part, term, or provision of this Stipend Agreement is held to be illegal or in conflict with any law of the State of California by a court of competent jurisdiction, the validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the Parties shall be construed and enforced as if the Stipend Agreement did not contain the particular part, term, or provisions held to be invalid.

7.5. This Stipend Agreement shall be governed by and construed in accordance with the laws of the State of California.

IN WITNESS WHEREOF, this Stipend Agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to San Diego Municipal Code section 22.3207, authorizing such execution, and by Design-Builder.

THE CITY OF SAN DIEGO

By _____

Print Name: _____
Mayor or designee

Date: _____

APPROVED AS TO FORM

Heather Ferbert, City Attorney

By _____

Print Name: _____
Deputy City Attorney

Date: _____

CONTRACTOR

By _____

Print Name: _____

Title: _____

Date: _____

City of San Diego License No.: _____

State Contractor's License No.: _____

APPENDIX O

PARTNERSHIP SPECIFICATIONS

SECTION 01 95 00 – Standard Partnering Specification – Vertical Construction Partnering

PROJECT: City of San Diego – Alvarado Laboratory Improvements Project and Alvarado Laboratory Improvements Trailer Project

The Design Build Entity shall participate in a construction Partnering Program for the project. The Partnering Program shall be as defined by the Standard Partnering Specification – Vertical Construction Partnering. See attached program details.

STANDARD PARTNERING SPECIFICATION

VERTICAL CONSTRUCTION PARTNERING

DIVISION 1 – PARTNERING REQUIREMENT AND PROCESS

SECTION 1 – GENERAL

The purpose of this specification is to outline a process designed to develop a collaborative environment for this project so that communication, coordination, and cooperation are the norm. This Partnering approach, which is outlined in this document, will aid issue resolution and will lessen impacts on project budget, schedule, and quality.

(City of San Diego) (City) or (City of San Diego Representative) works in a collaborative and cooperative manner with all project stakeholders including the Prime Contractor or Design/Builder (Contractor), all consultants, vendors, representatives of other agencies and the community at large. In executing the contract associated with this specification, each stakeholder agrees they will actively and enthusiastically participate in the Partnering process defined here. Contractor agrees that all sub-contractors, material contractors and other entities within its contractual control will participate in the Partnering process as required. Contractor will make this a specific contractual condition for all sub-contractors, material suppliers, and other entities working on this project. The architect and/or engineer for this project and any other consultants engaged in this project have agreed to participate in the Partnering process as defined here.

Formal Partnering for this project will start within 30 days of the Notice to Proceed and will include these elements (defined in Section 3):

1. A mutually agreed, Certified Professional Partnering Facilitator.
2. A Partnering Charter which includes the joint development of goals.
3. A periodic, joint evaluation process by both the City and Contractor.
4. Executive Level and Core Team Partnering.
5. A Partnering Follow-up Plan to resolve potential problems at the lowest possible level.

Participation in the Partnering process defined here will not void any contract part. All rights and remedies defined by the final contract will be preserved and followed, including the claim process.

SECTION 2 – DESCRIPTION

A. Definitions
   1. Project Team: the group of people and organizations who are executing a construction project and who have influence on the outcome. The Project Team is comprised of the City of San Diego/City of San Diego's Representative, the City of San Diego's Consultants, the Contractor, the Designer, the sub- contractor(s), and other stakeholders including government agencies, tenants, materials suppliers, concessionaires, and third parties affected by the construction project.
   2. Partnering: an effort by the Project Team to develop joint goals and to establish a cooperative atmosphere regarding execution of the construction project, regardless of delivery method.
   3. Multi-Tiered Partnering: For large, complex projects, the participants in partnering workshops will be divided into subgroups: Executive Level and the Core Team.
      a. Executive Level Partnering: workshops involving Executive representatives from the City of San Diego, Contractor, and key subcontractors.
      b. Core Team Partnering: workshops involving the central group responsible for the successful execution of the project as well as key individuals who are on the project throughout its duration. Typically, field-level Project Managers (PMs) and Superintendents from the City of San Diego, contractor, design, subcontractors, key third-parties and stakeholder groups attend these sessions. Representatives from Executive Level Partnering should also attend to ensure commitments and follow through.
   4. Project Team Leaders: Project Managers (PMs) from both the City of San Diego and Contractor who are accountable for the day-to-day operations of the project and are responsible for leading the partnering effort. They will also be in charge of coordinating project Partnering meeting times, selecting meeting locations and other logistics.

B. The Goals of Partnering are to:
   1. Use early and frequent communication with project stakeholders.
   2. Develop and maintain a relationship based on shared trust, mutual respect and commitment.
   3. Identify, quantify, and support attainment of co-created goals.
   4. Establish strategies for implementing risk management concepts and identify potential project efficiencies.
   5. Use timely communication and decision-making.
   6. Resolve potential problems at the lowest possible level to avoid negative impacts on the project.
   7. Hold periodic partnering meetings and workshops throughout the life of the project to maintain the benefits of a partnered relationship.
   8. Establish periodic joint evaluations of the partnering process and attainment of mutual goals.

SECTION 3 – PARTNERING IMPLEMENTATION

A. Selecting an Independent Professional Neutral Partnering Facilitator (Facilitator)
   1. The Contractor agrees that an Independent Professional Neutral Partnering Facilitator will be retained to facilitate the project Partnering process.
   2. (City of San Diego/City of San Diego Representative), Designer/Architect, and the Contractor Representative will cooperatively select an IPI Certified Partnering Facilitator that offers the service of a periodic partnering evaluation survey with a 5-point rating scale and agrees to follow IPI's "Partnering Facilitator Standards and Expectations" available at IPI's website.

B. Partnering Initiation
   1. To initiate the Partnering arrangement, the Project Team will conduct an open discussion prior to the start of the job to select the Facilitator. It is expected that, at the conclusion of the initial discussion, the parties will express a consensus regarding, the Facilitator and, among other things, the respective goals in completing the contract.

      Thereafter, the Project Team will continue discussions as necessary and will conduct periodic joint evaluations of performance throughout the life of the contract as outlined below. It is expected that the parties will use the services of the Facilitator not only at the initial partnering workshop, but also to assist in later discussions.

   2. In leading the ongoing Partnering effort, Project Team Leaders will schedule the initial partnering workshop as mutually agreed upon. All relevant stakeholders will be expected to attend and participate. It is typical that project partnering sessions may include between 8 and 25 individuals.

      Project Team Leaders will also:

      a. Identify the initial suitable workshop site and appropriate meeting duration for the size and complexity of the project.
      b. Agree to other workshop administrative details.
      c. Project Team Leaders will agree to periodic partnering workshops and sessions as outlined in Section 3 – part B.
      d. Agree to conduct a project close-out partnering workshop.
      e. Agree to document lessons learned as a condition of final project acceptance.

C. Partnering Charter

   In implementing project partnering, the project team will agree to create a "Partnering Charter" that includes the agreed-on mutual goals, the

Partnering Follow-up Plan, the Partnering Dispute Resolution Plan, and the signed Team Commitment signature page, explained in detail below:

1. Agreed-on mutual goals, which will include the core project goals and may also include project-specific goals and mutually supported individual goals.
    a. The core goals are that the Project is constructed (at minimum). Other goals could include, for example:
        i. On time
        ii. On budget
        iii. Safely
        iv. Quality Met
    b. Optional project-specific goals could include, for example – win a Partnering Award, excellent communication with local community (zero complaints), effective communication with Media, mitigation of project risks (e.g. environmental requirements met, stakeholder interests understood and managed, etc.).
2. The Partnering Follow-up Plan
    a. Attendees: Partnering will be established in two groups:
        i. Executive Level Sponsors (from City of San Diego, Prime Contractor and key subs) to steer the project and assist with goals.
        ii. Core Team: Project Managers and Superintendents working at the field-level from City of San Diego, contractor, design, subcontractors and key third-parties and stakeholder groups.
    b. Frequency of Partnering Sessions:
    The team will conduct joint Partnering Meetings for (1) full day session before construction start and (5) half day sessions during construction. Further periodic partnering sessions can also be scheduled as determined necessary by the primary project stakeholders. After each partnering session, IPI score cards will be completed.
3. Partnering Dispute Resolution Plan

    Refer to the Contract Bid documents for City's Dispute Resolution Plan.

4. Team commitment statement and signature document.

D. Partnering Evaluation
1. City of San Diego, contractor, major subcontractors, architects and engineers, and major stakeholders will participate in monthly partnering evaluation surveys to measure progress on mutual goals and short-term key issues as they arise.
    a. Partnering Evaluations will be collected by Facilitator.
    b. Results will be shared with project team.
2. City, Contractor, major subcontractors, and major stakeholders will evaluate the partnering facilitator. The (City / City of San Diego Representative) will provide the evaluation forms to the project team and collect the results.

3. (City of San Diego/City of San Diego's Representative) will make evaluation results available upon request.
4. Facilitator evaluations must be completed twice:
    a. At the end of the **initial partnering workshop**.
    b. At the end of the **project close-out partnering workshop**.

SECTION 4 – PARTNERING PAYMENT

A. The City of San Diego () agrees to pay:
    1. 50% of cost for:
        a. Facilitator workshops and sessions based costs.
        b. Monthly partnering evaluation survey service cost.
    2. Contractor agrees to pay 50% of all partnering cost included as part of their lump sum.
B. Payment amount will be based on invoice prices minus any available or offered discounts. City will not pay markup on these costs.

SECTION 5 – PARTNERING DISPUTE RESOLUTION

A. The City of San Diego will encourage the project team to use all forms of Project Team-Driven Dispute Resolution prior to engaging a neutral 3rd party. When the Project-Team is unable to resolve the issue, a Facilitated Dispute Resolution (FDR) session may be an effective method for clarifying issues and resolving all or part of a dispute.
B. To ensure the project team has sufficient time to plan and hold an FDR session, a maximum of 20 days may be added to the Dispute Review Board (DRB) referral time following the City of San Diego's written response to a supplemental notice of potential claim.
C. In order to be granted this additional referral time, the project team must document its intention to use FDR. The team may also document agreements for other associated criteria to be met to access the additional referral time. If no session is held, then DRB referral time will remain in effect.

End of Specification

END OF SECTION 01 95 00

APPENDIX P

ZERO EMISSION MUNICIPAL BUILDINGS AND OPERATIONS PROGRAM (ZEMBOP)

	B	C	D	E	F	G
1	**Appendix A**					
2	**Prescriptive Energy Efficiency Measure Menu for Major Renovation Projects**					
3	The list below includes prescriptive energy efficiency measures for existing building major renovations that must meet CP 900-03 (ZEMBOP) requirements, as an alternative to demonstrating compliance by way of conducting a Title 24 Part 6 energy model and/or calculating an EUI. **To ensure compliance, show the project receives 25 or more points.**					
4	INSTRUCTIONS: In Column F, please indicate selected measures/point values from the list to achieve 25 minimum points. Measures that already exist in the facility can be included in the total. All projects should include at least one measure from each category.			**AVAILABLE POINTS**	**POINTS APPLIED TO PROJECT**	**Provide brief description of how each measure selected is included in project.**
5	**Measure**	**Description**	**Detail**	**60**	**0**	
6	**Building Envelope Improvement**			**16**	**0**	
7	Insulate all exterior walls (U-Factor)	Enhance building efficiency by insulating exterior walls, including stud walls, with at least 1” of rigid insulation to prevent thermal bridging and air gaps; apply this strategy to masonry and curtainwall systems, prioritizing code compliance, thermal continuity, water drainage, air barrier repair, and eco-friendly insulation for sustainability.	**Stud walls of any type (metal stud or wood stud in any configuration)** •If uninsulated between the studs, fill the stud cavities with insulation, via a blown-in or pressure-blown process from the interior or exterior by punching access holes and repairing them after cavities are filled. •If there is no existing continuous insulation, apply rigid insulation of 1” minimum to the studs or to the sheathing on the exterior side of the wall. oRemove the cladding of the wall, apply the insulation, ensuring no air gaps between any existing cavity insulation and the rigid insulation, then replace the cladding to meet new wall measurements and impacted window and other transition detailing at corners, roofline, and grade-level. oThis is also applicable in panelized cladding and rainscreen systems including metal, stone, composite, or phenolic resin panels. **Existing masonry walls** •If the exterior beauty of an existing mass/masonry building needs to be preserved, apply semi-permeable rigid or open-cell spray insulation tight to the interior side of the wall. oTo ensure continuity at floor levels and at ceiling or roofline transitions, install cut pieces of semi-permeable rigid or use an open-cell spray foam or properly installed batt such as mineral wool between joists and rafters. oRepoint exterior masonry/mass walls and repair all cracks/damage to reduce water damage and freeze/thaw issues. •If the exterior is not visually worth saving, use an over-cladding approach. oInstall an insulated panelized system pre-manufactured off-site, or - oProvide furring and rigid insulation, with an added finish cladding layer. oEnsure no moisture will be trapped behind this over-cladding. **Curtainwall systems** •If replacement is an option, do so with a better performing system, and ensure transitions to other materials provide continuity of insulation and are appropriately sealed. •If the curtainwall is to be maintained, provide thermal break through removal and additional of material separation of the attachment elements. •If the renovation includes reduction of curtainwall area, replace those areas with opaque wall systems of at least code-compliant performance. •If curtainwall remains, increase of areas of spandrel panel, and add insulation to the spandrel panels. **In all cases:** •Additions to Existing Buildings should follow building code and energy code compliance measures. •Ensure a continuous thermal layer, with complete transitions around corners and when changing material planes or materials themselves. •Make sure there is the ability for water to drain (e.g. window sills) and that the wall can dry to at least one side of the wall. •Identify the air barrier system, repair it (see sections on sealing walls), and ensure continuity to new air barrier in renovated aspects of the wall. •Prioritize low Global Warming Potential (GWP) blowing agents in any rigid insulations or spray-foam applications for environmental alignment.	2		
8	Increase Attic Insulation , or Increase Roof Insulation	Insulate the attic or roof using continuous insulation, aiming for at least R-35 above or R-60 below the sheathing; for flat roofs with parapets, address drainage and consider cool-roof options, and for sloped roofs, insulate unconditioned attics tightly connecting to wall insulation, while conditioned attics require insulation on the roof sheathing and rafters with thermal breaks if exposed.	If there is no insulation at the roof or ceiling planes, provide continuous insulation to reach R-35 above the sheathing layer, or R-60 below the sheathing and in-between structural elements OR provide insulation above the ceiling to meet R-60. Do not do both. **Flat Roof with Parapets** Provide insulation at the roof sheathing level to support the complete conditioned space. •If placing or repairing insulation above the roof structure and sheathing - oEnsure there is drainage slope to parapet scuppers or internal roof drains. oIf repairing, remove all wet spots thoroughly and completely fill them with comparable insulation before adding insulation above. oChoose a cool-roof membrane option, when possible. A higher SR (solar reflectance) is better. •If installing the insulation under the roofing sheathing - oEnsure the batt, spray foam, or rigid insulation applications stay tight to the underside of the roof sheathing and tight to the roof joists or rafters. oUse spray foam or similar material to eliminate gaps and improve tightness especially at transition to walls. **Sloped-roof with overhangs and either cold or conditioned attic spaces.** If the attic or dead-space above the ceiling is unconditioned - •Ensure the ceiling plane provides an air barrier between the conditioned area and the cold space by sealing around any penetrations, including light fixtures, wires, and all tops of walls that pass through the ceiling “lid”. •Provide blown-in cellulose insulation, mineral wool, open-cell spray foam, or other at the cold side of the ceiling structure, keeping insulation tight to any rafters, joists, or other impeding structures or mechanicals. •Insulation plane should connect to the wall insulation at roof/wall connection. •Vented unconditioned spaces may require installation of baffles to maintain open vents at eaves. If the attic is conditioned, or the space is open to the underside of the roof (cathedral) - •Install insulation tight to the roof sheathing and between the rafters or fully encapsulating the rafters. The insulation must not fall away from the underside of the roof sheathing surface over time. •If rafters are exposed to the interior, best practice is to provide a thermal break between rafters and sheathing or install a 1” layer of rigid insulation above the roof sheathing and under the roof finish material.	4		
9	Minimize Thermal Bridging	Minimize heat loss by keeping decks, porches, and canopies separate from the main building or using thermal breaks. Insulate and cover structures outside the building, and if not, internally seal and insulate up to 2 feet around them. Additionally, add 1-inch continuous insulation outside stud walls under exterior cladding to reduce heat transfer.	•Ensure any addition of decks, porches, and decorative canopies or roof are structurally separate from the main building or include detailing with thermal breaks. •Where structure penetrates the building thermal envelope, insulate, and cover the exposed structure if possible. If not possible, seal internally at the penetration, and insulate to 2’ from the penetration. •Provide 1” continuous insulation on the outside face of stud walls under exterior cladding.	2		

	B	C	D	E	F	G
10	Improve Air Barrier	Improve building's air barrier by sealing gaps, cracks, and openings in walls, including around pipes and wires. Fix control joints in masonry, add weatherstripping to doors and windows, and ensure a continuous air barrier at transitions like floors and walls by sealing gaps and fitting insulation tightly to structural elements.	•If the air barrier is the interior wall surface, seal all joints, cracks, and holes including nail holes for picture hanging and mouse holes. Seal all penetrations for piping, ducts, or wires, with caulk, sealants, or gaskets. Repaint as needed. •If the wall system includes interior exposed masonry or stone, repair all control joints and expansion joints. •Provide weatherstripping at all doors and windows and caulk the interior casings for doors and windows. •Most existing buildings do not provide air barrier continuity past floors or at wall to roof transitions. If possible, open up these areas and improve air barrier continuity by installing insulations tight to the structural elements and to the rim joists, and sealing gasp as possible. •Once large gaps and penetrations are managed, consider using an aerosolized application system from inside the space to airseal completely.	4		
11	Install Cool Roof	When changing roofs, make sure the Solar Reflectance meets standards, and for green roofs or solar panels, consult a Structural Engineer to confirm the building can support the extra weight, varying from 4 to 30 pounds per square foot.	•When replacing roofing membranes or sloped-roof finishes, meet or exceed the SR levels of xxx •If installing a vegetated roof or roof-installed PV panels, consult with a Structural Engineer to ensure the existing building structure is sufficient for the added weight of 4-30 pounds per square foot? for even extensive vegetative roofs (low soil).	2		
12	Improve Fenestration Efficiency (Doors + Windows)	Enhance door and window efficiency by addressing issues, using thin film or heat-control panels, adding storm windows, and considering shading. When replacing windows, choose energy-efficient options, consider Passive House certification, and select Casement or Awning styles with attention to Solar Heat Gain Coefficient and optimal placement for wind and rain patterns.	**If existing fenestration is to remain -** •Repair any broken or loose glazing, loose frame corners, or gaping casings. •Apply thin film to control heat gain and glare or interior translucent panels to reduce heat transfer. •Install interior or exterior storm windows, which add a complete air film layer to the system. •Design and install exterior architectural elements for shading, such as awnings, horizontal or vertical sunscreens, or working shutter systems. •See also improved air barrier section. **If windows are being replaced –** •New windows should meet energy code window performance requirements. •Consider Passive house certified windows and reduction of overall window wall ratio (to below 30%) if appropriate. •Consider adjusting SHGC for the actual solar exposure of each side fo the building. •Select windows that are Casement or Awning operations for tighter fit and consider wind patterns and rain patterns for best placement.	2		
13	**Efficient Interior and Exterior Lighting and Controls**			**18**	**0**	
14	Reduce Interior Lighting Power Density	Enhance interior lighting efficiency with sensors for automatic shutoff, energy-efficient CFL or LED lamps, and controls for daylighting and occupancy; opt for LED fixtures with built-in wireless sensors for efficient activation and consider a design review for improved comfort, usability, and energy efficiency.	**Existing Interior Lighting –** •Provide Vacancy sensors in all spaces called out in energy code. These have manual on and then auto-off at set time limit when room is vacant. •Swap out lamps or lamp/ballast for improved LED lamps. •Provide daylighting and occupancy controls where applicable. •Circuit (wirelessly) to allow 50% off in even distribution or though dimming. **For Interior new fixtures -** •Select LED fixtures with fixture integrated sensors and controls that are wirelessly activated and grouped. •Perform design review to use layered overall lighting, task lighting, and accent lighting for better comfort, usability, and energy efficiency.	4		
15	Install Occupancy Controls	Install occupancy controls with vacancy sensors in all spaces, following energy code guidelines, to automatically turn off lights when rooms are empty, and explore wireless circuitry options for 50% dimming or complete light shutdown, including fixtures with built-in sensors for efficient lighting management.	•Provide Vacancy sensors in all spaces called out in energy code. These have manual on and then auto-off at set time limit when room is vacant. •Circuit (wirelessly) to allow 50% off in even distribution or though dimming. •Select fixtures with fixture integrated sensors and controls that are wirelessly activated and grouped.	4		
16	Install Daylighting Controls	Install daylighting controls by incorporating either dedicated controls where applicable or selecting new fixtures with integral sensors and wirelessly activated controls, enabling 50% dimming or turning off lights evenly.	•Provide daylighting controls where applicable or select new fixtures with integral sensors and controls that are wirelessly activated and grouped •Circuit (wirelessly) to allow 50% off in even distribution or though dimming.	2		
17	Reduce Exterior Lighting Lighting Power Density (LPD)	Reduce Exterior Lighting Power Density by using timers and motion sensors for existing lighting, and prioritize night sky labelled LED fixtures with timers and motion sensors for new fixtures, enhancing energy efficiency and safety.	Existing Exterior lighting – •Provide hour/day schedule timers for reduced or shut off lighting off-hours. •For parking areas, provide offset lighting schedule with motion sensors for EE and safety. For Exterior new fixtures – •Find night sky labelled fixtures to ensure all lighting goes where it is needed. •Select LED fixtures. •Provide hour/day schedule timers for reduced or shut off lighting off-hours. •For parking areas, provide offset lighting schedule with motion sensors for EE and safety.	2		
18	Increase Line-Voltage Efficiency	Improve line-voltage efficiency by installing current limiters in line-voltage track lighting systems and implementing a voltage smoother at the central electrical service for comprehensive building-wide voltage control.	•Install current limitors in line-voltage track lighting systems. •Install voltage smoother at central electrical service for full-building voltage control.	3		
19	Interior Lighting Plugloads	Install low power state controls and/or Schedule Timer Control Devices	Install low power state controls and/or Schedule Timer Control Devices	3		
20	**HVAC Improvement**			**20**	**0**	
21	Install High Performance Hot Water Heating	Upgrade water heating with efficient heat pump systems, particularly air-source heat pump water heaters that don't use conditioned air from the building, except for exhaust. In specific areas, consider electric resistance heat pumps for added efficiency.	•Select heat pumps to meet all service water heating requirements. •Air-source heat pump water heaters are not permitted to draw conditioned air from within the building, with the exception of exhaust air that would otherwise be expelled to the exterior. oElectric resistance HP may be more efficienct in specific point-of-use spaces.	4		

	B	C	D	E	F	G
22	Improve HVAC Equipment Efficiency	Boost HVAC efficiency by auditing existing systems, planning upgrades, and for new systems, use variable speed compressors and electric heat pumps surpassing minimum efficiency standards by 10%.	**Improve Existing Systems** •Phase 1 - Perform Retro Commissioning process to identify efficiency improvements and establish continual improvement methodologies. •Phase 2 - create upgrade plan for facility **New Systems** •Design the system or select equipment with variable speed compressors or variable frequency drives. •Select electric heat pump equipment. oSurpass the minimum heating efficiency standards by 10%, and 10% improvement above the minimum requirements for cooling and heat rejection efficiency.	6		
23	Upgrade HVAC Controls	Improve HVAC controls by setting a weekly schedule, adjusting operational settings twice a year, and if possible, allowing remote access via a wireless interface for easier monitoring and control by facility managers.	•Provide seven-day schedule functionality •Program controls for operational parameters fo the facility, and schedule retuning of programming 2xper year. •Preferred - remote access through a wireless interface, enabling facility managers to control and monitor performance from any network-enabled device. •Follow ASHRAE Guideline 36 for controls programming	4		
24	Upgrade Ventilation System	Enhance ventilation by installing an Energy Recovery System (ERS) or choosing a balanced system. Ensure the incoming and outgoing airflow is closely matched, with a maximum difference of 15%. Don't forget to include controls for the Energy Recovery System.	•Install an Energy Recovery System (ERS) or opt for a balanced ventilation system, ensuring that the supply airflow rate closely aligns within 15% with the exhaust airflow rate •Include controls on ERS	2		
25	Meet Fan System Design Conditions	Ensure fan systems meet design conditions by using separate motors for applicable fans, connecting them to the Building Management System (BMS), and integrating with Variable Frequency Drives (VFDs) along with comprehensive controls and programming.	•Provide motors distinct from packaged equipment for fans where applicable, with connection to BMS (Building Management System) •Ensure integration with Variable Frequency Drives (VFDs) and all controls and programming	1		
26	Install Dedicated Outdoor Air System (DOAS)	Install DOAS with Energy Recovery unless demand control measures are in place	•Install DOAS with Energy Recovery unless demand control measures are in place	1		
27	Efficient Refrigerants (Airflow and Refrigerant Charge Verification)	Ensure correct and consistent airflow in HVAC system with annual retuning.	•Ensure correct and consistent airflow in HVAC system with annual retuning.	2		
28	**Efficient Appliances**			**6**	**0**	
29	Install Energy Star Appliances (all that apply)	Switch to energy-efficient appliances meeting Energy Star standards, covering electronics, office equipment, heating and cooling, lighting, water heaters, and more; also, boost efficiency by implementing Computer Power Management and Plug Load/Plug Controls.	•Purchase equipment meeting Energy Star certification standards whenever available. » Electronics » Office equipment » Commercial food service equipment » Heating and cooling equipment » Lighting » Water heating » Residential dishwashers » Residential clothes washers •Implement Computer Power Management and Plug Load / Plug Controls.	3		
30	Reduce Refrigerant Leakage	Reduce refrigerant leakage by installing accessible piping for leak detection and repairs, and establish a Refrigerant Management Policy.	•Install piping containg refrigerants to be accessible for leak detection and repairs. Create Refrigerant Management Policy	2		
31	Appliance Plugloads	Ensure appliances have power management features to maximize efficiency for user controls.	Ensure appliances have power management features to maximize efficiency for user controls.	1		

CITY OF SAN DIEGO, CALIFORNIA

COUNCIL POLICY

CURRENT

SUBJECT: ZERO EMISSIONS MUNICIPAL BUILDINGS AND OPERATIONS POLICY
POLICY NO.: 900-03
EFFECTIVE DATE: December 19, 2024

BACKGROUND:

I. California Law and Policy

Since 2006, the State of California has enacted laws and adopted policies designed to reduce *Greenhouse Gas* (*GHG*) *Emissions* within the state to prevent global warming. Among them:

- The Global Warming Solutions Act of 2006, Assembly Bill 32 (2018-2019 Reg. Sess.) (A.B. 32), requires a reduction in GHG Emissions to 1990 levels by 2020 and beyond.

- The Energy Efficiency Strategic Plan was adopted by the California Public Utilities Commission in response to A.B. 32. It requires all new commercial construction to be Zero Net Energy by 2030, and 50% of existing buildings to be Zero Net Energy by 2030.

- The Clean Energy and Pollution Reduction Act, Senate Bill 350 (2015-2016 Reg. Sess.) (S.B. 350), requires California to set a renewable electricity procurement goal of 50% by 2030, and double energy efficiency savings in electricity and natural gas end uses by 2030.

- The 100% Clean Energy Act of 2018, Senate Bill 100 (2017-2018 Reg. Sess.) (S.B. 100), sets a world-leading precedent by committing to 100% renewable and zero-carbon electricity in California by 2045, speeding up the state's timeline for moving to carbon-free power sources.

- The Zero Emissions Buildings and Sources of Heat Energy Act of 2018, Assembly Bill 3232 (2017-2018 Reg. Sess.) (A.B. 3232), required the California Energy Commission to assess, by January 1, 2021, how to reduce GHG emissions from the state’s building stock by 40% below 1990 levels by 2030.

- The California Building Standards Code (California Code of Regulations, Title 24) sets prescriptive requirements and performance standards for building energy efficiency, use of electric appliances, provision of circuits and panel capacity to support electric appliances, onsite solar panels, onsite battery storage systems, and provision of electric vehicle chargers at nonresidential buildings.

- Executive Order N-79-20, issued by Governor Newsom on September 23, 2020, declared that by 2035, all new cars and passenger trucks sold in California must be zero-emission vehicles.

- The Advanced Clean Truck regulation issued by the California Air Resources Board in 2020 requires a steadily increasing share of medium and heavy trucks sold in California from 2024 onward to be zero emissions vehicles.

II. City of San Diego Policy

In 2014, the City Council (Council) of the City of San Diego (City) adopted Council Policy 900-14, the Sustainable Buildings Policy, which sets forth the City's commitment to follow green building practices in City facilities and provide leadership and guidance in promoting, facilitating, and instituting such practices in the community. In 2022, Council adopted the Climate Action Plan update (CAP), which calls for eliminating all GHG Emissions in the City and aims for all electricity to be generated from zero carbon sources by 2035. The CAP states that natural gas consumption at City facilities will be reduced by 50% by 2030 and eliminated by 2035. The CAP further states that 50% of all light, medium, and heavy-duty municipal fleet vehicles will be zero emissions vehicles by 2030, and that 100% of light duty and 75% of medium and heavy-duty municipal fleet vehicles will be zero emissions vehicles by 2035.

PURPOSE:

This Policy establishes a framework for achieving the goal of portfolio-wide zero *GHG Emissions* in City-owned and leased buildings and operations by 2035 by prioritizing proven energy efficiency strategies, eliminating the use of non-emergency *Fossil Fuel Systems*, requiring *Electric Vehicle* charging, and requiring the generation, or procurement of, renewable or zero carbon energy to power municipal building operations.

POLICY:

I. Definitions

A. *Automated Load Management System*: A system designed to manage load across one or more *Electric Vehicle Supply Equipment* (*EVSE*) to share electrical capacity and/or automatically manage power at each connection point.

B. *Battery Energy Storage System*: A technology developed for storing electric charge by using specially developed batteries. Stored energy can be discharged from the battery to supply building end uses at a later time.

C. *Cost Effective*: The economic analysis indicates that the cost of installation of renewable electricity generation plus energy storage equipment at the site could be recouped through savings, revenue under Net Energy Metering, or other available utility programs using a 20-year time horizon, or within the term of a third-party ownership agreement, such as a Power Purchase Agreement Energy Management Services Agreement or similar agreement, which shall not exceed 20 years.

D. *Design Target*: The annual energy use intensity calculated for a *Proposed Design*.

E. *Direct Current Fast Charger* (*DCFC*): A device capable of charging an electric car with direct current electricity at a rate of at least 50 kilowatts and meeting the definition and requirements of a *DCFC* stated in the California Code of Regulations, Title 24.

F. *Electric Vehicle* (*EV*): A vehicle whose drivetrain is powered exclusively by electricity.

G. *Electric Vehicle Supply Equipment* (*EVSE*): The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the *Electric Vehicle* connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *Electric Vehicle*.

H. *Energy Retrofit*: Any construction, retrofit, renovation, or equipment replacement to an existing building other than a *Major Renovation*, that alters, reconfigures, or replaces the *Thermal Envelope* of a building, its *Fossil Fuel Systems*, or other energy-consuming systems and equipment.

I. *Energy Use Intensity* (*EUI*): A measurement that quantifies a building's site energy use relative to its size. A building's energy use intensity is calculated by dividing the total net energy consumed in one year by the gross floor area of the building, excluding the parking garage. *EUI* is reported as a value of thousand British thermal units per square foot per year (kBtu/sq.ft./yr).

J. *EV Ready Space*: An automotive parking space that is provided with one dedicated branch circuit for *Electric Vehicle Supply Equipment* that is terminated at a receptacle, junction box, or *Electric Vehicle Supply Equipment* within the parking space.

K. *EVSE Space*: An automotive parking space equipped with a dedicated branch circuit and installed *Electric Vehicle Supply Equipment*. Level 2 *EVSE* shall be capable of supplying at least 30 amperes at 208/240 volts.

L. *Fossil Fuel*: For the purposes of this Policy, *Fossil Fuel* refers to any solid, liquid, or gaseous fuel consumed in buildings, generators, equipment, or vehicles, other than those that are sourced exclusively from a verified renewable source accepted for credit under the California Renewables Portfolio Standard. *Fossil fuels* include, but are not limited to, coal, natural gas (methane), gasoline, diesel, kerosene, and propane. All fuels are presumed to be *fossil fuels* unless proven otherwise.

M. *Fossil Fuel System*: a combination of equipment and auxiliary devices by which fossil fuel energy is transformed so it performs a specific function, such as heating, ventilation, and air conditioning (HVAC) and service water heating.

N. *Global Warming Potential* (*GWP*): The equivalent amount of carbon dioxide associated with the warming effect of a given quantity of a *GHG* expressed as CO2-equivalent (CO2e).

O. *Greenhouse Gas* (*GHG*) *Emissions*: A measure used to determine and compare the emissions of various greenhouse gases based upon their *Global Warming Potential*. Carbon dioxide equivalent (CO2e) emissions from carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O) are included. The CO2e for a gas is calculated by multiplying the weight of the gas by its associated *GWP*.

P. *Heavy Duty Vehicle*: A road vehicle with a gross vehicle weight rating of greater than 26,000 pounds.

Q. *Light Duty Vehicle*: A road vehicle with a gross vehicle weight rating of 10,000 pounds or less, such as a sedan, sport utility vehicle, pickup truck, or utility van.

R. *Level 1 Electric Vehicle Space*: A parking space, which is either *EV Ready*, or has an *EVSE* installed and which has or is designed to receive a dedicated 120 volt branch circuit with 16 or 20 ampere capacity.

S. *Level 2 Electric Vehicle Space*: A parking space, which is either EV Ready, or has an EVSE installed and which has or is designed to receive a dedicated 208/240 volt, 40 ampere branch circuit.

T. *Major Renovation*: A *Major Renovation* shall mean:

1. Any repaving, alteration, addition, or improvement of a parking lot or parking garage where the work area exceeds 50% of the parking area; or

2. Any repair, alteration, addition, or improvement of a building, which includes replacement of two or more of the following:

a) HVAC unitary systems or HVAC central heating or cooling equipment serving the alteration area.

b) 50% or more of the internal lighting fixtures in the building.

c) 50% or more of the external lighting fixtures on the building exterior and in the parking lot.

d) 50% or more of the area of interior surfaces in the building.

e) 50% or more of the area of the building's exterior wall envelope.

U. *Medium Duty Vehicle*: A road vehicle with a gross vehicle weight rating of between 10,001 and 26,000 pounds.

V. *New Construction*: Any newly constructed building, facility, or parking lot that has never been previously used or occupied for any purpose.

W. *On-Site Renewable Energy System*: Photovoltaic, solar thermal, geothermal, wind, hydroelectric, landfill gas, and digester gas systems used to generate energy and located on any of the following:

1. The building;

2. The property upon which the building is located;

3. An adjacent property that shares a boundary with and is under the same ownership or control as the property on which the building is located; or

4. A property that is under the same ownership or control as the property on which the building is located and is separated only by a public right-of-way from the property on which the building is located.

X. *Prescriptive Energy Efficiency Measure Menu for Major Renovation Projects*: A menu consisting of prescriptive energy efficiency measures for a major renovation project to an existing building that must meet the requirements set forth in this Policy, as an alternative to demonstrating compliance by way of conducting a Title 24 Part 6 energy model and/or calculating an *EUI*.

Y. *Proposed Design*: A description of the proposed building, or portion thereof, used to estimate annual energy use and *Fossil Fuel* combustion, used as the basis for calculating the *Design Target*.

Z. *Renewable Energy System*: Photovoltaic, solar thermal, geothermal, wind, hydroelectric, landfill gas, and digester gas systems used to generate energy.

AA. *Thermal Envelope*: The basement walls, exterior walls, floors, ceilings, roofs, windows, and any other building element assemblies that enclose conditioned space or provide a boundary between conditioned space and exempt or unconditioned space.

II. Scope

A. Commencing with this Policy, all managers of City-owned and occupied buildings and facilities must take action as provided in this Policy to achieve net zero emissions. This shall be achieved in *New Construction, Major Renovation, and Energy Retrofit* projects by implementing the following strategies:

1. Prioritizing energy efficiency by achieving appropriate site *Energy Use Intensity* (*EUI*) or *Prescriptive Energy Efficiency Measure Menu for Major Renovation Projects* targets;

2. Specifying electric sources for space conditioning, water heating, cooking, lighting, and all other non-emergency functions;

3. Offsetting building operational energy use with *Renewable Energy Systems*; and

4. Providing parking spaces equipped to charge *Electric Vehicles*.

B. Additionally, City departments shall develop plans for the elimination of all sources of *Fossil Fuel* combustion within their existing buildings and facilities and for the provision of vehicle chargers for all *Light Duty Vehicles* in their fleets by 2035.

C. Additionally, all new leases, and lease renewals of City-owned buildings and land (i.e., leases where the City is the landlord) that require Council approval shall incorporate portions of this Policy into the lease terms.

III. Implementation

A. Building Efficiency

1. All *New Construction* projects of buildings larger than 1,000 square feet shall use energy modeling to demonstrate that the *Proposed Design* yields energy consumption which is either no greater than the applicable site *EUI* targets specified in Table 1 or at least 10% lower than the Standard Design annual time dependent value energy use calculated by the methodology established in the California Code of Regulations, Title 24 Part 6.

Table 1: Proposed Site *EUI* Targets for *New Construction* Projects

Building Type	**Site *EUI* Target for *New Construction* (kBtu/sq.ft./year)**
Community Center	20
Fire Station	28
Laboratory	160
Library	28
Medium Office (≤100,000 Sq. Ft)	20
Museum	18
Non-refrigerated Warehouse	8
Operations Yard (Vehicle service)	25
Police	45
Recreation Center	20
Refrigerated Warehouse	15
Restaurant	150
Senior Center	30
Theater	20

Industrial facilities such as landfills, pump stations, and treatment plants are exempt from this requirement because their energy consumption is determined by industrial process factors which are not proportional to their floor area. Where an industrial facility includes onsite office buildings, laboratories, warehouses, or other uses listed in Table 1, which are larger than 1,000 square feet, this requirement applies to those portions of the buildings or areas with those uses.

2. All *Major Renovation* projects to buildings larger than 1,000 square feet shall use energy modeling to demonstrate that the *Proposed Design* yields energy consumption which is either no greater than the applicable site *EUI* targets specified in Table 2 or no greater than the Standard Design annual time dependent value energy use for new buildings calculated by the methodology established in the California Code of Regulations, Title 24 Part 6.

Table 2: Proposed Site *EUI* Targets for *Major Renovation* Projects

Building Type	**Site *EUI* Target for *Major Renovation* (kBtu/sq.ft./yr)**
Fire Station	35
Library	35
Medium Office (≤50,000 Sq. Ft)	27
Non-refrigerated Warehouse	12
Operations Yard (Vehicle service)	35
Police	55
Recreation Center	25
Refrigerated Warehouse	25
Restaurant	200

If the project team does not include an energy designer/consultant and an energy model is not being produced, selecting energy efficiency measures that add up to 25 points on the *Prescriptive Energy Efficiency Measure Menu for Major Renovation Projects* can also meet this requirement.

Industrial facilities such as landfills, pump stations, and treatment plants are exempt from this requirement because their energy consumption is determined by industrial process factors which are not proportional to their floor area. Where an industrial facility includes onsite office buildings, laboratories, warehouses, or other uses listed in Table 2, which are larger than 1,000 square feet, this requirement applies to those portions of the buildings or areas with those uses.

B. Zero Emission Buildings

1. All *New Construction* and *Major Renovation* projects shall be designed and operated with exclusively electric systems or appliances for space conditioning, water heating, cooking, and lighting, and without using any *Fossil Fuel* energy source for non-emergency electricity generation or any other non-emergency functions. In the case of *Major Renovation* projects, this requirement shall apply to the entirety of the building or facility being renovated.

   a) Exceptions:

      i. Facilities which use an onsite source of renewable gas (limited to landfill gas and wastewater treatment plant digester gas) for digester heating, renewable electricity generation, or other essential functions may use nonrenewable gas at times when the supply of renewable gas is disrupted.

      ii. Flares at landfills, wastewater plants, and similar facilities may use supplemental natural gas to the extent necessary to meet air quality regulations.

2. All *New Construction* and *Major Renovation* projects of buildings larger than 1,000 square feet shall install onsite renewable electricity generation and storage. Sizing of renewable energy generation equipment shall be sized to *match* the annual average building electricity consumption. If a Fleet Charging Plan has been adopted, renewable energy generation equipment sizing shall also consider the annual average light-duty vehicle consumption. This equipment shall be installed either as part of the construction or renovation project or separately within two years of final inspection on the facility construction or renovation. Sizing of *Battery Energy Storage Systems* shall be evaluated based on their economic impact to facility operations, reliability benefits, and availability of physical space for ~~BESS~~*BESS*. The generation and storage equipment may be City-owned or third party-owned. Facility designs shall anticipate the addition of solar panels or other renewable generation and energy storage.

a) Solar Ready:

i. *New Construction* and *Major Renovation* projects planning to install solar separately within two years of final inspection will be designed solar-ready and meet the following requirements:

a. The solar zone total area shall be comprised of areas that have no dimension less than five feet and are no less than 80 square feet each for buildings with roof areas less than or equal to 10,000 square feet or no less than 160 square feet each for buildings with roof areas greater than 10,000 square feet.

b. The solar zone shall comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9, other Parts of Title 24, or in any requirements adopted by the City of San Diego.

b) Exceptions:

i. The generation and storage requirement may be reduced or avoided if economic analysis indicates that the project is not *Cost Effective*.

ii. The generation requirement may be reduced or avoided if existing or planned tree canopy cover makes a location unsuitable for solar power. Due to the availability of clean grid power through San Diego Community Power, opportunities for establishment of new tree canopy shall be prioritized above establishment of new onsite solar power at City facilities in cases of conflict.

3. All *New Construction* and *Major Renovation* projects shall obtain 100% of their energy, except for emergency generation, from zero-carbon or renewable sources, using one of more of the following acceptable sources:

i. *Onsite Renewable Energy System*;

ii. Directly owned off-site *Renewable Energy System*;

iii. Power purchase agreement;

iv. Zero-carbon or renewable fuel purchase agreement; or

v. 100% zero-carbon electricity rate options offered by the facility's community choice aggregator (San Diego Community Power (SDCP)) or electric utility.

a) *Onsite Renewable Energy Systems* are preferred over other acceptable zero-carbon or renewable sources.

b) Energy sources used must be 100% zero-carbon or renewable on an annual net basis. Sources for which the zero-carbon or renewable energy generation is matched to the time of consumption are preferred.

c) The zero-carbon or renewable energy generating source shall be a source which is classified as zero-carbon under the 100% Clean Energy Act of 2018 (S.B. 100) or recognized for credit by the California Renewables Energy Portfolio Standard, such as the following: photovoltaic systems; solar thermal power plants; geothermal power plants; wind turbines; hydroelectric plants; and fuel cells, turbines, or internal combustion engines powered by landfill gas or digester gas.

d) Fuel cells, turbines, or internal combustion engines powered by renewable energy sources may use nonrenewable energy sources only for incidental or emergency use when supply of the renewable fuel is temporarily disrupted and within the limitations on nonrenewable fuel use by such facilities described in the California Renewables Energy Portfolio Standard.

e) Off-site zero-carbon or renewable energy (including electricity and fuels) delivered or credited to the facility shall be subject to a legally binding contract to procure qualifying off-site zero-carbon or renewable energy. Qualifying off-site energy shall meet the following requirements:

i. The City shall sign a legally binding contract to procure qualifying off-site zero-carbon or renewable energy with a minimum duration of 20 years.

ii. The generation source shall be located where the energy can be delivered to the building or facility by the same utility or distribution entity, the California Independent System Operator, or the Western Electric Coordination Council.

iii. Exception: Purchase of 100% zero-carbon or renewable electricity from San Diego Community Power is acceptable without a long-term contract.

4. New and existing buildings and facilities, which obtain energy from onsite or off-site zero-carbon or *Renewable Energy Sources*, shall continue to use zero-carbon or renewable energy from that source or a replacement source throughout the life of the building/facility.

5. All municipal buildings and facilities not covered by the above requirements shall obtain 100% of their electricity and other energy, excluding emergency generation, from zero-carbon or renewable sources to the greatest extent feasible and cost effective as soon as is feasible, and in no case later than by 2035.

6. Projects that are not classified as *New Construction* or *Major Renovation* projects shall meet the following requirements:

   a) *Energy Retrofit* projects shall prioritize measures that result in the replacement of *Fossil Fuel Systems* used to meet space-conditioning loads and provide hot water with efficient all-electric systems.

   b) All *Fossil Fuel Systems* used for space conditioning, water heating, cooking, lighting, and all other non-emergency functions shall be replaced with all-electric systems upon the end of that system's useful life.

   c) No new *Fossil Fuel Systems* used for space conditioning, water heating, cooking, lighting, or any other non-emergency function shall be installed.

C. Electric Vehicle Charging

1. *New Construction* and *Major Renovation* projects with parking facilities for passenger and *Light Duty Vehicles* shall include *Electric Vehicle* charging infrastructure that meets the following requirements:

a) The parking facility shall include sufficient reserved parking spaces for the number of City-owned *Light Duty Vehicles* expected to be parked there overnight. *Light Duty Vehicle* fleet spaces shall be made *EV Ready Spaces* at the time of construction in a manner consistent with the approved light Fleet Charging Plan for the facility. In absence of an approved Fleet Charging Plan, every two parking spaces designated for overnight parking of City-owned *Light Duty Vehicles* shall be *Level 2 EV Ready Spaces* to achieve a vehicle charger ratio of 2:1.

b) At newly constructed buildings, parking lots, or parking garages, EV charging infrastructure requirements shall be designed to meet the requirements of CALGreen Tier 1. If any local, state, and/or federal code contains requirements more stringent than CALGreen Tier 1, *EV* charging infrastructure shall be designed to meet the more stringent code compliance requirements.

i. *EV* spaces accessible to the public or to employee private vehicles shall be connected to a separate electric panel and meter other than the panel and meter used for the City building and fleet charging.

D. GHG Emissions Reporting

1. All *New Construction* and *Major Renovation* projects larger than 1,000 square feet shall meet the following requirements:

a) Prior to submission of final building permit inspection, the architect or engineer of record shall submit to the City Manager or their designee, with a carbon copy to the Sustainability and Mobility Department Director, a GHG Emissions Compliance Report that includes:

i. Documentation of the applicable energy efficiency requirements under this Policy and energy modeling documentation that the *Proposed Design* meets the *Design Target*, or a completed *Prescriptive Energy Efficiency Measure Menu for Major Renovation Projects* indicating the minimum number of points (25) has been achieved.

ii. An inventory of all *Fossil Fuel* consuming appliances and equipment and confirmation that space conditioning, hot water heating, and other non-exempt energy-consuming needs are met with all-electric systems and appliances.

iii. An estimate of the annual *GHG Emissions* associated with the project. The estimate shall be made in accordance with ASHRAE Standard 105, Section 7 using GHG emissions factors published by the EPA.

iv. A renewable energy assessment that identifies the zero-carbon or renewable energy sources that will be used to meet the energy needs of the building or facility.

E. Fossil Fuel Elimination Plans

1. By January 1, 2025, all AMDs shall submit a detailed *Fossil Fuel* Elimination Plan to the City Manager or their designee that identifies and prioritizes the strategies needed to eliminate *Fossil Fuel* combustion within each facility by 2035. This plan shall include:

a) The necessary actions, funding, and investments needed to eliminate Fossil Fuel Systems;

b) A timeline for substantial alterations and system replacement efforts;

c) Priority actions for system replacement efforts that have the greatest potential return on investment based on cost analysis that includes the cost of carbon emission impacts; and

d) Demonstration that the plan achieves at least a 50% reduction of the department's direct *GHG Emissions* from *Fossil Fuel* combustion relative to 2019 levels by January 1, 2030 and 100% reduction by January 1, 2035.

2. All AMDs shall submit a report by January 1, 2026, to the City Manager or their designee and each year thereafter documenting their progress made in *Fossil Fuel* elimination. This annual report shall include an update to the *Fossil Fuel* Elimination Plan reflecting documented progress and remaining work.

F. Fleet Charging Plans

1. By January 1, 2026, all AMDs shall submit a detailed Fleet Charging Plan to the City Manager or their designee that identifies and prioritizes the strategies needed to transition *Light Duty Vehicles*, *Medium Duty Vehicle*s and *Heavy Duty Vehicles* to *EV*, in order to support electrification of all City-owned *Light Duty Vehicles* and 75% of City-owned *Medium Duty Vehicles* and *Heavy Duty Vehicles* by 2035.

2. The Fleet Charging Plans shall identify prospective charging locations for all City-owned vehicles that park overnight at prioritized facilities managed by the respective AMD. For each facility, these plans shall include:

   a) The necessary actions, funding, and investments needed to electrify vehicles.

   b) A list of all City-owned vehicles organized by vehicle classification of *Light Duty Vehicles*, *Medium Duty Vehicles* and *Heavy Duty Vehicles*, which use the facility as their primary parking location or otherwise use the facility as an overnight parking location. The list shall include the AMD's vehicles as well as any vehicles from other departments that normally park at the facility.

   c) An assessment of the number, type, and power level of *EVSE's* most suitable for the location. The assessment is based on the daily mileage, cost, and charging requirements in terms of Vehicle per Port ratio for each vehicle.

   d) A timeline for installation of *EVSE*.

   e) Potential locations for the installation of *EVSE*.

3. All AMDs shall submit an update to the Fleet Charging Plans by January 1, 2027, to the City Manager or their designee and each year thereafter documenting progress made in installing vehicle chargers for their department's fleet and work remaining.

G. Leased Properties

1. All new leases and lease renewals of City-owned buildings and land (i.e., leases where the City is the landlord) that require Council approval shall include in the terms and conditions Policy provisions that apply the following requirements at all leased buildings and land.

a) The lessee is required to obtain for leased buildings and facilities 100% of electricity and other energy, excluding emergency generation required by local, state, or federal code, from zero-carbon or renewable sources no later than by 2035.

b) All leases shall meet the following requirements:

i. *Energy Retrofit* projects shall prioritize measures that result in the replacement of *Fossil Fuel Systems* used to meet space-conditioning loads and provide hot water with efficient all-electric systems.

ii. All *Fossil Fuel Systems* used for space conditioning, water heating, cooking, lighting, and all other non-emergency functions shall be replaced with all-electric systems upon the end of that system's useful life and in no case later than by 2035, regardless which party maintains the systems (i.e. City or lessee).

iii. No new *Fossil Fuel Systems* used for space conditioning, water heating, cooking, lighting, or any other non-emergency function shall be installed.

c) GHG Emissions Reporting

i. For all *New Construction* projects larger than 1,000 square feet completed after the incorporation of this Policy into the lease agreement:

a. Prior to submission of final building permit inspection, the architect or engineer of record shall submit to the City Manager or their designee, with a carbon copy to the Sustainability and Mobility Department Director, a GHG Emissions Compliance Report that includes:

1. Documentation of the applicable energy efficiency requirements under this Policy and energy modeling documentation that the *Proposed Design* meets the *Design Target*.

2. An inventory of all *Fossil Fuel* consuming appliances and equipment and confirmation that space conditioning, hot water heating, and other non-exempt energy-consuming needs are met with all-electric systems and appliances.

3. An estimate of the annual *GHG Emissions* associated with the project. The estimate shall be made in accordance with ASHRAE Standard 105, Section 7 using GHG emissions factors published by the EPA.

4. A renewable energy assessment that identifies the zero-carbon or renewable energy sources that will be used to meet the energy needs of the building or facility.

d) Exemptions

i. Facilities which use an onsite source of renewable gas (limited to landfill gas and wastewater treatment plant digester gas) for digester heating, renewable electricity generation, or other essential functions may use nonrenewable gas at times when the supply of renewable gas is disrupted.

ii. Flares at landfills, wastewater plants, and similar facilities may use supplemental natural gas to the extent necessary to meet air quality regulations.

iii. Industrial facilities such as landfills, pump stations, and treatment plants because their energy consumption is determined by industrial process factors which are not proportional to their floor area.

e) Exceptions

Lessees can follow the exception process outlined in section I. below if a portion of Council Policy 900-03 cannot be met.

2. If the City has been leasing City-owned buildings or land to a specific tenant since before January 1, 2024, and if the City proposes to grant a time extension or a new lease to that same tenant effective on or after January 1, 2024, that will require Council approval, the City Manager or their designee may propose to revise or omit specific provisions of this Policy when negotiating the lease terms on a case by case basis if the City Manager or their designee determines that the tenant has presented compelling reasons for the revision or waiver.

H. Exemptions

1. Projects to construct or provide emergency shelter are exempt from all requirements of this Policy, except buildings shall procure their electricity from a zero-carbon or renewable source, such as through qualifying options offered by San Diego Community Power.

I. Exceptions

1. An exception from portions of Council Policy 900-03 can be requested if part of Council Policy 900-03 cannot be met. A memo requesting the exception and providing justification is needed to make a formal request for an exception. The Asset Managing Department or the Lessee shall submit the memo to the City Manager or their designee, with carbon copy to the Sustainability and Mobility Department Director. The request shall be approved or denied at the sole discretion of the City Manager or their designee. Once the request is approved or denied by the City Manager or their designee, the AMD or Lessee will be informed via email.

2. On an annual basis, staff shall report to City Council the number of projects approved for exception from the policy, accompanied by a brief description of each exception.

3. It is the expectation of this Council that exceptions are rare and well documented. Approval of an exception should include a plan and a timeline to resolve the exception before the Climate Action Plan target date. The plan and timeline should be included in the annual monitoring report to Council on policy implementation.

J. Effective Date

This Policy shall apply in full to *all* applicable projects after the passage of the Policy update.

REFERENCES:

- California Department of General Services Zero Net Energy - https://www.dgs.ca.gov/OS/Resources/Page-Content/Office-of-Sustainability-Resources- List-Folder/Zero-Net-Energy
- California Zero Code - https://zero-code.org/wp-content/uploads/2018/09/ZERO-Code- California.pdf
- 2019 CalGreen - https://codes.iccsafe.org/content/CAGBSC2019/cover
- ASHRAE Standard 105 (Methods for Determining, Expressing, and Comparing Building Energy Performance and Greenhouse Gas Emissions) - https://webstore.ansi.org/standards/ashrae/ansiashraestandard1052014
- International Organization for Standardization (ISO) standard 14025 - https://www.iso.org/standard/38131.html
- International Organization for Standardization (ISO) 21930 - https://www.iso.org/standard/61694.html
- European Standard (EN) 15804 - https://www.en-standard.eu/csn-en-15804-a2-sustainability-of-construction-works-environmental-product-declarations-core-rules-for-the-product-category-of-construction-products/
- Prescriptive Energy Efficiency Measure Menu for Major Renovation Projects

HISTORY:
"Zero Emissions Municipal Buildings and Operations Policy"
Adopted by Resolution R-314377 – 10/11/2022
Amended by Resolution R-315940 – 12/19/2024

APPENDIX Q

COUNCIL POLICY SUSTAINABILITY BUILDING POLICY 900-14

CITY OF SAN DIEGO, CALIFORNIA

COUNCIL POLICY

CURRENT

SUBJECT: SUSTAINABLE BUILDING POLICY
POLICY NO.: 900-14
EFFECTIVE DATE: December 19, 2024

BACKGROUND:

The passage of the California Global Warming Solutions Act of 2006 (Assembly Bill 32) and other pivotal legislation and policy in California — such as the establishment of statewide energy efficiency goals (AB 2021), Low-Income Energy Efficiency statutes, the Governor's Green Building Executive Order, the California Energy Commission Integrated Energy Policy Report (2007), and the CA Public Utilities Commission (CPUC) Strategic Plan (2008)— creates an environment where energy efficiency efforts must not only continue to thrive but scale up at unprecedented levels. The four specific programmatic goals, known as the "Big Bold Energy Efficiency Strategies," established by the CPUC include:

1. All new residential construction in California will be zero net energy by 2020;

2. All new commercial construction in California will be zero net energy by 2030;

3. Heating, Ventilation and Air Conditioning (HVAC) will be transformed to ensure that its energy performance is optimal for California's climate; and

4. All eligible low-income customers will be given the opportunity to participate in the low income energy.

The 2003 update of 900-14 requires City projects to achieve the U.S. Green Building Council's LEED silver standard for all new buildings and major renovations over 5,000 square feet. The City of San Diego General Plan (2008) and the City of San Diego Climate Protection Action Plan (2004) formalize the commitment to increase energy efficiency and the use of renewable energy. In order to achieve the goals in the CPUC Strategic Plan and the City's General Plan, more substantial requirements are needed as a bridge to zero net energy in 2020 (residential) and 2030 (commercial). To that end, the Sustainable Building Policy will be updated every three years to remain current with new State and Federal guidelines and local needs.

PURPOSE:

The purpose of this policy is to reassert the City's commitment to green and sustainable building practices and applies to new construction or major renovations that the City owns, occupies or leases. A major renovation is defined as an alteration or renovation to existing conditioned spaces that are 5,000 gross square feet or larger in area and require at least two energy building system changes. The site boundary for the scope of this Policy is the contract limit line of the work included in the Major Renovation project. (See Definitions, page 5-6.)

The Sustainable Buildings Policy shall recognize projects that are designed, constructed and operated using cost-effective innovative strategies and technologies that seek to achieve the following:

1. Avoid permanent adverse impact on the natural state of the air, land, and water;

2. Ensure a healthful indoor environmental quality;

3. Optimize social and economic benefits to the project and the community; and

4. Encourage occupant behavior, maintenance and operations that maximize conservation opportunities, reduce resource consumption and minimize wastes

Fiscal analysis using life cycle cost estimating is part of a "reasonable payback" determination for energy efficiency and renewable energy technology. Approved life-cycle cost estimating measures to be used include first-cost, incentives, operating expenses, and utility savings for proposed technology. This policy shall implement renewable energy strategies that provide a payback of less than 20 years.

STANDARDS:

1. City-owned, occupied or leased new construction and major renovation projects shall meet the requirements of the US Green Building Council (USGBC) Leadership in Energy and Environmental Design Program® (LEED®) for Silver level certification.

2. City-owned and occupied new construction and major renovation projects of buildings containing more than 1,000 square feet of conditioned space shall meet the energy efficiency requirements of San Diego Council Policy 900-03, Zero Emissions Municipal Buildings and Operations Policy.

3. City-owned and occupied new construction and major renovation projects of buildings containing more than 1,000 square feet of conditioned space shall include or made ready for onsite renewable energy generation as required by San Diego Council Policy 900-03, Zero Emissions Municipal Buildings and Operations Policy.

4. City-owned, occupied or leased new construction and facilities replacing plumbing fixtures shall use 20 percent less water than the baseline water consumption profile for interior non-process water uses.

5. City-owned, occupied or leased facilities shall use non--potable water for permanent irrigation to the extent possible.

6. City-owned, occupied or leased facilities shall comply with all stormwater development requirements in the Storm Water Management and Discharge Control Ordinance and the San Diego Municipal Code Land Development Manual Storm Water Standards for all projects.

7. City-owned, occupied or leased new construction or major renovation facilities shall comply with all elements of the Construction and Demolition Ordinance.

8. City-owned, occupied or leased facilities shall comply with all elements of the City Recycling Ordinance, and occupant recycling should include paper, corrugated cardboard, glass, plastic and metals at a minimum.

9. Cooling, refrigeration, or fire suppression equipment in new buildings or replacement of equipment in City-owned, occupied or leased facilities shall not use CFC-based products.

10. The following sustainable building measures are strongly encouraged for City-owned, occupied or leased new construction and major renovation:

    a. Incorporate enhanced commissioning and measurement and verification procedures for all facilities.

    b. Improve indoor air quality by reducing contaminants from all occupied spaces by using low-emitting volatile organic materials, including adhesives, paints, coatings carpet systems, composite wood and agrifiber products.

    c. Limit disruption of natural water flows and minimize storm water runoff by minimizing building footprints and other impervious areas, increasing on-site infiltration, preserving and/or restoring natural drainage systems, and reducing contaminates introduced into San Diego's rivers, bays, beaches and the ocean.

    d. Incorporate building products that have recycled content reducing the impacts resulting from the extraction of new materials. Newly constructed City facilities shall strive to have a minimum of 25% of building materials that contain in aggregate, a minimum weighted average of 20% post-consumer recycled content materials.

    e. Prioritize the use and purchase of products that are manufactured, extracted, and assembled within the City of San Diego.

    f. Reduce the use and depletion of finite raw and long-cycle renewable materials by replacing them with rapidly renewable materials. Newly constructed City facilities should consider incorporating rapidly renewable building materials for 5% of the total building materials.

g. Establish minimum indoor air quality (IAQ) performance to prevent the development of indoor air quality problems in buildings, maintaining the health and well-being of the occupants. Newly constructed City facilities must show compliance with Federal and California IAQ standards by conforming to the latest published version of ASHRAE 62, Ventilation for Acceptable Indoor Air Quality standard.

h. Design and build to take maximum advantage of passive and natural sources of heat, cooling, ventilation and light.

i. Provide sustainable lighting systems that use 5000 Kelvin lamps in conjunction with high efficiency program start ballasts integrated with occupancy sensors and day lighting systems. All lighting must exceed a Color Rendering Index of 80 CRI.

j. Outdoor lighting systems shall comply with local ordinances and utilize broad-spectrum lighting.

k. Buildings must use energy management systems that can be automatically accessed for demand response calls with the local utility.

IMPLEMENTATION:

1. All City departments shall be responsible for understanding the requirements for new construction and major renovations, and shall comply with the mandatory standards of the Sustainable Building Policy and seek to include as many voluntary measures as possible.

2. Engineering and Capital Projects Department, Development Services Department, and Environmental Services Department shall ensure, to the extent of their responsibility, that construction plans and implementation meet the mandatory standards.

3. The City will seek cooperation with other governmental agencies, public interest organizations, and the private sector to promote, facilitate, and implement sustainable building, energy efficiency, and renewable generation in the community.

4. This Policy shall be reviewed and updated at least every three years to align with applicable codes, standards and technologies.

LEGISLATION:

The City supports State and Federal legislation that promotes or allows sustainable development, conservation of natural resources, energy efficiency, and renewable technology.

Definitions Used In This Policy:

Build It Green: Build It Green (BIG) is a professional non-profit membership organization whose mission is to promote healthy, energy- and resource-efficient buildings in California. Supported by a solid foundation of outreach and education, Build It Green connects consumers and building professionals with the tools and technical expertise they need to build quality green homes. (Definition source: Build It Green.)

Baseline Water Consumption Profile: Baseline water consumption profile represents the average State of California water usage for commercial and residential buildings, as provided by the Department of Water Resources.

Conditioned Space: Part of a building where temperatures are controlled through heating or cooling.

Energy Consumption, Total Building: Total Building Energy Consumption is used for calculating a building's annual energy use as specified in the Alternative Calculation Methods Manuals for Title 24 compliance and is equivalent to the Energy Budget that is the maximum amount of Time Dependent Valuation (TDV) energy that a proposed building, or portion of a building, can be designed to consume. (Definition source: Title 24.)

Expedite: The permit will be reviewed by appropriate City staff in 75% of the standard time it takes for permit review.

GreenPoint Rated: GreenPoint Rated is a third-party rating system for homes and multi-family buildings based on a set of green building measures pulled from the Green Building Guidelines developed by Build It Green and used to evaluate a residence's environmental performance. (Definition source: Build It Green.)

LEED: The LEED (Leadership in Energy and Environmental Design) Green Building Rating System is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Members of the U.S. Green Building Council, representing all segments of the building industry, developed LEED and continue to contribute to its evolution using their guiding principles that provide the clarity and continuity, while also giving the system the flexibility to grow and respond to a rapidly changing market. (Definition source: USGBC.)

Major Renovation- City-Owned, Occupied or Leased Buildings: Alterations or renovations to existing conditioned spaces that are 5,000 gross square feet or larger in area and require at least two energy building system changes. The site boundary for the scope of this Policy is the contract limit line of the work included in the Major Renovation project.

Major Renovation- Private Sector Residential And Commercial Buildings: Alterations or renovations to existing conditioned spaces in residential buildings with more than 1,500 gross square feet or larger and require at least two energy building system changes, **OR** commercial buildings with more than 5,000 gross square feet or larger and require at least two energy building system changes.

New Construction- City-Owned, Occupied or Leased Buildings: New Construction includes newly constructed buildings that have never been used or occupied for any purpose. (Definition source: Title 24.) For purposes of this policy, New Construction is expanded to mean projects that are 5,000 gross square feet or larger in area. The site boundary for the scope of this Policy is the contract limit line of the work included in the New Construction project.

New Construction- Private Sector Residential and Commercial Buildings: New Construction includes newly constructed buildings that have never been used or occupied for any purpose. (Definition source: Title 24.) For purposes of this policy, New Construction is expanded to mean residential projects that are 3,000 gross square feet or larger in area **OR** commercial buildings that are 10,000 gross square feet or larger in area. The site boundary for the scope of this Policy is the contract limit line of the work included in the New Construction project.

Renewable Energy Technologies: Renewable energy potential technologies include solar, wind, geothermal, low-impact hydro, biomass, bio-gas technologies, and fuel cell technologies that do not use fossil fuels. (Definition source: USGBC). Other technologies that do not use refined fossil fuels may be considered on a project-by-project basis.

Reasonable Payback: Fiscal analysis using life cycle cost estimating is part of a "reasonable payback" determination for energy efficiency and renewable energy technology. -Approved life-cycle cost estimating measures to be used include first-cost, incentives, operating expenses, and utility savings for proposed technology. This policy shall implement renewable energy strategies that provide a payback of less than 10 years.

Title 24: Title 24, Part 6, of the California Code of Regulations is the Energy Efficiency Standards for Residential and Nonresidential Buildings in California. Established in 1978 in response to a legislative mandate to reduce California's energy consumption, the standards are updated periodically (usually every three years, at minimum) to allow consideration and possible incorporation of new energy efficiency technologies and methods. Energy efficiency reduces energy costs for owners, increases reliability and availability of electricity for the State, improves building occupant comfort, and reduces environmental impact. (Definition source: California Energy Commission.)

USGBC: The U.S. Green Building Council (USGBC) is a non-profit organization committed to expanding sustainable building practices. USGBC is composed of more than 15,000 organizations from across the building industry that are working to advance structures that are environmentally responsible, profitable, and healthy places to live and work. (Definition source: USGBC.)

REFERENCES:

- Council Policy 400-11, Water Conservation Techniques
- Council Policy 400-12, Water Reclamation/Reuse
- Council Policy 600-17, Affordable/In-Fill Housing and Sustainable Buildings Expedite Program
- Council Policy 900-06, Solid Waste Recycling
- Ordinance Number O–19420 N.S., Construction and Demolition Debris Diversion Deposit Program, Ordinance Number O–19694 N.S
- General Plan Update (2008)
- Equal Opportunity Contracting, Municipal Code 18173, sections 22.2701- 22.2702
- Non-Discrimination in Contracting, Municipal Code 18173, sections 22.3501-22.3517

HISTORY:
Adopted by Resolution R-289457 – 11/18/1997
Amended by Resolution R-295074 – 06/19/2001
Amended by Resolution R-298000 – 05/20/2003
Amended by Resolution R-305833 – 05/18/2010
Amended by Resolution R-314378 – 10/11/2022
Amended by Resolution R-315940 – 12/19/2024

APPENDIX R

CONSTRUCTION PROGRESS SCHEDULING USING SYNCHRO PROJECT SPECIFICATIONS

CONSTRUCTION PROGRESS SCHEDULING USING SYNCHRO PROJECT SPECIFICATIONS

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. It is expressly understood and agreed that the rate of progress and the time of completion of the work are of the essence for this contract. The work shall be executed with such progress as required to prevent any delay to this contract and to other projects or contractors working at the site. Compliance includes, but is not limited to, meeting contract milestone dates, compliance to scheduling submittals, working within any constraints and completion of all contract work within the allotted time.

B. The work specified in this section includes the preparation, submittal, and acceptance of a Baseline Schedule, construction progress schedules, schedule updates, recovery schedules, Time Impact Analysis (TIA) and revisions to the construction progress schedule. The construction schedule shall conform to the time provisions specified in the contract documents and the requirements of all other specified work sequence constraints set forth in the contract documents.

C. The work specified in this section also includes the preparation and submittal of a Synchro Project (.SP) for the required Baseline Schedule and monthly schedule update submittals specified in this section. This Synchro Project is required to ensure the Contractor has a feasible method for constructing the project. The CITY will review the Contractor's Synchro Project along with the accompanying schedule submittals to ensure the Contractor's construction approach is achievable and includes all the required work. The Synchro Project shall be updated and submitted each month as part of the monthly schedule update necessary for payment approvals.

D. The Contractor shall prepare and submit a Baseline Construction Schedule in accordance with the requirements of this section. By preparing and submitting the Baseline Construction Schedule and monthly schedule updates, the Contractor represents that it can and intends to safely execute the contracted work and all portions thereof including all activities of subcontractors, equipment vendors, and suppliers including submittals and re-submittals within the specified times and constraints. The Contractor also represents that the bid price covers all costs associated with the execution of the Work in accordance with the construction schedule and contract documents.

1.02 DEFINITIONS

A. ACTIVITY: A discrete work element of a project that can be identified for planning, scheduling, and controlling the construction project. Activities included in a construction schedule consume time and resources.

B. PREDECESSOR ACTIVITY: An activity that precedes another activity in the network.

C. SUCCESSOR ACTIVITY: An activity that follows another activity in the network.

D. CODE OF ACCOUNTS: A unique lettering or numbering system in which letters or numbers are assigned to each unique component of the work breakdown structure.

E. HARD LOGIC: Relationships with mandatory dependencies where the nature of the work itself dictates the order in which the activities should be performed. Construction of the walls before starting painting work is an example of mandatory dependency.

F. SOFT LOGIC: Also known as Discretionary Dependencies or Preferential Logic. Preferential logic that controls the critical path using constraints and lags will not be allowed.

G. HARD CONSTRAINTS: Override logical relationships and thereby prevent activities from being scheduled according to the logic. Hard Constraints include Mandatory Start, Mandatory Finish, Start On and Finish On.

H. CRITICAL PATH METHOD (CPM): A method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.

I. CRITICAL ACTIVITIES: Activities on the critical path. To avoid project delays, work must start and finish on the planned early start and finish dates.

J. CRITICAL PATH: The longest connected chain of interdependent activities through the network schedule that establishes the maximum overall project duration or completion

of a milestone. There can only be one critical path for a project duration or a project milestone.

K. NEAR CRITICAL PATH: The Near Critical Path shall be defined as the “longest path” plus 15 working days total float.

L. FLOAT:

1. The measure of leeway in starting and completing an activity. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.

2. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned project completion date or contract milestone.

M. FRAGNET: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.

N. WORK AREA: An area of construction, a separate facility, or a similar significant construction element.

O. CONTRACT MILESTONE: An activity or event that must be completed by a specific date and to which liquidated damages may apply. Contract start and completion dates are considered Contract Milestones.

P. NETWORK DIAGRAM: A graphic diagram of a network schedule, showing activities and activity relationships.

Q. SCHEDULE OF VALUES: A realistic statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment. The Schedule of Values should be produced from P6 and match the Cost Loading in the Schedule.

R. COST-LOADING: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total contract amount, unless otherwise approved by the City.

S. RESOURCE LOADING: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

T. WORK BREAKDOWN STRUCTURE (WBS): The WBS is a hierarchical structure of the Work to be performed under the contract.

U. CALENDAR DAY: All days in a calendar year including weekends and holidays. Contract duration is measured in calendar days against contract milestones.

V. PACING: An intentional slowing of work activities during a delay, or alleged delay, to project completion.

W. INSTALLED MAJOR EQUIPMENT: All major equipment installed as part of the final constructed facility.

X. CONSTRUCTION EQUIPMENT: All equipment utilized by the contractor to construct the facility but is not a part of the final constructed facility.

Y. SYNCHRO PROJECT: A 4D and/or a 4D + Cost model linking the City issued 3D model to the Baseline and Progress Updates at the level of schedule development specified, i.e. 180 Day Baseline, Complete Baseline, Progress Schedule, etc.

Z. BLACKOUT CALENDAR: An activity calendar that applies the non-work option in Primavera P6 Activity Calendars to create non-working days, weeks, and/or months when work is restricted from occurring. The City requires the use of blackout calendars for restricted activities rather than adjusted logic and durations.

1.03 SCHEDULER AND SYNCHRO PLANNER QUALIFICATIONS

A. The Contractor shall employ or retain the services of a Senior Project Scheduler who shall have experience in construction work sequencing, productivity, and scheduling as well as preparing and maintaining detailed construction schedules using the most current version of Oracle Primavera P6 software. The Contractor's scheduler shall attend all schedule related meetings, including progress meetings, job walks when necessary to verify schedule progress, schedule review meetings and special meetings pertaining to scheduling of the Work. This person, along with the Contractor's management team, is expected to work closely with the City Representative to deliver acceptable products outlined in this section and comply with the Reports requirements of this section.

B. The Contractor shall employ or retain the services of a qualified Synchro Planner who shall have demonstrated experience in developing Synchro Projects on projects.
The Contractor's Synchro Planner shall develop their own independent Synchro Project that incorporates the Contractor's proposed baseline or progress schedule that is included with each identified submittal.

C. If the Senior Construction Scheduler or Synchro Planner leaves the employment or retainage of the Contractor, the Contractor will be required to notify the City Representative in advance of the intended departure and fulfill the requirements of this subsection within thirty (30) calendar days of the departure of the Contractor's Senior Construction Scheduler or Synchro Planner.

1.04 SCHEDULING CONFERENCES

A. PRE-CONSTRUCTION SCHEDULING CONFERENCE:

1. The City Representative shall schedule and conduct a pre-construction meeting to kick-off development of the required construction schedule. Attendance by the Contractor's Senior Construction Scheduler and Synchro Planner are mandatory. At the meeting, the requirements of this section will be reviewed with the Contractor; the Contractor shall present their proposed methodology for the Baseline Construction Schedule, sequence of operations, and resource and cost/quantity loading methodology. The Contractor shall submit to the City Representative a written copy of its proposed WBS structure at this meeting.
The City shall review the WBS structure within ten (10) calendar days after submission by the Contractor. The Contractor shall make all modifications to the proposed WBS structure that are requested by the City. The WBS shall be correlated with the Contractor's Schedule of Values and the cost loaded schedule. The Senior Scheduler shall develop other activity codes and values needed to comply with the reporting requirements listed herewith, subject to acceptance by the City. The Contractor shall bring to the Pre-Construction meeting the Network Logic Diagram used in bid preparation. This will be used as a basis of discussion for the construction plan.

1.05 FLOAT

A. Float time is not for the exclusive use or benefit of either the City or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and the contract completion date. Contractor's use of float shall be pre-approved by the City prior to use.

B. No time extensions will be granted nor delay damages paid unless a City-caused delay occurs which impacts the Project's critical path and the Contractor has complied with all related contract requirements. Other delays will be evaluated by the Contractor for concurrency to issues and be included as part of the Contractor's analysis.

C. Submittal of an early completion schedule shall not provide a basis for the Contractor to claim an excusable delay for any time earlier than the contract completion date. Any early completion schedule shall be approved by a contract change order.

1.06 LOGIC AND LEVEL OF DETAIL

A. The project schedule shall include activities of sufficient detail to accurately represent and clearly convey the Contractor's feasible plan for the timely completion of the full scope of the work. The Contractor shall be responsible for developing the logic of the Baseline Schedule and for updating the logic each month to accurately reflect the progress of the work to date and the Contractor's current plan for the timely completion of the work. The schedule logic for each activity shall be constructed by determining which activities must be completed before any subsequent activity can start, which activities can occur simultaneously with the predecessor activity, which activities cannot start until another activity is complete, and the impact of all resource limitations on activity sequencing, activity durations, and activity dates. Every activity, except the project start and finish milestones, shall have a minimum of one predecessor and one successor. All paths through the project schedule shall proceed in the direction representing the progression of time; start to finish logic is disallowed. Activity lags shall not have a negative value. Redundant ties to preceding activities in a sequential series of activities will not be permitted.

B. The activity descriptions shall be specific and discrete such that it cannot be confused with any other activity description. For example, "Form Concrete Wall" is too broad; there must be a description of the unique location of the wall. Similarly, activities that are discrete should not be combined. Further, to assist the development of the Synchro Project, the schedule activity descriptions should be similar to the objects in the Synchro Project to facilitate linking of the Synchro Project and schedule.

1.07 SCHEDULE SOFTWARE SETTINGS AND RESTRICTIONS

A. Contractor shall use the most current version of Oracle Primavera P6 software to produce the contract schedules and reports as specified herein. The schedule files shall be submitted

in Primavera's Proprietary Exchange (XER) format until such time as Primavera recommends transferring to their Extensible Markup Language (XML) format. Reports shall be in Adobe Portable Document Format (PDF).

B. ACTIVITY CONSTRAINTS:

1. Date/time constraint(s), other than those required by the contract, will not be allowed unless accepted by the City. Identify any constraints proposed and provide an explanation of the purpose of the constraint in the Narrative Report. Any finish constraints for City required milestones must use a 'Finish on or Before' type designation and have logic ties. No hard constraints, which include Start on, Finish on, Mandatory Start, and Mandatory Finish, are allowed. The contractor shall not use any manual date entries that override schedule driven dates based on duration and network logic.

C. LAGS:

1. Lags will not be used when the creation of an activity will perform the same function (e.g., concrete cure time).

D. DEFAULT PROGRESS DATA DISALLOWED:

1. Actual Start and Actual Finish dates on the CPM schedule shall match the dates provided from Contractor Quality Control Production Reports, Contractor daily reports, and other contemporaneous project documentation.

E. SOFTWARE SETTINGS:

1. Schedule calculations and Out-of-Sequence progress (if applicable) shall be handled through Retained Logic, not Progress Override. All activity durations and float values will be shown in days. Activity progress will be shown using Remaining Duration. Default activity type set to "Task Dependent." User preference settings shall be set to hours with the show unit label box checked and zero decimal places. The "Durations Format" shall be set to days with the show durations label box checked, and zero decimal places.

2. The critical path shall be calculated by selecting the Longest Path as opposed to Total Float.

F. Activities unless otherwise approved will be "physical percent complete" type. Duration percent complete will only be used on City-related activities such as submittal reviews.

G. Duration Type shall be set to Fixed Duration and Units.

H. The "Automatically Level resources when scheduling" box shall not be checked. All schedule submittals, and schedule related data of any kind, shall not be resource leveled and shall be the basis for rejection if submitted with resource leveling.

I. The project critical path shall be displayed using both the ‘Critical’ and ‘Longest Path’ filters in P6.

1.08 COST LOADING

A. The activities contained within the schedules shall be cost loaded using labor, non-labor and material resources, and they shall equal the Contract Total Price with Sub-Totals. Contractor is required to cost load the construction schedule using price per unit. For example, the labor unit would be $ per hour; the material unit would be material cost per unit installed. The non-labor resources shall be used exclusively on activities containing equipment. Equipment shall include installed and construction equipment specified as price of equipment. The resource coding and name shall distinguish between installed and construction equipment. An example of price per unit cost loading is shown below:

   1. One (1) labor unit = $1of labor

   2. Material unit of $1 for 1 unit

   3. Equipment unit of $1 for 1 unit

B. Procured items, including installed equipment, should be budgeted as part of separate procurement activities such that the installation activity is not statused as started when the procured material is onsite, and installation has not begun. O&M and Training activities shall be their own cost-loaded schedule activities. Project record documentation (as-builts) shall also be a separate cost-loaded schedule activity.

C. Overhead and profit shall be prorated evenly on all cost loaded activities. Alternatively, overhead may be treated as a Level of Effort activity or activities. The Contractor shall not unbalance the activity cost loading, nor shall the Contractor utilize Resource Leveling as a technique for extending activity durations. The approved Schedule of Values, as generated from the Cost Loading becomes the basis for the Payment Application.

D. Every construction activity that contains labor shall be cost loaded.

E. Fabricate and Deliver activities shall be cost loaded to cover the material or equipment costs. The Fabrication activities shall utilize a material or equipment resource.

F. Commissioning activities shall be cost loaded using a labor resource.

G. The cost loading and progress payments for long lead procurement items will be discussed at the pre-construction meeting.

H. Once the Schedule of Values is accepted with the Baseline Construction Schedule, requests for changes to the Baseline Schedule of Values will not be approved unless approved in writing by the City Representative.

I. In Oracle Primavera P6, for actual monthly costs to store correctly, the Contractor must setup the financial period to equal the first and last date of the calendar month, regardless of the actual monthly cutoff date. Financial periods cannot bridge 2 months and must equal the full month. Please see example below.

Sample Echo Water Project Construction Schedule Financial Periods		
Financial Periods		
Period Name	Start Date	End Date
1/1/2018	1-Jan-18	31-Jan-18
2/1/2018	1-Feb-18	28-Feb-18
3/1/2018	1-Mar-18	31-Mar-18
4/1/2018	1-Apr-18	30-Apr-18
5/1/2018	1-May-18	31-May-18
6/1/2018	1-Jun-18	30-Jun-18
7/1/2018	1-Jul-18	31-Jul-18
8/1/2018	1-Aug-18	31-Aug-18
9/1/2018	1-Sep-18	30-Sep-18
10/1/2018	1-Oct-18	31-Oct-18
11/1/2018	1-Nov-18	30-Nov-18
12/1/2018	1-Dec-18	31-Dec-18

1.09 RESOURCE LOADING

A. Schedules shall include resource loading, also known as manpower loading, showing at a minimum, the composite crew, the classification (e.g., foreman, journeyman, etc.) of the individual craftsman comprising the crew, materials or equipment associated with each construction and commissioning activity shown on the schedule, plus any other information required by the City. Manpower shall be expressed as manhours.

B. Manpower resources shall be listed in the Resource Library of the Primavera Software and the Contractor shall assign manpower resource loading by trade for each work activity of the schedule.

C. The Contractor warrants that it will allocate resources and costs based upon Early Date curves and Late Date curves as well as all area between these two curves. The Contractor also warrants that the cost of performing the work, based upon both curves, is included within its bid price.

D. Work performed by the prime contractor and all subcontractors with a contract value greater than or equal to two (2) percent of the Prime Contract Value shall use the following resources:

1. Labor
2. Materials
3. Installed Major Equipment (refer to Section 1.02 Definitions)
4. Construction Equipment (refer to Section 1.02 Definitions)
5. Manhours

E. The Prime Contractor, and each of the subcontractors with a contract value greater than or equal to two (2) percent of the Prime Contract Value, shall create separate Labor, Material and Nonlabor (Equipment) resources for the Prime Contractor and each subcontractor. The resources shall be titled with the name and/or trade of the Prime Contractor and subcontractors and shall match the responsibility activity code assigned to each activity.

1.10 ACTIVITY CALENDARS

A. All calendars shall be given specific project names and defined clearly in Oracle Primavera P6. For example, "CHAC Standard 5-day with Holidays," "CHAC 6-day with Holidays," Calendars for different trades if used, should be specified. All calendars and activity coding within the schedule shall be "Global" rather than "Project" level and shall have a unique prefix of the City contract number.

PART 2 -- PRODUCTS

2.01 180-DAY SCHEDULE

A. Within sixty (60) calendar days after Notice to Proceed, the Contractor shall submit to the City the Preliminary Construction Schedule for all work in the first One Hundred Eighty (180) calendar days following NTP, as well as a general approach for the remainder of the Work. The detailed activities in the first 180 calendar days shall be cost and resource loaded. The remaining portion of the work may be summary activities assigned to the Contractor's planned baseline WBS structure and shall be cost-loaded to equal the full contract amount.

B. The City Representative, Contractor and its Senior Project Scheduler shall meet within fourteen calendar days (14) of the submittal of the One Hundred Eighty (180) calendar day Construction Schedule to review and make any necessary adjustments or revisions. The Contractor shall submit the revised One Hundred Eighty (180) calendar day Construction Schedule within fourteen (14) calendar days after receiving comments. Such re-submittal shall be reviewed by the City Representative within fourteen calendar

days (14) of receiving such re-submittal. The One Hundred Eighty (180) calendar day Construction Schedule, when revised, will represent the Contractor's planned means, methods, and sequences for performance of the Work required in the One Hundred Eighty (180) calendar days following NTP and is to be incorporated as the first One Hundred Eighty (180) days of the Contractor's Baseline Construction Schedule. The One Hundred Eighty (180) day schedule will include, but not be limited to work tasks that will or may be critical to performance within the Contract Time including, but not limited to, the following:

1. Planning.
2. Mobilization.
3. Key shop drawing and sample submittals.
4. Fabrication and delivery of key and long-lead procurement elements.
5. Contractor and Subcontractor Activities
6. Activities for the City, other contractors, utility providers, tenants, or other third parties.
7. Specific phasing as required by Contract.
8. Summary activities for the remaining duration of the contract.

C. The 180-day schedule shall be cost loaded as described in the Cost Loading Section of this specification.

D. The Contractor shall include a Schedule Narrative with the 180-Day Schedule submittal.

2.02 BASELINE CONSTRUCTION SCHEDULE AND SYNCHRO PROJECT

A. The Baseline Construction Schedule and Synchro Project shall be constructed to show sequence and duration of the activities the Contractor proposes to carry out the Work. The schedule shall be resource (manpower and equipment) and cost loaded and should indicate any restrictions on the availability of work areas. The Contractor shall utilize the Baseline Construction Schedule and Synchro Project in planning, scheduling, coordinating, and performing the work under the Contract (including all activities of Subcontractors, equipment vendors, and Suppliers). The Baseline Construction Schedule is the basis of the Schedule of Values and 4-week look-ahead schedules. The approved 180-Day Schedule shall be incorporated into the Baseline Schedule without any changes or progress. The Synchro Project submitted with this Baseline Schedule shall demonstrate the feasibility of the Contractor's Civil and Concrete plans. Among other elements, this Synchro Project shall demonstrate the ability to meet concrete pour, cure and strip requirements including restrictions on adjacent pours, the ability of the crane and concrete pumping equipment to reach all areas of the concrete work, and a logical

plan for completing and exiting the work. The Synchro Project shall demonstrate all work including Mechanical and Electrical work and Commissioning phases.

B. Within ninety (90) days after Notice to Proceed, the Contractor shall submit the Baseline Construction Schedule and Synchro Project to the City, including a written narrative to further explain the plan as set forth in its CPM logic network and schedule. The Contractor shall schedule a workshop prior to submittal of the Baseline Construction Schedule to present the schedule plan and Synchro Project. Within 5 workings days from Baseline Schedule submittal, the Contractor shall conduct a Baseline
Schedule and Synchro Project presentation describing the schedule in detail and the Contractor's means & methods for construction. The City shall accept or reject, in writing, the Contractor's Baseline Schedule and Synchro Project within thirty (30) Calendar Days after receipt of all required information. If rejected, the Contractor shall make necessary modifications to the Baseline Schedule and Synchro Project and resubmit to the City within fourteen (14) Calendar Days. The City shall accept or reject, in writing, the revised Baseline Construction Schedule within 14 calendar days of resubmittal. Once accepted, the Baseline Construction Schedule shall be used for monitoring and evaluating Contract performance, including, but not limited to progress, progress payments, changes, and delays.

C. No more than 20 percent of the activities may be critical or near critical. The Near Critical path shall be defined as within 15 working days of the critical path

D. The Baseline Construction Schedule shall demonstrate the final level of detail for each activity and shall contain the required relationships completely identified and the durations of each activity correctly depicted. The Baseline Construction Schedule shall be developed as follows:

1. The Baseline Construction Schedule and Synchro Project shall contain no contract changes or delays which may have been incurred during the interim schedule development period. These changes will be entered at the first update after the baseline schedule has been accepted and a change to the contract time or duration was made via an approved change order.

2. The Baseline Construction Schedule and Synchro Project submitted for review and acceptance by the City shall contain no status and the data date shall be the contract notice to proceed date.

3. The Baseline Construction Schedule shall clearly indicate the longest critical path of activities from notice to proceed to the contract completion date or contract milestone.

4. The Baseline Construction Schedule will contain all cost information assigned to each of the specific activities at the final level of detail. Every construction activity that contains labor, construction equipment or permanent equipment shall be cost and resource loaded to permit initial generation of a cash flow curve and resource curve.

E. The Comments made by the City on the Baseline Construction Schedule and Synchro Project, during review, will not relieve the Contractor from compliance with requirements of the Contract Documents. To the extent that there are any conflicts between the accepted schedule and the requirements of the Contract Documents, the Contract Documents shall govern. The Baseline Schedule shall show the sequence and interdependence of activities required for complete performance of the Work, beginning with the date of the Contractor's Notice to Proceed date and concluding with the Contract Completion.

F. Access Requests must be submitted prior to starting work in any area, and additional specific Access Requests must be submitted for each shutdown and cutover. Access Requests shall be submitted a minimum of 10 working days prior to the need date. Activities for the Access Request Submittal, City Review Period, and Access Request Approval shall be included in the baseline schedule.

G. The Baseline Construction Schedule and Synchro Project shall reflect the Contractor's true plans for progressing and performing the work. The Contractor shall be responsible for the means, methods, and duration and certifies that the schedule duration and contract period is achievable and Contractor's estimate/bid, and/or budgets, are based upon sequences shown in the schedule.

H. The Baseline Schedule and Synchro Project shall provide the Contractor and the City with a tool to monitor and follow the progress of all phases of the Work. The Baseline Schedule submitted to the City shall comply with all limits imposed by the Scope of Work, with all contractually specified intermediate milestone and completion dates, and with all constraints, restraints or sequences included in the Contract. The Contractor shall obtain subcontractor written concurrence with its Baseline Construction Schedule for all subcontracts with a contract value of 2 percent or greater of the prime contract value.

I. The Baseline Construction Schedule shall incorporate and include:

1. Appropriate administrative activities and contract specified review periods (including the City and third parties) for all and phases and components of work.

2. Required cost, resource and activity codes.

3. Project milestones dates and overall construction activities and project completion dates.

4. Project budget, schedule of values and the cost basis for progress payments.

5. Commissioning activities.

6. Punch list and final completion activities.

J. Failure to include in the schedule any element of Work required for performance of Contract shall not excuse Contractor from completing all Work required within applicable time constraints, notwithstanding the City's acceptance of Contractor's Baseline Construction Schedule.

K. Nothing in these requirements shall be deemed to negate or diminish Contractor's authority and responsibility to plan and schedule Work as required, subject to requirements of Contract Documents.

2.03 SCHEDULE NAMING REQUIREMENTS

A. To assist the City in consolidating the schedules from all the projects, a standard naming convention has been adopted. The Project name in P6 and the schedule file name should be the same as the following example:

CHACC Baseline01 Feb18 DD022818 - SD030518 R1

Where:

CHAC = the code for the project, in this case City Heights Annex C = the Construction phase
Baseline = the type of schedule submittal, which can also be Update, Recovery or Time Impact Analysis
01 = the submittal number or version
Feb 14 = the month and year of the schedule submittal
DD = the Data Date, in this example Feb 28, 2018
SD = the Submittal Date, in this example March 5, 2018
R1 = the revision number. Don't include R0. The Revision number doesn't apply to Baseline schedule submittals which are already numbered.

B. P6 has a Project ID code, which also needs to be named consistently as shown in the following example:

CHACC BAS01 FEB 18 R1

Where:

CHAC = the code for the project, in this case City Heights Annex C = the Construction phase
BAS = Baseline, which could be UPDATE, or REC or TIA.
01 = the submittal number or version
Feb 18 = the month and year of the schedule submittal
R1 = the revision number. Don't include R0. The Revision number doesn't apply to Baseline schedule submittals which are already numbered.

2.04 ACTIVITY CODES

A. The project schedule shall utilize the following activity codes and code values. Unless otherwise specified, a value for each code shall be assigned to each activity. In the event it is unclear which code value assignment should be made for an activity, the City will make the final decision. The Project ID (City Contract Number) shall be the prefix for all Activity Codes. All City-required Activity Codes should be global.

Activity Code	Description
(Project ID) Phase	Phase of Work, Examples include Submit, Review & Approve, Fabrication, Deliver, Mobilization, Construction, Commissioning etc.
(Project ID) Work Area	Assign Area code to activities based upon the work area in which the activity occurs. Define work areas based on resource constraints or space constraints that would preclude a resource, such as a particular trade or craft work crew, from working in more than one work area at a time due to restraints on resources of space. Examples of Area code include different areas within a floor of a building, different floors within a building, and different buildings within a complex of buildings. Activities shall not have more than one Area code. Not all activities are required to be work area coded.
(Project ID) Responsibility	Assign a Responsibility code to all activities indicating who is responsible for performing the activity. Examples include Electrical, Mechanical, Plumbing, Fire Protection, the City, General Contractor Etc. Responsibility code may be named to the company performing the work.
(Project ID) System	Assign System code to the group of activities that comprise a system that will be Commissioned during the commissioning phase. Examples of a System are: Chemical Treatment System, Sprinkler System, HRSG System, SCADA System, Switchgear etc.
(Project ID) CSI	All procurement and submittal activities shall be assigned a 6 digit CSI code identifying Submittals, Purchase Orders, Fabrication and Delivery activities. The City uses CSI's Master Format 50 numbering system.
(Project ID) Cost ID	All cost loaded activities shall be assigned a cost code for the purpose of categorizing costs into accounts.
(Project ID) Change Orders	The Contractor shall use a City-provided change order code structure containing the change order number and a description of the change order.

(Project ID) Construction Equipment	Assign an equipment code to construction activities utilizing major construction equipment (valued over $100,000). Specify type of equipment.
Activity Code	Description
SRCSD Project Code	The Contractor shall add the City's Project code to all activities. For CHAC, for example, use the Code Value of "CHAC" with a Description of "City Heights Annex (CHAC)"
(Project ID) 180-Day Schedule	Assign an activity code to all activities to be reviewed and approved as part of the 180-Day Schedule, which includes all activities within the 180-day window
(Project ID) Major Equipment	Assign an activity code to all activities related to procurement of Major Equipment.
SRCSD Access Requests	Assign an AR Code to all access request activities.
(Project ID) Milestones	The Contractor shall add a Milestones code to all milestones in the schedule.
(Project ID) Weather Sensitivity	Code (WS or NWS). Assign Category of Work Code to all Activities based upon Weather Sensitive Installation or NonWeather Sensitive Installation.

2.05 ACTIVITY ID

A. Every Activity ID in the baseline and updated schedules shall be preceded by a 3 or 4 letter prefix code followed by a dash. All suffix coding to the right of the dash is at the discretion of the Contractor. The prefix code for the CHAC project is 'CHACC-'.

B. If for any reason an Activity ID is deleted or removed from the schedule, it may not be reused for another activity. Similarly, once the baseline construction schedule is accepted, activity descriptions may not be changed without the permission of the City.

2.06 SCHEDULE SUBMITTALS

A. In accordance with the RFP, submit all required schedule submittals in the following format:

1. One (1) electronic copy of the Oracle Primavera P6 XER file along with relevant layout PDF files. Embed all filters in the layouts submitted and include all layouts used to generate PDF files.

2. One (1) electronic copy of the Oracle Primavera P6 XER file including all project layouts.

3. One (1) PDF copy of all reports, bar-charts, time-scaled diagrams, histograms, scurves and narrative.

4. One (1) electronic copy of the Synchro Project SP file.

5. One (1) electronic copy of the Oracle Primavera P6 XML file.

B. VARIANCE REPORT:

1. With each updated schedule submission, provide a computer-generated Log Report listing all changes made between the previous schedule and current updated schedule. Identify the name of the previous schedule and name of the current schedule being compared showing all changes to the Schedule. This report will as a minimum show changes for: Added & Deleted Activities, Original Durations, Calendars, Descriptions, Constraints (added, deleted or changed), Added/Deleted Resources, Resource Quantities, Costs, Added/Deleted Relationships, Changed Relationship Lags, a Critical Path Analysis, Float Analysis, Open Ended Activity Analysis. A narrative shall be included in the variance report stating the reason for the changes listed above.

C. CPM REPORTS: Concurrent with the CPM schedule, submit in PDF format the reports listed below. The specific format of the required reports will be discussed at the Preconstruction Scheduling Conference.

1. Critical Path Gantt Chart (as further described in Section 2.02.A)

2. Critical and Near Critical Path Gantt Chart as further described in Section 2.02.A

3. Activity ID Report: List of all activities sorted by activity number.

4. Activity Schedule Bar-chart: Sorted by phase, area, start and finish.

5. Logic Report: List of preceding and succeeding activities for all activities, sorted by phase, area, start and finish.

6. Total Float Report: List of all activities sorted by phase in descending order of total float, then descending finish.

7. Schedule of Values Report generated from the Oracle Primavera P6 schedule grouped by the Cost ID activity code and filtered by “budgeted total cost is not equal to $0.” Sort by Activity ID with the following columns:

   a. Activity ID

   b. Activity Name

   c. Remaining Duration

d. Start

e. Finish

f. Cost Percent Complete

g. Physical Percent Complete

h. Previous Physical Percent Complete

i. Budgeted Total Cost

j. Actual Total Cost

k. Actual This Period Total Cost

l. Previous Applications Total Cost

m. Remaining Total Cost

n. At Completion Total Cost

8. PROJECT CASH FLOW S-CURVE: Show the monthly budgeted costs, actual costs and estimate at completion. Include cash curves for early and late start and finish dates.

9. MANPOWER HISTOGRAMS: Showing project overall labor hours per month and trade labor hours per month (carpenters, masons, electricians, laborers, foremen, etc.)

10. MATERIAL AND EQUIPMENT STATUS REPORT: Showing the status of materials and equipment stored on-site and materials and equipment stored in bonded warehouse(s).

11. CONSTRUCTION EQUIPMENT HISTOGRAMS: Show project overall equipment count per month by major equipment category count per month (cranes, excavators, etc.).

2.07 BASELINE NARRATIVE

A. The Contractor shall provide a written narrative accompanying the electronic version of the Contractor's Baseline Schedule submission. This narrative shall explain the Contractor's approach for meeting all milestones and project completion dates. It shall also include a clear description of the critical path activities from beginning to end and describe anticipated crew sizes, production rate and anticipated problems of major activities along the critical path.

B. In the written narrative, the contractor shall include the basis and assumptions used to develop the Contractor's Baseline Schedule. The contractor shall include crew sizes, equipment requirements, and anticipated delivery dates; restraints; critical path activities; activities requiring overtime or additional shifts; activities that contain time contingencies for impacts to be expected from normal rainfall; holidays and other nonwork days; potential problem areas; permits; coordination required with the City and third party agencies; and long lead delivery items requiring more than 30 calendar days from order to delivery. The narrative shall also include a description of winterization activities necessary for work to continue through normally inclement weather periods.

2.08 N/A

2.09 SCHEDULE UPDATE PROCESS AND PAYMENTS

A. Contractor's monthly payment applications shall not be accepted and processed for payment by the City Representative without Baseline Schedule progress updates submitted in the time and manner required by this specification which accurately reflect the allowable costs due under the Contract Documents and are accepted by the City.

B. N/A

C. The Schedule Update Submittal shall include:

1. A detailed Gantt chart showing all activities organized by Work Breakdown Structure. The activity columns shall include Activity ID, Activity Name, Original Duration, Remaining Duration, Duration Percent Complete, Physical Percent Complete, Start, Finish, and Total Float. The critical path shall be clearly shown.

2. A Critical Path Gantt chart showing Longest Path grouped by WBS to level 1 only. The activity columns shall include Activity ID, Activity Name, Remaining Duration, Start, Finish, and Total Float. The critical path and relationship lines (logic) shall be clearly shown and based upon the critical and longest path.

3. A Critical and Near Critical Path Gantt using the "calculate multiple float paths" option in P6 with the "display multiple float paths ending with activity" set to each of the contract milestones. Set the number of float paths to thirty (30). Group the report by "Float Path" and filter for float value 15 days from the float value showing on each contract milestone. The activity columns on the tabular data portion of the schedule shall include Activity ID, Activity Name, Remaining Duration, Start, Finish, and Total Float. The critical path and relationship lines (logic) shall be clearly shown.

4. A Schedule Variance Report shall be submitted comparing the current schedule submittal with the previously accepted schedule. Display the baseline project bars and milestones in the Gantt Chart. Include the following categories:

a. Activity ID

b. Activity Name

c. Original Duration

d. BL Project Duration

e. Variance – BL Project Duration

f. Start

g. Finish

h. BL Project Start

i. BL Project Finish

j. Variance – BL Project Finish Date

5. Schedule of Values Report generated from the Oracle Primavera P6 schedule grouped by the Cost ID activity code and filtered by "budgeted total cost is not equal to $0." Sort by Activity ID with the following columns:

a. Activity ID

b. Activity Name

c. Remaining Duration

d. Start

e. Finish

f. Cost Percent Complete

g. Physical Percent Complete

h. Previous Physical Percent Complete

i. Budgeted Total Cost

j. Actual Total Cost

k. Actual This Period Total Cost

l. Previous Applications Total Cost

m. Remaining Total Cost

n. At Completion Total Cost

D. An updated Synchro Project linked to the current progress schedule submittal shall be submitted with the Progress Schedule update. Approved design and field changes reflected in the schedule activities shall be incorporated into the monthly Synchro Project update.

E. All changes to Schedule Updates must be accepted by the City. If the Contractor desires to make a change to the current accepted Progress Update Schedule, the Contractor shall request permission from the City in writing, stating the reasons for the change as well as the specifics, such as revisions to activities, logic, durations, calendars, etc. Pending changes will be discussed at the construction progress meetings where the City may authorize their inclusion in the schedule without any determination of merit or responsibility. Performing and/or fixing out-of-sequence logic does not constitute a change to the currently accepted Progress Update Schedule.

F. Out of sequence logic must be corrected before the Progress Update Schedule is submitted.

G. Pending Changes shall have a City assigned Potential Change (PC) number. The Contractor shall incorporate PC activities into the schedule as Level of Effort (LOE) activities, with a zero-dollar value cost, in the update period in which the Contractor knew, or should have known of the change. The LOE shall be linked to the impacted base contract schedule activities. The change activity shall not be cost loaded until an agreement is reached between the Contractor and City as to cost. Should the PC impact the critical path, the Contractor shall submit a Time Impact Analysis (TIA) per the TIA provisions of these specifications. Upon acceptance of a TIA by the City, the Contractor shall incorporate the detailed TIA schedule activities into the next Schedule Update retaining the original LOE activity. All Potential Change Activities shall be assigned a WBS and coding structure to distinguish said activities from base contract schedule activities. Upon PCs being incorporated into a Contract Change Order (CCO), the Contractor shall assign a WBS and Activity Code for each CCO, with its subset of PC numbers, with the sum cost loading of said PC activities equal to the value of the CCO. The sum of the base contract activities shall total the original contract value. The sum of the change activities shall total CCOs issued to date, plus remaining PCs pending CCO. In the case of deductive change, the base contract activity shall be broken into two activities with the same logic ties consisting of the original activity with the remaining base contract amount and second activity with the amount to be deducted, the sum of the two totaling the originally scheduled value. Add an offsetting deduct (negative cost) as a PC change activity. The deduct amount activity on the base contract section shall have the successor logic removed, with a “deduct” note in parenthesis added to the end of the activity description. The deduct activity shall remain open until the actual deduct activity

in the change section is statused as complete upon the CCO being issued. Upon the CCO being issued, both activities shall be statused with the CCO issue date.

H. Failure to include in the schedule any element of Work required for performance of Contract shall not excuse Contractor from completing all Work required within applicable time constraints, notwithstanding the City's acceptance of Contractor's Construction Schedule.

I. Contractor shall address City review comments and resubmit within 7 Calendar Days from receipt of review comments. Should the Contractor fail to timely incorporate the City schedule review comments prior to the due date for the next month's update, the Contractor shall proceed with the update and the outstanding schedule review comments from the prior month will be included in the current schedule update's review comments. The Contractor is responsible for including the City schedule review comments into all affected schedules.

2.10 NARRATIVE PROGRESS REPORTS

A. A Cost Activity Report shall be prepared and submitted with each progress payment. The cost information shall be updated by activity and summarized for each month. The sum of all monthly costs shall be equal to the contract amount plus approved change orders.

B. The Narrative Report shall be submitted with the monthly progress update and include:

1. The Contractor's transmittal letter.

2. Schedule report indicating each activity on the CPM Schedule that has been:

    a. Completed during this reporting period.

    b. In progress during this reporting period.

3. Scheduled for the next reporting period.

4. Analysis, by critical path. (Note: critical path is longest path as described above.)

    a. A listing of the current critical path.

    b. Progress made on critical path activities in current CPM schedule

    c. Explanations for any lack of Work on critical path activities planned to be performed during the last month.

    d. Impact on other activities, milestones, and completion dates.

5. Current and anticipated delays:

a. Cause of the delay.

b. Corrective action and schedule adjustments taken or to be taken to correct the delay.

c. Impact of the delay on other activities, milestones, and completion dates.

d. Recommendations for recovery of the delays.

6. Any change in construction sequence, logic changes, relationship changes, or duration changes and the rationale associated with each change for City review and acceptance.

7. Any corrective actions taken by the Contractor to address delays or potential delays

8. Value of materials and equipment properly stored at the site but not yet incorporated in the Work.

9. Identify interface items of work with another contract or with existing facilities or where third party action or coordination is required.

10. Pending issues and status of other items such as:

    a. Permits.

    b. Contract modifications.

    c. Time extension requests.

    d. Long-lead procurement items.

11. Contract complete date status.

12. Ahead of schedule and number of days.

13. Behind schedule and number of days.

14. Summary of project status including cumulative information to date, variance, and forecast at completion.

15. Other project or scheduling concerns.

2.11 WEEKLY 4-WEEK LOOK-AHEAD SCHEDULE

A. The weekly bar chart “Four Week Look-Ahead Schedule” submittal shall comply with the following requirements:

1. Be produced using the latest version of Oracle Primavera P6 software and generated from the latest Monthly Schedule Update.

2. Updated weekly with a Monday Data Date.

3. The filter for the bar chart will be all activities that have started but not finished, plus all activities with a start or finish within minus 1 week and plus 4 weeks. Total float and the critical path shall clearly be shown.

4. Submit prior to the weekly/bi-weekly construction progress meetings.

5. Identify any shutdowns/cutovers that may potentially impact stakeholders.

6. Be prepared to discuss the status of activities on the Four Week Look Ahead Schedule, including any key issues or delays at the weekly project meetings. The Contractor's Superintendent in charge of the work areas in the schedule shall review and sign off on the Four Week Look Ahead Schedule. The Superintendent shall be prepared to review the activities in the Four Week Look Ahead Schedule and discuss any foreseeable issues.

7. The Contractor may provide supplemental detail to elaborate on any schedule activity and must clearly represent this supplement detail as supplemental task information separate from the Oracle Primavera P6 generated schedule. The Contractor shall not in any way change the Activity ID and description in the schedule. For each activity on the Four Week Rolling Schedule, the Contractor shall list the corresponding schedule activity identification number from the current Monthly Progress Schedule Update.

2.12 RECOVERY SCHEDULE

A. When a periodic update indicates the project completion, or any intermediate contract milestone, is 1 to 15 days behind the current accepted schedule, the City reserves the right to request a recovery schedule. If the work falls more than 15 days behind the current accepted schedule, the Contractor is required to submit a Recovery Schedule taking steps necessary to improve progress at no additional cost to the City. Recovery schedules may be submitted independently or included in the next Monthly Progress Update. Indicate changes to working hours per shift, labor per shift, shifts per working day, working days per week, or amount of construction equipment, or any combination of foregoing, sufficiently to substantially eliminate lag in scheduled progress. If the Contractor chooses to include the recovery schedule with the next Monthly Progress Update, the City Representative may reject the Monthly Progress Update or require revisions to be made to the recovery schedule before the Monthly Progress Schedule is accepted. Recovery Schedules shall be prepared by the Contractor regardless of the underlying cause for the delay and responsibility for the time.

2.13 TIME IMPACT ANALYSIS (TIA)

A. When the Contractor asserts it has been or will be delayed, and as a result is requesting a time extension, the Contractor shall notify the City Representative of a potential delay and prepare and submit a TIA within fourteen (14) calendar days after the impact is known or should have been known.

B. The TIA shall be submitted separately and based upon the current accepted schedule with a data date closest to and prior to the date when the Contractor knew, or should have known, of the impact. The current accepted schedule can be the Initial 180 Day Schedule, Baseline Schedule, or Monthly Schedule Update.

C. If the Contractor is submitting time related costs of any kind and/or is requesting time due to a schedule delay, the submittal of a TIA is required.

D. The Contractor shall submit to the City a written TIA illustrating the influence of each change or delay on any specified intermediate milestone date and the current projected completion date. Each TIA shall include a CPM schedule network (fragnet) indicating all necessary added activities, logic, duration and demonstrating how the Contractor proposes to incorporate the change or delay into the Schedule and any additional supporting evidence that the City deems necessary.

E. The TIA submittal shall include a PDF fragnet comparing the current accepted schedule against the Contractor's claimed delay, showing the impact on the critical path. The fragnet must show all impacts leading up and including the contract milestones.

F. The TIA shall include a narrative addressing entitlement including a description of the scope of the change as well as addressing compliance with all contract requirements for requesting a time extension. The schedule narrative at a minimum shall address the chronology of events (impact activities), compliance with notice requirements, schedule update used as the basis of analysis (or baseline schedule if applicable), critical path, identification of CPM schedule activities impacted, logic ties between impact activities and CPM schedule activities, fragnet, concurrency, and compensability if applicable.

G. With each submittal, the Contractor shall submit a certified confidential accounting of all jobsite indirect costs.

H. The Contractor shall submit one (1) electronic copy of the Oracle Primavera P6 schedule files in XER or XML format (TBD), PDF copies of the fragnets, and the narrative. Each TIA should be identified with a discrete ID number and description.

I. Should the Contractor fail to request time and submit a contract compliant TIA per these specifications, the Contractor will have irrevocably waived its contract right to a time extension and time-related costs and will be responsible for all costs associated with mitigating said delay to complete the work within the contract time.

J. It is expressly agreed and understood that the Contractor shall not be entitled to any time or compensation for potential delays, or delays, which:

1. Can be avoided by re-sequencing work activities;

2. Applying additional resources;

3. Do not delay the project completion date or a project milestone; or

4. Result from any method used to sequester float.

K. Pacing is defined as an intentional slowing of work activities during a delay, or alleged delay, to project completion. Absent contemporaneous notice of intent to pace, including the contractor's rational to pace and the City's concurrence, pacing of work activities will be construed as a concurrent delay for the purposes of assessing time extensions and delay costs."

L. The Contractor shall incorporate City review comments and resubmit the TIA within 7 calendar days of receiving them.

M. Upon acceptance of the TIA by the City Representative, the Contractor shall incorporate the TIA fragnet into the next monthly progress schedule update.

PART 3 -- WEATHER

3.01 ANTICIPATED WEATHER DAYS

A. TIME ALLOWANCE FOR INCLEMENT WEATHER:

1. Normal weather conditions shall be considered and included in the planning and scheduling of all weather-sensitive schedule activities. Schedule activity duration(s) shall be formulated with allowance for normal weather conditions. Any activity which could be impacted by normally anticipated inclement weather (precipitation, high or low temperature, wind, etc.), or the effects thereof shall include an adjustment to include the anticipated weather impact from normal weather conditions. "Inclement weather" is a lost workday, caused by inclement weather conditions, and is defined in the Whitebook.

3.02 N/A

3.03 WEATHER CALENDAR AND ACCOUNTING OF DAYS

A. The City granted non-working days affecting the critical path attributable to weather shall be accounted for in the Weekly Statement of Contract Time, as prepared by the City. Granted weather days shall be added to the schedule monthly as a one work day schedule activity inserted behind the data date with an actual date equal to the non-working day

as reflected in the Weekly Statement of Contract Time. Should the Contractor meet all contract requirements for demonstrating unavoidable delay, the Contractor shall be granted a time extension for weather impact days, for activities on the critical path.

3.04 COMPLIANCE AND FAILURE TO SUBMIT TIMELY SCHEDULES

A. The City places a high value on the importance and use of project scheduling information as a management tool in achieving the completion of Work as planned. The Progress Update Schedules and narratives shall be accurate, reflect actual events on the project, and meet all requirements of these specifications.

PART 4 -- PROJECT RECORD SCHEDULE

4.01 FINAL PROGRESS SCHEDULE

A. The last monthly update of the project schedule shall be the project record (as-built) schedule. The project record schedule shall accurately show the completion of all work required by the contract and shall have a data date equivalent to the day after the actual date of the Contract Completion milestone. All project schedule activities shall be statused at one hundred percent (100%) complete and have actual start and actual finish dates. The project budgeted cost reflected in the project record schedule shall be the contract price, inclusive of all adjustments due to executed change orders. The project record schedule submittal shall meet all monthly update requirements and include an actual cost statement. The City's acceptance of the project record schedule shall be a condition precedent to acceptance of the contract by the City and to the release of final payment and bonds by the City.

B. This schedule submission shall be accompanied by a certification, signed by an officer of the company and the Contractor's Project Manager and Project Scheduler, stating "To the best of our knowledge, the enclosed final update of the Construction Progress Schedule accurately reflects the actual start and completion dates and logical relationships of all activities contained herein and represents an accurate depiction of the way in which the project was constructed."

END OF SECTION

ATTACHMENT F

IN-USE OFF-ROAD DIESEL FUELED FLEET REGULATION (OFF-ROAD REGULATION) COMPLIANCE (CARB)

ATTACHMENT F

IN-USE OFF-ROAD DIESEL FUELED FLEET REGULATION (OFF-ROAD REGULATION) COMPLIANCE

The California Air Resources Board (CARB) approved amendments to the Off-Road Regulations which can be found at 13 California Code of Regulations (CCR) sections 2449, 2449.1, and 2449.2. These amendments apply to any person, business, or government agency who owns or operates within California any vehicles with a diesel-fueled or alternative diesel fueled off-road compression-ignition engine with maximum power (max hp) of 25 horsepower (hp) or greater provided that the vehicle cannot be registered and driven safely on-road or was not designed to be driven on-road, even if it has been modified so that it can be driven safely on-road. See 13 CCR section 2449 (b) for the full list of vehicles covered by these Off-Road Regulations.

Beginning **January 1, 2024**, Contractor shall be subject to the requirements below. No Contractor or public works awarding body, as applicable, shall enter into a contract with a fleet for which it does not have a valid Certificate of Reported Compliance for the fleet and its listed subcontractors, if applicable, prior to entering into a new or renewed contract with that fleet. Contractor shall comply with the following requirements:

(1) For a project involving the use of vehicles subject to the Off-Road Regulation, Contractor must obtain copies of the valid Certificates of Reported Compliance, as described in 13 CCR section 2449(n), for the fleet selected for this Contract and their listed subcontractors, if applicable, prior to entering into a new or renewed contract with that fleet and provide copies of such Certificates of Reported Compliance to the City within 10 days of issuance of the Notice of Intent to Award letter. Contractor shall enter into a contract with a fleet for which it does not have a valid Certificates of Reported Compliance for the fleet and its listed subcontractors. City shall not enter into a contract with Contractor until all current Certificates of Reported Compliance for the fleet to be used on this Project are provided by Contractor.

(2) The Certificates of Reported Compliance received by Contractor for this Project must be retained by Contractor for three years after the Project's completion. Upon request by CARB, these records must be provided to CARB within five business days of the request. Additionally, upon request by City, these records must be produced to City within five business days of the request.

(3) For emergency contracts that meet the definition of “emergency operations” as defined in 13 CCR section 2449(c)(18), they are exempt from the requirements in 13 CCR section 2449(i)(1)-(3) and sections (1) and (2) above, but must still retain records verifying vehicles subject to the regulation that are operating on the “emergency operations” project are actually being operated on the project for “emergency operations” only. These records, as described in more detail below in section (B) must be retained by Contractor for three years after completion of the Project and upon request from either CARB or the City, Contractor shall provide those records to the requesting party within five business days. All other emergency contracts that do not meet the definition of “emergency operations” must comply with the requirements above and 13 CCR section 2449(i)(1) – (3).

A. "Emergency Operations" is defined as:

1. Any activity for a project conducted during emergency, life threatening situations, where a sudden, unexpected occurrence that poses a clear and imminent danger, requiring immediate action to prevent or mitigate the loss or impairment of life, health, property, or an essential public service; or in conjunction with any officially declared disaster or state of emergency, as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized health officer;

2. Any activity for a project conducted by essential service utilities to provide electricity, natural gas, telephone, water, or sewer during periods of service outages and emergency; or

3. Operations including_repairing or preventing damage to roads, buildings, terrain, and infrastructure as a result of an earthquake, flood, storm, fire, other infrequent act of nature, or terrorism. Routine maintenance or construction to prevent public health risks does not constitute emergency operations under the Off-Road Regulations.

B. The records retained by Contractor for "emergency operations" projects must include:

1. A description of the emergency;

2. The address or a description of the specific location of the emergency;

3. The dates on which the emergency operations were performed; and

4. An attestation by the fleet that the vehicles are operated on the Project for "emergency operations" only.

Beginning **January 1, 2024,** Contractor is also subject to the requirements described in 13 CCR section 2449(j).

(1) Between March 1 and June 1 of each year, Contractor must collect new valid Certificates of Reported Compliance for the current compliance year, as defined in 13 CCR section 2449(n), from all fleets that have an ongoing contract with Contractor as of March 1 of that year. Contractors shall not write contracts to evade this requirement.

(2) Contractor shall only allow fleets with valid Certificates of Reported Compliance on the Contractor's job sites.

(3) If Contractor discovers that any fleet intending to operate vehicles subject to this regulation for Contractor does not have a valid Certificate of Reported Compliance, as defined in 13 CCR section 2449(n), or if Contractor observes any noncompliant vehicles subject to the regulation on Contractor's job site, then Contractor must report the that to CARB at https://calepacomplaints.secure.force.com/complaints/Complaint, or email **dieselcomplaints@arb.ca.gov**, for each fleet without a valid Certificate of Reported Compliance or each noncompliant vehicle, as applicable, within five business days of such discovery. See 13 CCR 2449(n) for the information required to be disclosed to CARB when reporting non-compliance.

(4) Upon request by CARB, Contractor must immediately disclose to CARB the name and contact information of each responsible party for all vehicles subject to this regulation operating at the job site or for Contractor.

(5) Contractor shall prominently display signage for any project where vehicles subject to this Off-Road Regulation will operate for 8 calendar days or more. The signage must be posted by the eighth calendar day from which the first vehicle operates. The signage will be in lettering larger than size 14-point type and displayed in a conspicuous place where notices to employees are customarily posted at the job site or where there is employee foot traffic. If one of the above locations is also viewable by the public, it should be posted at that location. An exemption to this posting requirement is permitted if the operational time of a project is 7 calendar days or less. The signage must include the following language, verbatim:

(A) Who does the In-Use Off-Road Regulation Apply to?

The In-Use Off-Road Diesel-Fueled Fleets Regulation (Off-Road Regulation) applies to all self-propelled off-road diesel vehicles 25 horsepower or greater and most two-engine vehicles (except on-road two-engine sweepers) owned or operated in California. This includes vehicles that are rented or leased (rental or leased fleets)."

(B) "In-Use Off-Road Regulation Requirements

Idling Limit: Vehicles cannot idle longer than five minutes. There are exceptions for vehicles that need to idle to perform work.

Labeling: Vehicles must be labeled with a CARB assigned equipment identification number (EIN). The EIN shall be white on a red background, unless the vehicle is part of a captive attainment area fleet, in which case the EIN shall be white on a green background.

The EIN shall be located in clear view on both sides of the outside of the vehicle."

ATTACHMENT G

EVALUATION AND SELECTION CRITERIA

ATTACHMENT G

EVALUATION AND SELECTION CRITERIA

Proposals will be ranked according to the criteria described below:

1. Proposer Exceptions to this RFP – Pass / Fail

1.1. If the Proposer takes exception to any portion of the contract terms, the Proposer must identify and explain to the City in writing the basis for the exception. The Proposer must submit any claimed exception a minimum of 10 calendar days prior to the due date for submission of Proposals. Exceptions taken after the submission period for this RFP may be cause for rejection of the Proposal as being **non-responsive**.

2. Summary of Proposal (5 Points Max)

2.1. Each Proposer must submit a one to two page summary of its Proposal.

3. Project Team (10 Points Max)

3.1. Describe the proposed management plan for this Project. Describe the qualifications of key proposed construction and technical personnel, and subcontractors, from applicable fields including the following:

3.1.1. Civil

3.1.2. Heavy Civil

3.1.3. Architectural

3.1.4. Structural

3.1.5. Mechanical

3.1.6. Electrical

3.1.7. Vibration Engineer

3.1.8. Environmental

3.1.9. Geotechnical

3.1.10. Lab Planner

3.1.11. Certified Access Specialist, CASP

3.1.12. Chemical Engineer

3.1.13. Industrial Hygienist

3.1.14. Commissioning Agent (CxA)

3.2. Project Manager – Design-Builder shall employ a minimum of (1) fully experienced and qualified project manager. This person shall be Responsible for the budget, schedule and quality of the project. Duties also include responsibility for all necessary paperwork such as obtaining permits; coordination of request for information (RFI) and submittals; schedule generation and updates; resource management to maintain the project schedule; and overall project management. This person shall have previously functioned in a similar role, on a minimum of three (3) comparable, projects of similar size.

3.3. Project Superintendent - Design-Builder shall employ a minimum of (1) fully experienced and qualified Project Superintendent. This person shall be responsible for all construction efforts. Duties include coordination with stake holders; quality control; compliance with all required permits; coordination with environmental monitoring staff; and, field construction in coordination with Project Manager. This person shall have previously functioned in a similar role, on a minimum of three (3) comparable, projects of similar size.

3.4. Assistant Project Manager/ Assistant Superintendent – These persons shall assist the Project Manager and Project Superintendent as necessary with all relevant tasks. These persons shall have previously functioned in a similar role, on a minimum of two (2) comparable, projects of similar size.

3.5. Provide an Organizational Chart of all the key members of the project team from the Project Manager to all subcontractors/suppliers on your team.

3.6. Project Partnering and Coordination: Describe past experience with formal partnering process, including partnering facilitator and qualifications (IPI certification). List any awards won for partnering or teamwork on past projects. Describe process and intent to solicit City input and approval for compliance with RFP requirements.

4. Technical Approach and Design Concept (30 Points Max)

4.1. Describe in detail the proposed design concept for this Project, include detailed descriptions, conceptual design drawings, schematics, a list of major equipment, and any other information deemed necessary to allow the City to make an informed evaluation of the Proposer's technical approach. The completeness and technical merit of the design concept will be evaluated.

The following elements shall be included in this Technical Proposal:

4.1.1 Proposed Design – describe the proposed design concept outlined in Attachment A of the RFP. Demonstrate how the Design-Builder will meet the intent of the bridging documents within the limits of the project budget, schedule, and scope.

4.1.2. Aesthetics and Functionality– Describe the building design, architecture, aesthetics, and functionality in accordance with requirements set in the RFP.

4.1.3. Incorporation of Bid Alternates – Describe how your team will incorporate the bid alternates. Provide any renderings/or schematics necessary.

4.1.4. Describe any major changes to the bridging document conceptual plans that the Design-Builder believes will enhance the overall programming and functionality of the Lab, and/or will reduce overall cost.

4.1.5. Describe Design-Builder's proposed plan for new HVAC and electrical equipment.

4.1.6. Describe the Design-Builder's plan to meet the requirements for LEED Certification, and the ZEMBOP requirements.

4.1.7. Design-Builder shall provide the City with a 3D model of its proposed design. The REVIT files shall be released to proposers upon signing the City's waiver.

5. Construction Plan (30 Points Max)

5.1. Describe the proposed construction plan for this Project, including the following, at a minimum:

5.1.1. Construction approach and methods: Explain the Design-Builder's approach to the sequencing of the project as a whole. Include information on the overall approach and methods to the construction.

5.1.2. Plan for operation of facility during construction: Describe how Design Builder will allow for client operations to continue throughout construction, including temporary housing of staff, and/or staff and equipment relocation.

5.1.3. Plan for phasing of construction activities

5.1.4. General plan for functional testing and start-up.

5.1.5. Proposed safety program

5.1.6. Proposed emergency response plan

5.1.7. Proposed construction schedule: Describe the Design-Builder's resource management of the work inclusive of staffing and work hours.

5.1.8. Provide a schedule that shows the tasks, durations, resources (number of crews), and crew work hours projected to complete the work. Identify the critical path. Include in the schedule phasing plan of shutdowns activities.

5.1.9. Provide plan(s) of recovery if schedule/time loss during design and construction phase. In this module, explain all measures intended to be employed to complete the project on time.

5.1.10. Accelerated schedule – Creative means and methods and/or construction sequencing that demonstrate possible completion ahead of contractual timeline.

5.1.11. Environmental Efforts - Describe the Design-Builders coordination efforts respective to Environmental monitoring during construction, Dust Control, avoiding cross-contamination, and Storm Water Pollution Prevention Plan implementation.

5.1.12. General plan for functional testing and start-up – Design-Builder to describe plan for Mechanical, Electrical, Plumbing (MEP) equipment and systems functional testing, start-up, adjustment and balancing, and maintenance staff training as well as commissioning of major systems.

5.1.13. Plan for commissioning

6. Equal Employment and Contracting Opportunity (25 Points Max)

6.1. Failure to submit the required EOCP information will result in Proposal being determined as **non-responsive**.

6.2. Subcontractor Documentation

6.2.1. The points will be awarded according to the chart below, based upon actual subcontract award amounts, as set forth in the price proposals.

OUTCOME		**MAXIMUM POSSIBLE POINTS**
1	5% - 9% participation SLBE, ELBE or DVBE	5
2	10%-14%participation SLBE, ELBE or DVBE	10
3	15%-19% participation SLBE, ELBE or DVBE	15
4	20%-24% participation SLBE, ELBE or DVBE	20
5	25% participation SLBE, ELBE or DVBE	25
In no case the points shall exceed 25.		

7. Presentation and Interview (Pass/Fail)

7.1 The City reserves the right to request presentations and interviews as necessary. Subsequent to receipt of the proposals, the City will provide written notice of the request for an interview to any of the Design-Builders as needed. The purpose of the presentation is to allow the Panel to ask questions and to seek clarifications about the

proposal. It also provides an opportunity for the Design-Builders to elaborate on and highlight significant parts of their proposals. If the City decides to request presentations, a written direction will be provided to the Design-Builder.

8. Reference Checks (Pass/Fail)

8.1 Minimum of three (3) references required with contact name, title, organization, phone number, and email. Provide a brief description of each reference and their relevance to the project.

TOTAL POINTS: 100

9. Review of Technical Proposal

9.1. Following the receipt of the Technical Proposal, the City anticipates allotting 2-3 weeks for review of the Technical Proposals.

9.2. Subsequent to receipt, the City will provide written notice of the schedule for technical presentations. The purpose of the presentations is to allow the Panel to ask questions and to seek clarifications about the Proposal. It also provides an opportunity for the Design-Builders to elaborate on and highlight significant parts of their Proposals. This schedule will be on a random draw basis and has no bearing on the potential for award or other significance.

9.2.1. Interviews will consist of sixty (60) minute presentations by each Design-Builder; and (30) minutes for questions and answers. The presentations shall be given by the Design-Builders' key personnel who will be continuously involved on site or in San Diego in proportion to their level of involvement.

9.2.2. The Design-Builders are responsible for bringing any and all equipment and materials that are required for the presentation. The City will not provide any equipment or materials for presentations.

9.3. The City reserves the right to schedule interviews with any Design-Builder to ask questions about or to seek clarifications on their proposal.

10. Final Selection Based on Weighted Criteria

10.1. Based on the Design-Builders' Proposals and any follow-up presentations, and using the Project's Evaluation Criteria, the Panel will continue to rank the Design-Builder's Proposals by determining an overall score which shall be calculated as follows:

10.2. A maximum of 40 points will be assigned for the Contract Price as proposed. The lowest total Contract Price of all the Proposals that meet the requirements of this RFP will receive the maximum assigned points to this category. The other Price Proposals

will be scored based on how much higher their total Contract Prices compare to the lowest:

$$\left(1-\frac{\text{(Contract Price-Lowest Contract Price)}}{\text{(Lowest Contract Price)}}\right)\times\text{Max Pts} = \text{Pts Rcvd}$$

10.3. A maximum of 60 points will be assigned for the qualitative criteria described in the RFP. All Proposals shall receive scores based on 60 times the average of the composite ratings provided by the Panel.

10.4. The Selected Design-Builder will be the team with the highest total score earned. Design-Builders will be notified in writing of the City's final decision.

10.5. For example, if the lowest total Contract Price of all proposals is $100, that Proposal would receive the maximum allowable points for the price category. If the total Contract Price of another proposal is $105 and the maximum allowable points is 80 points, then that Proposal would receive (1– ((105–100)/100) x 80 = 76 points, or 95% of the maximum points. The lowest score a Proposal can receive for this category is zero points - the score cannot be a negative number. The below example using the same 80/20 split illustrates the calculation outcomes with Firm A winning the competition even though Firm A did not have the highest rated proposal or the lowest price:

Firm	Avg. Composite Rating	Qualitative Score (20Max)	Price Proposal	Price Score (80 Max)	Total Score (100 Max)
A	85.00	17.00	$105	76.00	93.00
B	**88.00**	**17.60**	**$130**	**56.00**	**73.60**
C	50.00	10.00	$100	80.00	90.00
Note: All figures will be rounded off to two decimal places.					

ATTACHMENT H

PRICE FORMS

PRICE PROPOSAL FORMS

The Design-Builder agrees to the design and construction of **ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER**, for the City of San Diego, in accordance with these contract documents for the lump sum price listed below. The Design-Builder guarantees the proposed prices for a period of 120 Days from the date Proposals are due. The duration of the price guarantee may be extended as required by mutual consent.

Design-Builder must complete and submit the Excel Price Proposal Sheet as a General Attachment.

The Price Proposal Forms, including the following forms must be submitted as the Cost File in PlanetBids.

1. TOTAL PRICE FOR DESIGN-BUILD PROPOSAL
2. DESIGN-BUILD LIST OF SUBCONTRACTORS
3. SUBCONTRACTORS FOR ALTERNATES
4. DESIGN-BUILD NAMED EQUIPMENT/MATERIAL SUPPLIER LIST

TOTAL PRICE FOR DESIGN-BUILD PROPOSAL

Total Price For Design-Build Proposal, (Excel Price Proposal Sheet, Items 1 through 37, inclusive) plus Additive Alternate A, Item 1, plus Additive Alternate B, Item 1 (Excel Price Proposal Sheet Alternates, inclusive) amount written in words:

One hundred fifty-one million nine hundred sixty-six thousand fifteen dollars.

Design-Builder: Hensel Phelps Construction Co.

Title: ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

Signature: 

The names of all persons interested in the foregoing proposal as principals are as follows:

Damian Buessing, Regional Vice President

IMPORTANT NOTICE: If Design-Builder or other interested person is a corporation, state secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Design-Builder or other interested person is an individual, state first and last names in full.

Price Proposal Sheet

The Design-Builder agrees to the design and construction of **Alvarado Laboratory Improvements and Alvarado Laboratory Improvements Trailer**, for the City of San Diego, in accordance with these contract documents for the lump sum price listed below. The Design-Builder guarantees the proposed prices for a period of 120 Days from the date Proposals are due. The duration of the price guarantee may be extended as required by mutual consent.

Item No.	Base Proposal for	NAICS CODE	Description	Quantity	D*	Unit	Unit Price	Extension
1	Main Bid (L-22000.1)	524126	Bonds (Payment and Performance)	1		LS	989100	$989,100.00
2	Main Bid (L-22000.1)	541330	Engineering and Design Services	1	D	LS	13701887	$13,701,887.00
3	Main Bid (L-22000.1)	238220	Construction of Alvarado Laboratory Improvements	1		LS	111389957	$111,389,957.00
4	Main Bid (L-22000.1)	236220	Building Permit (EOC Type I)	1		AL	150000	$150,000.00
5	Main Bid (L-22000.1)	EOC2	City Contingency (EOC Type II)	1		AL	8000000	$8,000,000.00
6	Main Bid (L-22000.1)	541330	SWPPP Development	1	D	LS	20647	$20,647.00
7	Main Bid (L-22000.1)	237310	SWPPP Implementation	1		LS	108075	$108,075.00
8	Main Bid (L-22000.1)	541330	SWPPP Permit Fee (EOC Type I)	1		AL	25000	$25,000.00
9	Main Bid (L-22000.1)	541330	Partnering (EOC Type I)	1		AL	75000	$75,000.00
10	Main Bid (L-22000.1)	541330	Inspection Paid For By the Contractor (EOC Type I)	1		LS	110842	$110,842.00
11	Main Bid (L-22000.1)	541370	Survey Services	1		LS	34774	$34,774.00
12	Main Bid (L-22000.1)	238210	Utilities Fees (EOC Type I)	1		AL	100000	$100,000.00
13	Main Bid (L-22000.1)	Other	Furniture, Fixtures & Equipment (FFE) (EOC Type I)	1		AL	1500000	$1,500,000.00
14	Main Bid (L-22000.1)	541330	Biological Monitoring and Reporting	1		LS	10867	$10,867.00
15	Main Bid (L-22000.1)	238390	New Lab Equipment (EOC Type I)	1		AL	1000000	$1,000,000.00
16	Main Bid (L-22000.1)	541330	Special Material Testing: Structural Welding & Welding Size Type T3 Testing	1		LS	77154	$77,154.00
17	Main Bid (L-22000.1)	541330	Special Material Testing: Structural Steel	1		LS	41294	$41,294.00

18	Main Bid (L-22000.1)	541330	Special Material Testing: Concrete	1		LS	216250	$216,250.00
19	Main Bid (L-22000.1)	541330	Special Inspections and Tests: Seismic Resistance	1		LS	55421	$55,421.00
20	Main Bid (L-22000.1)	541330	Special Inspections: Cold-Formed Steel Light-Frame	1		LS	5433	$5,433.00
21	Main Bid (L-22000.1)	541330	Special Inspections and Tests: Cast-in-Place Deep Foundation Elements	1		LS	0	$0.00
22	Main Bid (L-22000.1)	541330	Special Material Testing: Soils	1		LS	14127	$14,127.00
23	Main Bid (L-22000.1)	541330	Condition Assessment of the 72" Pipeline (EOC Type I)	1		AL	75000	$75,000.00
24	Main Bid (L-22000.1)	238390	Existing Lab Equipment Transport and Calibration	1		LS	269497	$269,497.00
25	Main Bid (L-22000.1)	541330	Traffic Control and Engineered Traffic Control Plans	1		LS	0	$0.00
26	Main Bid (L-22000.3)	524126	Bonds (Payment and Performance)	1		LS	52500	$52,500.00
27	Main Bid (L-22000.3)	238220	Construction of Alvarado Laboratory Improvements Trailer	1		LS	10039300	$10,039,300.00
28	Main Bid (L-22000.3)	236220	Building Permit (EOC Type I)	1		AL	20000	$20,000.00
29	Main Bid (L-22000.3)	EOC2	City Contingency (EOC Type II)	1		AL	100000	$100,000.00
30	Main Bid (L-22000.3)	541330	WPCP Development	1	D	LS	20647	$20,647.00
31	Main Bid (L-22000.3)	237310	WPCP Implementation	1		LS	64608	$64,608.00
32	Main Bid (L-22000.3)	541330	Inspection Paid For By the Contractor (EOC Type I)	1		LS	30427	$30,427.00
33	Main Bid (L-22000.3)	238210	Utilities Fees (EOC Type 1)	1		AL	50000	$50,000.00
34	Main Bid (L-22000.3)	Other	Furniture, Fixtures & Equipment (FFE) (EOC Type I)	1		AL	145000	$145,000.00
35	Main Bid (L-22000.3)	541330	Biological Monitoring and Reporting	1		LS	10867	$10,867.00
36	Main Bid (L-22000.3)	541330	Traffic Control and Engineered Traffic Control Plans	1		LS	0	$0.00
37	Main Bid (L-22000.3)	541330	Geotechnical Survey	1		LS	41077	$41,077.00

* Design Element (For City Use)

TOTAL: $148,544,751.00

AA05: Design-Build List of Subcontractors

DESIGN-BUILD LIST OF SUBCONTRACTORS
**** TO BE INCLUDED WITH THE PRICE PROPOSAL ONLY****

In accordance with the requirements of the "Subletting and Subcontracting Fair Practices Act", Section 4100, of the Public Contract Code (PCC), The Design-Builder is to list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of0.5% of the Design-Builder's total Bid. The Design-Builder is to list below the portion of the work which will be done by each Subcontractor. The Design-Builder is to list only one Subcontractor for each portion of the Work. The **DOLLAR VALUE** of the total Bid to be performed by the Subcontractor is to be stated for all Subcontractors listed. Failure to comply with the listing of the Subcontractors as specified may result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder is to list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, WoSB, SDB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	DIR REGISTRATION NUMBER	SUBCONTRACTOR LICENSE NUMBER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED ②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: G & C Equipment Corporation Address: 879 W. 190th St.,Ste. 500 City: Gardena State: CA Zip: 90248 N/A Phone: 310.515.6715 Email: gene@gandccorp.com	Constructor	1000012404	980369	Temporary Trailers	$1,633,800	SDVOB SBE DVBE CBE HUBZone LSE MBE	California	N/A
Name: Address: City: State: Zip: Phone: Email:								

① As appropriate, Design-Builder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Design-Builder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

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Name: Frank and Son Paving, Inc. Address: 1019 3rd Ave. City: Chula Vista State: CA Zip: 91911 Phone: 619.422.8322 Email: franknsonpaving@yahoo.com	Constructor	1000009502	612545	AC Paving	$852,000	SLBE ELBE SB	City of San Diego California	N/A
Name: Address: City: State: Zip: Phone: Email:								

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Name: PC Iron Inc dba Pacific Coast Iron Address: 9038 Jamacha Rd. City: Spring Valley State: CA Zip: 91977 Phone: 619.461.9800 Email: mike@pciron.net	Constructor	1000004684	447712	Structural Steel Ornamental Metals	$5,763,000	DVBE LSBE SDVOSB	CA DGS 1012406 City of San Diego FED SBA	N/A
Name: Address: City: State: Zip: Phone: Email:								

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Name: San Diego Sheet Metal, Inc. Address: 455 54th St., Suite 102 City: San Diego State: CA Zip: 92114 Phone: 619.559.0023 Email: boris@sandiegosheetmetal.net	Constructor	1000063457	1047664	Sheet Metal & Flashing	$1,441,000	SLBE SB-PW	City of San Diego CA Dept. of General Service	N/A
Name: Address: City: State: Zip: Phone: Email:								

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Name: Perez Construction Group, Inc. Address: 355 S Grand Ave., Ste. 2450 City: Los Angeles State: CA Zip: 90071 Phone: 213.289.9100 Email: jperez@perezcg.com	Constructor	1000004414	985998	Drywall Plaster Insulation Air Barrier Fireproofing	$3,300,000	DBE DVBE SLBE MBE SBE	CPUC DGS SCMSDC	N/A
Name: Address: City: State: Zip: Phone: Email:								

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Name: Soundproof San Diego Inc. Address: 10977 Mission Rd. City: San Diego State: CA Zip: 92108 Phone: 858.876.4874 Email: info@soundproofsandiego.com	Constructor	1000043556	1028422	Acoustic Ceiling Tile & Sound Panels	$1,304,000	SLBE ELBE	CA Dept General Services	N/A
Name: Address: City: State: Zip: Phone: Email:								

① As appropriate, Design-Builder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Design-Builder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

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Form AA05 – Design-Build List of Subcontractors

AA05: Design-Build List of Subcontractors

DESIGN-BUILD LIST OF SUBCONTRACTORS
**** TO BE INCLUDED WITH THE PRICE PROPOSAL ONLY****

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Name: ISEC, Incorporated Address: 10105 Carroll Canyon Rd. City: San Diego State: CA Zip: 92131 Phone: 858.279.9085 Email: sdrmktg@isecinc.com	Constructor	1000004089	333609	Lab Equipment	$4,618,000	N/A	N/A	N/A
Name: G & C Equipment Corporation Address: 879 W. 190th St.,Ste. 500 City: Gardena State: CA Zip: 90248 N/A Phone: 310.515.6715 Email: gene@gandccorp.com	Constructor	1000012404	980369	Lab Casework	$1,500,000	SDVOB SBE DVBE CBE HUBZone LSE MBE	California	N/A

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Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
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California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
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Name: A-1 Fire Protection, Inc. Address: 8655 Miramar Place City: San Diego State: CA Zip: 92121 Phone: 858.623.2733 Email: john@a1fpi.com	Constructor	1000002910	388358	Fire Sprinkler	$779,000	WBE, SLBE, ELBE	City of San Diego	N/A
Name: Address: City: State: Zip: Phone: Email:								

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Name: AO Reed & Co, LLC Address: 4777 Ruffner St. City: San Diego State: CA Zip: 92131 Phone: 858.565.4131 Email: phil.trinh@aoreed.com	Constructor	1000000157	7731	Mechanical Plumbing	$15,856,000	N/A	N/A	N/A
Name: Saffa Contracting Co. Address: 6641 Murray Park Dr. City: San Diego State: CA Zip: 92120 Phone: 715.557.2203 Email: tyler.wegerle@saffacontractingco.com	Constructor	6485069	1135218	Controls/ Equipment	$8,034,000	DVBE	CADoGS, CA	N/A

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Form AA05 – Design-Build List of Subcontractors

AA05: Design-Build List of Subcontractors

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Name: Dynalectric San Diego Address: 1111 Pioneer Way City: El Cajon State: CA Zip: 92020 Phone: 619.328.4007 Email: cwooldridge@dyna-sd.com	Constructor	10000089	749757	Electrical	$12,355,000	N/A	N/A	N/A
Name: G & C Equipment Corporation Address: 879 W. 190th St.,Ste. 500 City: Gardena State: CA Zip: 90248 N/A Phone: 310.515.6715 Email: gene@gandccorp.com	Constructor	1000012404	980369	Electrical Equipment	$3,620,000	SDVOB SBE DVBE CBE HUBZone LSE MBE	California	N/A

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Form AA05 – Design-Build List of Subcontractors

AA10: Subcontractors for Alternates

SUBCONTRACTORS FOR ALTERNATES

***** FOR USE WHEN LISTING SUBCONTRACTORS FOR ALTERNATES ONLY *****
(Use Additional Sheets As Needed)

IDENTIFY ALTERNATE (*example*: Deductive Alternate B - Only one Alternate and Sub per line)	SUBCONTRACTOR NAME, LOCATION, PHONE & EMAIL	SUBCNTRACTOR'S CA LICENSE NUMBER	SUBCONTRACTOR'S DIR REGISTRATION NUMBER	IS SUBCONTRACTOR CONSTRUCTOR, DESIGNER, OR SUPPLIER	TYPE OF WORK	DOLLAR VALUE OF THE ALTERNATE SUBCONTRACT (Negative If Deductive)
Additive Alternate B	Name: Dynalectric San Diego Address: 1111 Pioneer Way City: El Cajon State: CA Zip: 92020 Phone: 619.328.4007 Email: cwooldridge@dyna-sd.com	749757	10000089	Constructor	Electrical	$1,524,000
	Name: Address: City: State: Zip: Phone: Email:					
	Name: Address: City: State: Zip: Phone: Email:					
	Name: Address: City: State: Zip: Phone: Email:					

SUBCONTRACTORS FOR ALTERNATE ITEMS ARE NOT CONSIDERED IN THE CALCULATION TOWARD ACHIEVING SLBE/ELBE PARTICIPATION GOALS

JOBS COORDINATOR DESIGNATION FORM

JOBS COORDINATOR. A Jobs Coordinator is an independent third-party individual, entity or employee with whom the Prime Contractor contracts with or employs to assist with: achieving and exceeding the Local Worker goals set forth in the PLA, Article 4, Section 4.5; fulfilling the Work Opportunities Program as set forth in Article 22; and Helmets to Hardhats participation as set forth in Article 23. Each subcontractor, regardless of tier, shall utilize the Jobs Coordinator retained by the Prime Contractor pursuant to the PLA, Article 22 Section 22.2 (f). The Prime Contractor must submit a Jobs Coordinator Designation Form prior to award of a Covered Project or each time it is assigned a Task Order that is considered a Covered Project.

List the applicable Jobs Coordinator information below.

Legal Name and Full Street Address of Jobs Coordinator Firm (or list Prime Contractor if self-performing)	Name of Individual Acting as Jobs Coordinator	Phone number of Jobs Coordinator	Email address of Jobs Coordinator
Hensel Phelps 18850 Von Karman Avenue Irvine, CA 92612	Michelle Keyser	805.813.1875	Mkeyser@henselphelps.com

Bidder Signature:_____ Dated: 12/17/2025

JOBS COORDINATOR QUALIFICATIONS. Jobs Coordinator qualifications may include, but are not limited to, the following:

A. 3 years' experience providing Jobs Coordinator services.

B. Possess working relationships with the San Diego Building and Construction Trades Council, Veteran Worker organizations, and signatory craft councils and unions operating within the County of San Diego by describing previous interactions, relationships, and partnerships with these parties/groups.

C. Demonstrate experience with Targeted and/or Veteran Worker populations.

D. Experience working with services of the Center for Military Recruitment, Assessment and Veterans Employment and "Helmets to Hardhats" programs.

JOBS COORDINATOR RESPONSIBILITIES. The Prime Contractor may require the selected Jobs Coordinator to perform a list of duties that include, but are not limited to, the following:

A. Develop, create, design, and market specific programs to attract Local, Targeted and/or Veteran Workers for construction opportunities (e.g. handouts and fliers for "walk-ins" demonstrating program entrance procedures).

B. Coordinate services for contractors to use in the recruitment of Local, Targeted and/or Veteran Workers.

C. Conduct orientations, job fairs, and community outreach meetings in the local community.

D. Distribute the City of San Diego Targeted Worker Survey Form.

    a. Screen Targeted and/or Veteran Workers status.

E. Establish a referral and retention tracking mechanism for placed Local, Targeted and/or Veteran Workers and apprentices.

F. Network with the various work source centers, community organizations, and other non-profit entities that provide qualified Local, Targeted, and/or Veteran Workers.

G. Coordinate with the various building trades crafts for referral and placement of Local, Targeted, and/or Veteran Workers.

H. Maintain a database of pre-qualified Targeted and/or Veteran Workers for referral.

I. Be the point of contact to provide information about available job opportunities on projects.

J. Assist all subcontractors, regardless of tier, with their documentation efforts and other reports as it relates to their Local, Targeted and/or Veteran Worker hiring goals.

K. Work closely with the City, the building trades, and all contractors in achieving and/or exceeding the Local Worker goal and voluntary Targeted Worker participation.

JOBS COORDINATOR DELIVERABLES. The Prime Contractor may require the selected Jobs Coordinator to provide, on a monthly basis, an update of Jobs Coordinator activities via email, including but not limited to:

A. Number of Local, Targeted and/or Veteran Worker placements made.

B. Contractor availability for sponsoring new Local, Targeted and/or Veteran Workers.

C. Spotlight photos and interviews with Local, Targeted and/or Veteran Workers.

D. Activities that have been completed to achieve the Local Worker goal and voluntary Targeted Worker participation.

E. Identification of any workers who meet the Local, Targeted and/or Veteran status that are available for placement.

ATTACHMENT I

DESIGN-BUILD AGREEMENT

ORIGINAL

DESIGN-BUILD AGREEMENT

This Design-Build agreement [Contract] is made and entered into this 18th day of February, 2026, by and between The City of San Diego [City], a municipal corporation, and **Hensel Phelps Construction Co.** [Design-Builder], for the purpose of designing and constructing the **ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER** (Project) in the total amount One Hundred Fifty-One Million Nine Hundred Sixty-Six Thousand Fifteen Dollars and Zero Cents ($151,966,015.00), which is comprised of the Base Proposal plus Additive Alternates A and B, consisting of an amount not to exceed $12,000,000.00 for Phase I, $27,500,000.00 for Phase II, $70,000,000.00 for Phase III, $27,500,000.00 for Phase IV, and $14,966,015.00 for Phase V.

The City and Design-Builder are referred to herein as the "Parties".

RECITALS

A. The City desires to construct the Project located in the City of San Diego, California.

B. The City desires to contract with a single entity for design and construction of the Project, as set forth in this Agreement.

C. The City has issued Request for Proposal (RFP) number **K-26-2318-DB2-3-C** for **ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER,** pursuant to which the City solicited Proposals from design-build teams to design, rehabilitate, and build the Project.

D. In accordance with City's RFP, Design-Builder submitted a Proposal for the Project and is prepared to enter into this Agreement.

E. The City wishes to construct this Project on a Phase- Funded basis. In accordance with Whitebook section 7-3.10, the City is only obligated to pay for Phase I; Design-Builder cannot begin, nor is the City financially liable for additional Phases, unless and until Design-Builder is issued a Notice to Proceed for each additional Phase by the City.

F. The Design-Builder is ready, willing, and able to perform the services required in accordance with the terms and conditions of this Agreement.

G. Execution of this Agreement by the Design-Builder is a representation that the Design-Builder has visited the Site, become familiar with the local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

In consideration of the above recitals and the mutual covenants and conditions set forth herein, and for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby set forth their mutual covenants and understandings as follows.

AGREEMENT

A. Recitals and Attachments. The above referenced recitals are true and correct and are incorporated into this Agreement by this reference. All attachments referenced in this Agreement section are incorporated into the Contract by this reference.

B. Contract Performance. The Design-Builder shall design and construct the Project in a good and workmanlike manner to the satisfaction of the City, lien free and in compliance with the Contract Documents and within the time specified, in return for timely payment by the City in accordance with the Contract.

C. Supplemental Agreements, and the attached Proposal included in the Proposal documents by the Contractor are incorporated into the Contract by this reference.

R-316751

D. Contract Documents. This Contract incorporates the 2021 Edition of the Standard Specifications for Public Works Construction [The GREENBOOK], including amendments set forth in the 2021 edition of the San Diego Specifications for Public Works Construction [The WHITEBOOK]. The Contract Documents shall include the items mentioned in section 3-7.2 of The WHITEBOOK and shall follow that order of precedence.

IN WITNESS WHEREOF, this Agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to Resolution No. R - 316751 authorizing such execution.

CONTRACTOR

By _____

Print Name: Damian Buessing

Title: Regional Vice President

Date: 2/18/2026

City of San Diego License No.: B2017001743

State Contractor's License No.: 1020262

DEPARTMENT OF INDUSTRIAL RELATIONS (DIR) REGISTRATION NUMBER: 1000045854

THE CITY OF SAN DIEGO

By: _____

Print Name: Bethany Bezak

Chief Performance & Logistics Officer

Date: 6/9/26

APPROVED AS TO FORM
Heather Ferbert, City Attorney

By: _____

Print Name: ADAM WARDOR

Deputy City Attorney

FOR: DANA FAIRBANKS

Date: 6/11/26

5/12/26
#101B
(R-2026-457)

RESOLUTION NUMBER R- 316751

DATE OF FINAL PASSAGE MAY 20 2026

A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN DIEGO AUTHORIZING THE AWARD OF A PHASE-FUNDED DESIGN-BUILD CONSTRUCTION CONTRACT TO HENSEL PHELPS CONSTRUCTION CO. FOR THE ALVARADO LABORATORY IMPROVEMENTS AND TRAILER PROJECT AND RELATED ACTIONS.

RECITALS

The Council of the City of San Diego (Council) adopts this Resolution based on the following:

A. The Alvarado Laboratory Facility (Facility) serves as a primary wastewater and drinking water quality laboratory protecting public and environmental health for the City of San Diego (City) and is essential for generating legal regulatory compliance data. The Facility performs regulatory compliance monitoring required under multiple National Pollutant Discharge Elimination System (NPDES) permits and Title 22 recycled water requirements.

B. The existing Facility was originally designed for a significantly smaller analytical workload and prior generations of laboratory instrumentation and regulatory requirements, and over the years analytical demands, regulatory standards, and laboratory technologies have evolved substantially.

C. To address these deficiencies and ensure the Facility can continue meeting the City's current and future regulatory monitoring obligations, the Alvarado Laboratory Improvements Project will modernize the facility to meet current environmental laboratory design standards (Project).

3. The Chief Financial Officer is authorized to expend funds under the established Agreement, funding phases in a total amount not to exceed $151,966,015; of which $12 million is for Phase 1, and $139,966,015 is for all subsequent phases in CIP L22000, Alvarado Laboratory Improvements.

4. The funding sources for the Phase 1 of the Contract: $2 million from L22000.1, New Lab, of which $460,000 is from Fund 700008, Muni Sewer CIP, $1,040,000 from Fund 700009, Metro Sewer CIP, and $500,000 from Fund 700010, Water Utility; $2 million from L22000.2, Building Remodel Tenant Improvements, of which $460,000.00 is from Fund 700008, Muni Sewer CIP, $1,040,000 from Fund, 700009, Metro Sewer CIP, and $500,000 from Fund 700010, Water Utility; and $8 million from L22000.3, Alvarado Laboratory Improvements Trailers, of which $1,840,000 is from Fund 700008, Muni Sewer CIP, $4,160,000 from Fund 700009, Metro Sewer CIP, and $2 million from Fund 700010, Water Utility, contingent upon the Chief Financial Officer furnishing one or more certificates certifying that the funds necessary for expenditure under the established contract phases are, or will be, on deposit with the City Treasurer.

APPROVED: HEATHER FERBERT, City Attorney

By Dana Fairchild
Dana C. Fairchild
Deputy City Attorney

DCF:cm
April 28, 2026
Or.Dept: Engineering and Capital Projects
CC No. 3000018494
Doc. No. 4401092

#1 10 B

Passed by the Council of The City of San Diego on May 12, 2026, by the following vote:

Councilmembers	Yeas	Nays	Not Present	Recused
Joe LaCava	☒	☐	☐	☐
Jennifer Campbell	☒	☐	☐	☐
Stephen Whitburn	☒	☐	☐	☐
Henry L. Foster III	☒	☐	☐	☐
Marni von Wilpert	☒	☐	☐	☐
Kent Lee	☒	☐	☐	☐
Raul A. Campillo	☐	☐	☒	☐
Vivian Moreno	☒	☐	☐	☐
Sean Elo-Rivera	☒	☐	☐	☐

Date of final passage MAY 20 2026.

(Please note: When a resolution is approved by the Mayor, the date of final passage is the date the approved resolution was returned to the Office of the City Clerk.)

AUTHENTICATED BY:

TODD GLORIA
Mayor of The City of San Diego, California.

(Seal)

DIANA J.S. FUENTES
City Clerk of The City of San Diego, California.

By _____, Deputy

Office of the City Clerk, San Diego, California

Resolution Number **R-316751**

Passed by the Council of The City of San Diego on May 12, 2026, by the following vote:

YEAS:	**LACAVA, CAMPBELL, WHITBURN, FOSTER III, VON WILPERT, LEE, MORENO, ELO-RIVERA.**
NAYS:	**NONE.**
NOT PRESENT:	**CAMPILLO.**
RECUSED:	**NONE.**

AUTHENTICATED BY:

TODD GLORIA

Mayor of The City of San Diego, California

DIANA J.S. FUENTES

City Clerk of The City of San Diego, California

(Seal)

By: **Chrystal Rodriguez**, Deputy

I HEREBY CERTIFY that the above and foregoing is a full, true, and correct copy of RESOLUTION NO. **R-316751** approved on **May 12, 2026**. The date of final passage is **May 20, 2026**.

DIANA J.S. FUENTES

City Clerk of the City of San Diego, California

(Seal)

By: _____, Deputy

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 1

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ NO.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
OCTOBER 15, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS
http://www.sandiego.gov/cip/bidopps/

DEPUTY CITY ENGINEER

The Engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:

Edgar Lozano — For City Engineer

9/10/2025 — Date

Seal:



B. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

1. To ATTACHMENT A, PROJECT DESCRIPTION, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AND BRIDGING DOCUMENTS, Item **3, BRIDGING DOCUMENTS, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AS BUILTS**, page 36, the Google drive link below has been updated to include a new folder titled **Addendum 1**, which includes the REVIT files for the project. The user is subjected to conditions as stated in the signed release.

https://drive.google.com/drive/folders/1KJtNPWMoZmtU0cKtU7Vlogflo55rDtzu?usp=sharing

Rania Amen, Director
Engineering & Capital Projects Department

Dated: *September 11, 2025*
San Diego, California

RA/AM/yk

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 2

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ NO.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
NOVEMBER 18, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS
http://www.sandiego.gov/cip/bidopps/

DEPUTY CITY ENGINEER

The Engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:

Edgar Lozano — For City Engineer

9/23/2025 — Date

Seal:



A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

B. BIDDER's QUESTIONS

Q1. **Existing Campus Energy**

a. Please provide one years worth of utility bills in order to examine current energy consumption.

b. Please provide current onsite energy generation from the existing PV systems.

c. Please confirm the current system can be used in project calculation.

A1. a. Provided. Please see folder titled Question 1 Utility Bills Attachments in the link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

b. Below is the solar generation data. This is from the PV system on Earl Thomas Clearwell. Please note this PV system is privatized.

Solar Generation	**Alv. Lab JL (kWh) CY2024**	**Alv. Lab JL (kWh) CY2025**
Jan	21,180	21,546
Feb	41,256	22,786
Mar	62,386	25,690
Apr	18,646	32,688
May	78,992	34,462
Jun	78,673	39,096
Jul	80,834	
Aug	62,105	
Sep	31,003	
Oct	37,544	
Nov	30,869	
Dec	20,400	
Total (kWh)	563,888	176,268

Alvarado Lab Building Solar/PV is the one installed at Earl Thomas Tank. Tank 24 and Tank 21 Solar/PV is not a part of Alvarado Lab Building Solar/PV. The as-builts for the solar/PV system have been uploaded to the Google-link folder titled Question 1 Utility Bills Attachments, in sub-folder titled Alvarado Solar/PV below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

c. No, the current system cannot be used in project calculation.

Q2. **Price**

Paragraph 3.5 states The Proposer agrees to guarantee the Contract Price for a period of 120 days from the date of Bid opening. Please provide the date of bid opening so this can be shared with potential trade partners.

A2. The proposal due date serves as the bid opening date

Q3. **LEED**

Please advise if this project as already been registered with USGBC. Please advise if LEED Version 4 or 5 is to be used.

A3. Use LEED version 4.1.

Q4. **Proprietary RFIs**

Are Proprietary RFIs allowed?

A4. All questions and answers submitted by RFI will be issued via addendum to the shortlisted firms and will become public record once the contract is awarded.

Q5. **Existing Generator**

Please provide output readings for the existing generator.

A5. The Alvarado Lab generator is test run with no load so there is no output reading recorder besides Voltage (480V) and Herts (60Hz). Please see specs below:

Eq Id	Equipment Type	Equip Description	Make	Model	Serial Number
EQ003132	GENERATOR	KW 1000 V 480 3PH PH 75	KOHLER	1000ROZD4	0644773
EQ003133	ENGINE		DETROIT	R163-7K06	5362000612

Q6. **C900 v CL900 pressure piping**

Please advise if manufacturer restriction for C900/C905 pressure pipe as stated in SUPPLEMENTARY SPECIAL PROVISIONS Section 209 (Page 98 of solicitation) also apply to CL900 pipe.

A6. Manufacturer restriction is as stated in the specification.

Q7. **As-builts**

Structural Sheet S-11 is missing from the STRUCTURAL as-builts for Alvarado Filtration Plant Joint Laboratory Facility (circa 1990). Please provide sheet or indicate sheet is not applicable to this project.

A7. Structural Sheet S-11 uploaded to Question 7 Additional As-Builts in the Google link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

Q8. **As-builts**

The excel file listing shop drawings and as-builts for 72-inch RCSC Pipe references specific pages from the following D-Sheets No. 26752-#-D, 28341-#-D, 29901-#-D, and 30806-#-D. The as-builts provided do not include these referenced documents. Please provide.

A8. Missing sheets added to Question 8 Additional As-Builts in the Google link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

Q9. **Offsite Right of Way Improvements**

The RFP states utility service connections are to come from within the site. Please confirm no right-of-way permits and no surface or utility service improvements are required either for the City of San Diego or City of La Mesa related to this project

A9. Right of Way permit is required. All permits necessary to complete the project will the responsibility of the Design-Builder.

Q10. **CBC Version for Project**

Please confirm the buildings will follow CBC 2025 and CEBC 2025? The Water Facility Design Guidelines (2021) from the City of San Diego cites CBC 2016.

A10. The buildings will follow CBC 2025 and CEBC 2025.

Q11. **Permit for Trailer Plans**

In the pre-proposal meeting, the trailer bridging documents were referred to as "fully permitted set of documents." Please define what this means and confirm further permitting is not required.

A11. The site plans have been approved/permitted by DSD. However, the prefabricated trailer is a state approved deferred submittal. The Design-Builder is responsible for submitting to local jurisdiction (City of San Diego DSD) for final building permit.

Q12. **Calcs and Reports for Trailer Plans**

Please provide the approved calcs and reports supporting the design drawings including things such as the WPCP, stormwater management calculations and forms as required by the City, narratives, or conditions of approval.

A12. Information for BMP's is sheet G-4 of the trailer construction drawings located in the folder titled "Plans" in the Google link below:

https://drive.google.com/drive/folders/1QTJzRDCERV-37su5pV6Z0lNgiypxu4Fj?usp=drive_link

Q13. **General Conditions**

General Note No. 1 on TS101 indicates use of AIA Document A201 as amended by Supplementary Conditions for the General Conditions of the Contract for Construction. Please advise if AIA Document A201 supersedes The Whitebook and Greenbook Standard Specifications.

A13. See section 3-7.2 in the Whitebook for Precedence of Contract Documents.

Q14. **Uninterruptible Power Source (UPS)**

General Note No. 3 under STANDBY SYSTEMS on Sheet E.001 of the Bridging Documents (Lab) indicates Uninterruptible Power Supplies (UPS).

a. Confirm UPS are Owner Furnished, Owner Installed as part of the FF&E allowances.

b. Please provide an updated lab equipment schedule (ref. Sheets LQ88-01 through-04) to indicate which pieces of equipment require UPS and the power draw for those pieces of equipment.

c. Also, please provide a listing of IT equipment and power draws requiring UPS systems

A14. a. Design-Builder supplied and installed as part of the "Construction of Alvarado Laboratory Improvements" Lump Sum Bid Item.

b. Design-Builder is responsible for creating the equipment schedule list and determining which equipment needs a UPS. UPS to be included as part of the "Construction of Alvarado Laboratory Improvements" Lump Sum Bid Item.

c. See A14.b. response.

Q15. **Ceiling Heights, New Lab Level 1**

Several rooms of the New Lab Building are missing ceiling heights on the Reflected Ceiling Plan; please provide desired ceiling heights for Rooms 108 through 109, 118 through 121, 124 through 132.

A15. Design-Builder to determine adequate ceiling height based on program and requirements.

Q16. **Ceiling Heights, New Lab Level 2**

Sheet A1.107, 2nd Floor Reflected Ceiling Plan does not call out ceiling height for Ceiling Type C4 occurring in Open Office 211. Please provide.

A16. Design-Builder to determine adequate ceiling height based on program and requirements.

Q17. **Brine Line 1**

Existing 21" diameter brine sewer line west of existing laboratory building is not indicated to be removed. Please provide as-built information for the existing brine line. Please indicate if this brine line is to be protected in place, relocated or have additional measures provided for protection from surcharge.

A17. Brine line is to be protected in place.

Q18. **Brine Line 2**

Bridging document sheet C2 of the 1.1 2025-05-14 Alvarado Lab Imp 72in pipe dwgs shows a brine line crossing of the 72-inch water line as 12", with elevation unknown. At the same location in plan sheet C.001 of 1.2 2025-06-13 Alvarado Lab-100_BD, the brine line is indicated as 21". Please clarify the size of the existing brine line and provide information for its elevation.

A18. The brine line is 21". The C2 sheet has been updated. See folder titled Question 18 Updated Sheet C2 in Google link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

Q19. The RFQ required My Green Lab Certification. The RFP is silent to My Green Lab Certification. Please clarify if Green Lab Certification is required.

A19. Green Lab Certification is required.

Q20. In the "RFP-Electronically Submitted Forms" section D, page 648, DEBARMENT AND SUSPENSION CERTIFICATION SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS – Do subcontractors need to complete this information for sub-tier subcontractors, suppliers and manufacturers or is it acceptable to complete this information only for prime subcontractors. If it is required for all, please confirm it is acceptable to provide this information only for prime subcontractors at time of bid?

A20. As indicated on the form, this is to be filled out by the Bidder (Prime Contractor) to list their subcontractors, suppliers, and manufacturers that are known at the time of bidding.

Q21. Appendix R "Construction Progress Scheduling Using Synchro Project Specifications" implies that Synchro is the specified software for 4D scheduling. Please advise if alternative programs for 4D/5D scheduling such as Fuder are acceptable?

A21. Alternative programs for 4D/5D scheduling are acceptable if it meets or exceeds the listed specifications.

Q22. Sheet TS102 Design Narrative Item No. 8.1 says, "The existing 72" water pipe that goes under the existing building is to be relocated.". Sheet G1 Alvarado Lab Improvement drawings show the 72" existing water pipe to remain with structural liner improvement. Please clarify the scope.

A22. The 72-inch pipeline under the existing lab building is to remain in place. A condition assessment of the pipeline will determine if a structural liner is required. See updated sheet in folder titled Question 22 Updated Sheet TS102 in the Google link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

Q23. Please confirm the following:

1) the additive alternate pricing of 500 linear feet is only for the lining of the 72-inch pipeline,

2) all other scope pertaining to the rehabilitation of the 72-inch pipeline to be included in the base bid,

3) no lining of this pipeline is supposed to be included in the base bid.

A23. 1) The condition assessment of the 72-inch pipeline is a separate bid item and not part of the additive alternate. However, if the assessment determines that structural lining is required, all associated rehabilitation work shall be included in the additive alternate pricing.

2) See response A23.1) above.

3) Correct.

Q24. What is the structural vibration design criteria (i.e. mips) for the new construction laboratory supported slab?

A24. Design-Builder to hire vibrations engineer to develop design criteria based on lab equipment requirements.

Q25. On Sheet 1M.001, Mechanical Lead Sheet, the cold room is called out for a temperature of 68 degrees F. Is this correct or should the temperature be lower? Also, please confirm the humidity requirement of 0-60% for this room.

A25. The cold room, which is a walk-in fridge, has a required temperature range of 0-6 degrees Celsius (32-~42 degrees F) and a max humidity of <60%. See updated 1M.001 sheet in folder titled Question 25 Updated Sheet 1M.001 in the Google link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

Q26. **Wind Study available**

Please provide available Wind Study for existing facility/campus.

A26. The existing facility/campus does not have an existing Wind Study.

Q27. **Flex Space in Existing Building**

Sheet AD2.101 shows demo work in the existing building from Gridlines D-H and 9-13 while Sheets A2.101 and A2.103 show no refurbishments for this area.

Sheet AD3.101 indicates demo work in this same area from Gridlines D-E and 9-13 noting it as Phase 3b demo while Sheet A3.101 is silent on any refurbishments and Sheet A3.103 calls out for this area to be FLEX SPACE.

Please clarify which phase the demo work for this area is to be part of and what refurbishments beyond new ceilings are required for this FLEX SPACE area.

A27. It is the Selected Design-Builder's responsibility to develop the phasing plan with the designated City representative for the demo and construction of the project.

Q28. **Electrical 144 (Ph2) vs. Library 196 (Ph3)**

Sheet A3.101 indicates a new space labeled Library 196 at Gridline C13, which is same location for Electrical 144 per Sheet A2.101.

Please clarify the room label for Library 196 noted on Sheet A3.101 at Gridline C13 should be located at Gridline C9 and Electrical 144 will remain in place as constructed in Phase 2.

A28. See updated A3.101 sheet in folder titled Question 28 Updated Sheet A3.101 in the Google link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

Q29. **Acoustical Report**

Drawing TS102 indicates that the conference rooms and offices will need acoustical separation as recommended by the acoustical report. Please provide this report.

A29. The report is located in Exhibit A of "Alvarado Lab - 100% BD Project Manual.pdf" which is located in the Google link below:

https://drive.google.com/drive/folders/1RMgF-uFumiz3NJtFY0ilhUMAQRedkPOx?usp=drive_link

Q30. **Parking Control**

Please clarify if the parking areas will require any parking equipment for control of the areas.

A30. Bid per plan/spec.

Q31. **Ceiling Heights Phase 2**

Please indicate ceiling heights for Open Office 145, Open Office 146, Gas Closet 154, and Microplastics 155 as shown on A2.103.

A31. Design-Builder to determine adequate ceiling height based on program and requirements.

Q32. **Ceiling Heights Phase 3**

Please indicate ceiling heights for IDF 169, Autoclave 173, Balance 174, Dark 175, Storage 176, Dark 177, Hall 178, Lockers 183, Unisex RR 1 184, Unisex RR 2 185, Unisex RR2 186, Janitor 187, Storage/Mud Room 188, Electrical Room 189, Cold Room 190, Glass Wash 191, Sample Receiving 193, Field Gear Storage 194, VOC 195

A32. Design-Builder to determine adequate ceiling height based on program and requirements.

Q33. **Submittal Review Duration**

Submittal Procedures 01 33 00, 1.5.C states to allow 15 days for each submittal review by the Architect. As this is a design build project, the Architect review duration will be established between the design build team and will happen before the submittal or RFI is published to the City. Please provide duration for City review of submittals and RFI's and confirm which need City review.

A33. All submittals require City review unless agreed upon prior to construction at pre-construction kick-off meeting.

Q34. **Floor Finish**

Please indicate desired flooring for 223 Conference Room.

A34. Selected Design-Builder to work with City Representative to select desired flooring that meets program and requirements.

Q35. **Floor Finish**

A5.101 Floor Finish Schedule Phase 1 indicates floor type C3 for 108 Closet. C3 is Exterior Topping Slab Concrete while 108 Closet is an interior room. Please confirm floor finish for 108 Closet is C3 or clarify flooring type to be used.

A35. Bid per plan/spec.

Q36. **Room Location**

Several schedules catalog a room numbered and labeled "127 Chiller Closet". There is no 127 Chiller Closet indicated on A1.101. Please verify location of 127 Chiller Closet.

A36. The 127 Chiller Closet was included in earlier drafts of the concept design plans. Due to changes in design, that room was removed.

Q37. **Floor Finish**

Please indicate desired flooring for 135b Office.

A37. Selected Design-Builder to work with City Representative to select desired flooring that meets program and requirements.

Q38. **Ceiling Finishes**

Sheet A3.103 appears to render Ceiling Type A3 (Acoustical Suspended Beam system by Turf) over the 196 Library. Finish Schedule - Phase III on Sheet A5.101 calls out ceiling type P2, Typical ceilings painted, Color: TBD, Sheen: Flat (UNO). Please confirm the desire ceiling type for 106 Library.

A38. Selected Design-Builder to work with City Representative to select desired ceiling type that meets program and requirements.

Q39. **Roof Warranty**

Drawings A1.104, A2.102 & A3.102 indicate that the roof shall be warrantied for 20 or 25 years. Please clarify the length of the roofing warranty.

A39. The roof shall be warrantied for 25 years.

Q40. **Industrial Hygienist**

Per RFP Pg 563, please confirm intent with including an "Industrial Hygienist" among the "Project Team" on this page, and describe their required deliverable. For example, is this required for hazardous material testing & remediation, Cal-OSHA, chemical inventory surveying & analysis?

A40. The industrial hygienist's role includes but is not limited to monitoring noise and dust levels during construction to help ensure the health and safety of lab staff working in close proximity to the construction activities. Additionally, hazard identification, risk evaluation, control measures, training and education and regulatory compliance.

Q41. **RCP (Basement of Existing Building)**

Please provide desired Reflected Ceiling Plan covering the spaces rendered on Basement Floor Plan B - Phase 1, Sheet A1.101

A41. Selected Design-Builder to work with City Representative to design desired reflected ceiling plan that meets program and requirements.

Q42. **Anticipated AHJ Agencies**

Per RFP Pg 69, regarding the "The Design-Builder will obtain any and all permits and certifications necessary for the completion of the project," please provide a comprehensive list of all anticipated AHJ agencies governing this project. For example, DSD, DEHQ, Caltrans, DSA, etc.

A42. The selected Design-Builder is responsible to obtain all necessary permits for project completion. Permit allowance has been included as a part of the Price Proposal Sheet.

Q43. **Chemical Engineer**

Per RFP Pg 562, please confirm intent with including a "Chemical Engineer" among the "Project Team" on this page and describe their deliverable.

A43. Chemical Engineer responsibilities include analyzing chemical quantities and classifications as provided by the laboratory users. Determining maximum allowable quantities based on chemical

classification and determine occupancy type and fire/life safety parameters for occupancy.

Q44. **Chemical Inventory**

Per RFP Project Manual, "Exhibit C," please confirm whether the Chemical Inventory provided represents all proposed chemicals for this project or only specific areas and a comprehensive survey is still required.

A44. Selected Design-Builder is responsible for completing a comprehensive survey of all chemicals.

Q45. Is there any vibration attenuation criteria for the renovation of the existing building or the new construction portion?

A45. Vibration criteria is dependent on lab equipment requirements.

Q46. Bridging document civil plan sheet 1.C.104 shows a concept BMP design that appears to not meet City Stormwater Standards because no volume retention BMPs are shown, only proprietary biofiltration and detention vaults. Was there a Preliminary Storm Water Quality Management Plan (SWQMP) prepared with the bridging documents, and can that document be released to the bidders?

A46.. Selected Design-Builder to fully design BMPs to meet City Stormwater Standards. A Preliminary Storm Water Quality Management Plan was not prepared.

Q47. **Accessible Path of Travel - Asphalt Overlay**

Has it been confirmed that the existing slopes of the path of travel indicated on Sheet 3C.103 indicated for asphalt overlay and striping only are compliant?

A47. Certified Access Specialist (CASp) to work with City Representative to confirm the existing slope of the path of travel is compliant.

Q48. **Backflow Prevention and New FDC**

What is the intent of the new backflow preventor with FDC indicated on 3C.104?

A48. Refer to City of San Diego standard drawing called out on page 3C.104.

Q49. **Administration Area Demolition**

Note 11 for the existing administration space on Drawing 1MD.101 states "move equipment and material which is to be retained to storage as directed by the owner. Please clarify what equipment and material is to be retained and provide a location for the storage of this material

A49. Selected Design-Builder to work with City Representative to determine equipment/materials to be retained and the location.

Q50. **Screen Wall**

Note 8 on L1.0 indicates a screen wall is to be provided. Please provide clarification on the materiality of this wall

A50. Refer to architectural sheets in bridging documents for more information.

Q51. **Seismic Report Calculations**

Please provide the structural calculations for the Seismic Assessment by Beyaz & Patel and/or the structural bridging documents by Martin & Libby.

A51. See Seismic Assessment Report in the folder titled Question 51 Seismic Report in the Google link below:

https://drive.google.com/drive/folders/1IhGKYOTLtlPgpHTag9g3ilOh-EEvNWht?usp=sharing

Q52. **Trailer WPCP**

Please provide the WPCP per the City of San Diego standard template that was prepared as part of the permit plans.

A52. Contractor is responsible for the WPCP development.

Rania Amen, Director
Engineering & Capital Projects Department

Dated: *September 30, 2025*
San Diego, California

RA/AM/yk

Price Proposal Sheet

The Design-Builder agrees to the design and construction of **Alvarado Laboratory Improvements and Alvarado Laboratory Improvements Trailer**, for the City of San Diego, in accordance with these contract documents for the lump sum price listed below. The Design-Builder guarantees the proposed prices for a period of 120 Days from the date Proposals are due. The duration of the price guarantee may be extended as required by mutual consent.

Item No.	Base Proposal for	NAICS CODE	Description	Quantity	D*	Unit	Unit Price	Extension
1	Main Bid (L-22000.1)	524126	Bonds (Payment and Performance)	1		LS		$0.00
2	Main Bid (L-22000.1)	541330	Engineering and Design Services	1	D	LS		$0.00
3	Main Bid (L-22000.1)	238220	Construction of Alvarado Laboratory Improvements	1		LS		$0.00
4	Main Bid (L-22000.1)	236220	Building Permit (EOC Type I)	1		AL	150000	$150,000.00
5	Main Bid (L-22000.1)	EOC2	City Contingency (EOC Type II)	1		AL	8000000	$8,000,000.00
6	Main Bid (L-22000.1)	541330	SWPPP Development	1	D	LS		$0.00
7	Main Bid (L-22000.1)	237310	SWPPP Implementation	1		LS		$0.00
8	Main Bid (L-22000.1)	541330	SWPPP Permit Fee (EOC Type I)	1		AL	25000	$25,000.00
9	Main Bid (L-22000.1)	541330	Partnering (EOC Type I)	1		AL	75000	$75,000.00
10	Main Bid (L-22000.1)	541330	Inspection Paid For By the Contractor (EOC Type I)	1		LS		$0.00
11	Main Bid (L-22000.1)	541370	Survey Services	1		LS		$0.00
12	Main Bid (L-22000.1)	238210	Utilities Fees (EOC Type I)	1		AL	100000	$100,000.00
13	Main Bid (L-22000.1)	Other	Furniture, Fixtures & Equipment (FFE) (EOC Type I)	1		AL	1500000	$1,500,000.00
14	Main Bid (L-22000.1)	541330	Biological Monitoring and Reporting	1		LS		$0.00
15	Main Bid (L-22000.1)	238390	New Lab Equipment (EOC Type I)	1		AL	1000000	$1,000,000.00
16	Main Bid (L-22000.1)	541330	Special Material Testing: Structural Welding & Welding Size Type T3 Testing	1		LS		$0.00
17	Main Bid (L-22000.1)	541330	Special Material Testing: Structural Steel	1		LS		$0.00

18	Main Bid (L-22000.1)	541330	Special Material Testing: Concrete	1		LS		$0.00
19	Main Bid (L-22000.1)	541330	Special Inspections and Tests: Seismic Resistance	1		LS		$0.00
20	Main Bid (L-22000.1)	541330	Special Inspections: Cold-Formed Steel Light-Frame	1		LS		$0.00
21	Main Bid (L-22000.1)	541330	Special Inspections and Tests: Cast-in-Place Deep Foundation Elements	1		LS		$0.00
22	Main Bid (L-22000.1)	541330	Special Material Testing: Soils	1		LS		$0.00
23	Main Bid (L-22000.1)	541330	Condition Assessment of the 72" Pipeline (EOC Type I)	1		AL	75000	$75,000.00
24	Main Bid (L-22000.1)	238390	Existing Lab Equipment Transport and Calibration	1		LS		$0.00
25	Main Bid (L-22000.1)	541330	Traffic Control and Engineered Traffic Control Plans	1		LS		$0.00
26	Main Bid (L-22000.3)	524126	Bonds (Payment and Performance)	1		LS		$0.00
27	Main Bid (L-22000.3)	238220	Construction of Alvarado Laboratory Improvements Trailer	1		LS		$0.00
28	Main Bid (L-22000.3)	236220	Building Permit (EOC Type I)	1		AL	20000	$20,000.00
29	Main Bid (L-22000.3)	EOC2	City Contingency (EOC Type II)	1		AL	100000	$100,000.00
30	Main Bid (L-22000.3)	541330	WPCP Development	1	D	LS		$0.00
31	Main Bid (L-22000.3)	237310	WPCP Implementation	1		LS		$0.00
32	Main Bid (L-22000.3)	541330	Inspection Paid For By the Contractor (EOC Type I)	1		LS		$0.00
33	Main Bid (L-22000.3)	238210	Utilities Fees (EOC Type 1)	1		AL	50000	$50,000.00
34	Main Bid (L-22000.3)	Other	Furniture, Fixtures & Equipment (FFE) (EOC Type I)	1		AL	145000	$145,000.00
35	Main Bid (L-22000.3)	541330	Biological Monitoring and Reporting	1		LS		$0.00
36	Main Bid (L-22000.3)	541330	Traffic Control and Engineered Traffic Control Plans	1		LS		$0.00
37	Main Bid (L-22000.3)	541330	Geotechnical Survey	1		LS		$0.00

* Design Element (For City Use)

TOTAL: $11,240,000.00

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 3

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ NO.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
DECEMBER 9, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS
http://www.sandiego.gov/cip/bidopps/

DEPUTY CITY ENGINEER

The Engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:

Edgar Lozano _____ 10/27/2025

For City Engineer Date

Seal:



Signed
10/24/2024

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

B. BIDDER's QUESTIONS

Q1. **1 v 1**

Will at least one (1) one-on-one meeting occur prior to the proposal due date? If yes, please provide date one-on-one will occur.

A1. The City does not intend to allow any proprietary one-on-one meeting.

Q2. **Trailer Specifications - Rainwater Harvesting**

Please provide technical specifications for the rainwater harvesting system shown in the Trailer improvements bridging documents.

A2. The system shown is a passive rainwater harvesting approach designed to manage roof runoff without the use of traditional gutters, downspouts, or cisterns. Since the modular building does not include those features, the design incorporates perforated PVC piping installed within the permeable aggregate base layer, running parallel to the roof drainage sides of the building. Collected water is then conveyed via solid PVC piping to discharge into adjacent landscape tree wells. The system is composed of standard PVC piping and fittings, and is intended to support sustainable site drainage and irrigation. There is no formal technical specification section for this system. However, the intent is for the Design-Builder to implement a system consistent with the concept described above and shown on Sheet L-1 of the Temporary Trailer Construction Drawings.

Q3. On Page 13 of the RFP, Section 5.3 of the RFP requires the Design-Builder to submit a Work Force Report (EOC Form BB05). This Work Force Report requires the Design-Builder to submit confidential employee data. During the RFQ, we were allowed to submit this information through a secure file transfer to the Client via email. Please

confirm this Work Force Report can be submitted separately, securely and directly to the client.

A3. Confirmed. Send the Work Force Report to Juan E. Espindola, Senior Contract Specialist at JEEspindola@sandiego.gov.

Q4. - On Pages 18-19 of the RFP, Section 13.1, 13.2 and 13.3 of the RFP requires the listing of Subcontractors in the amount of 0.5% of our total Bid. Suppliers and Subcontractors for Alternates with our proposal submission.

- Section 13.1 requires the dollar value of the total bid to be performed by Subcontractors be included with our submission.

- Page 565 of the RFP, Attachment G Evaluation and Selection Criteria, Item 6 indicates that our proposal will be scored based upon actual subcontract award amounts for SLBE participation.

This language appears would be more applicable for a project with a complete design. For a design-build project, bridging documents are not complete enough to make awards to all Subcontractors nor identify all Suppliers. After being selected as the Design-Builder and provided with an NTP, we will advance the design to the level required for bidding out Subcontracts. We will comply with the requirements of the California Public Contract Code in the solicitation and bidding of these Subcontracts. In our experience with other public entities, this has been the common practice for design-build projects.

Recommendation:

1) Please remove the requirement for us to submit lists of all Subcontractors and Suppliers with our bid. We can provide a list of select teamed Subcontractors at time of bid.

2) Please revise the scoring for SLBE participation so that it is not based on actual subcontract award amounts. We can provide a commitment to meet a certain SLBE % at time of bid.

3) Please remove the requirement for us to submit a Debarment and Suspension Certification for all Subcontractors, Suppliers

and Manufacturers with our bid. We will provide these certifications at time of subcontractor awards.

A4. 1) Pursuant to City of San Diego Municipal Code, §22.3309 subsections (b)(1), the City confirms that proposers are not required to submit a comprehensive subcontractor list at this time. At time of proposal submission, please list any subcontractors intended to be part of the proposing entity; and any other subcontractors of which you are aware at the time, along with the respective trades or types of subcontractors for each. In selecting the trades that may be identified as members, you shall identify the trades deemed essential in the design considerations of the project.

2) This project is subject to San Diego Municipal Code Chapter 2, Article 2, Division 36: Small and Local Business Program Administration, Section §22.3608, which states Major Public Works Contracts will include a mandatory Subcontractor participation requirement for SLBE–ELBE firms. Bidders shall achieve the mandatory Subcontractor participation requirement or demonstrate GFE. Points will be awarded according to actual subcontract award amounts. Please see Attachment G – Evaluation and Selection Criteria, Section 6.2 – Subcontractor Documentation, for more information.

3) The Debarment and Suspension Certification Form for all Subcontractors, Suppliers and Manufacturers will not be removed.

Q5. Page 56 of the RFP, under Attachment C "Equal Opportunity Contracting Program (EOCP) Section B - SLBE ELBE Subcontracting Requirements", states that only 1st tier SLBE-ELBE Subcontractors will be recognized as participants in the Contract. Please advise if this section can be amended to include 2nd tier and 3rd tier Subcontractors as SLBE-ELBE participants in order to maximize overall SLBE-ELBE participation in the project.

A5. No, only first tier SLBE/ELBE subcontractors will be recognized as participants in the Contract. Please see RFP Attachment C, Section B, Subsection C-1 for more information.

Q6. Refer to the 72-inch pipeline drawings. Sheet M7 shows scope for the removal of the butterfly valves and replacing them with metal seating valves at both Valve Vault D and Valve Vault No. 2. Sheet C3 only shows the section for Valve Vault No. 2, there isn't a similar sheet for Valve Vault D, and both vaults are greyed out as existing scope on page G1. Please confirm that the modifications shown on Sheet M7 for both Valve Vault No. 2 and Valve Vault D should be included in the scope of work.

A6. Modifications shown on Sheet M7 for both Valve Vault No. 2 and Valve Vault D should be included in the scope of work.

Q7. **Trailer Site**

Please confirm that the trailer improvements (0102328-1-D through 0102328-35D) are permanent, and no restoration, touch-up or other work is required after the lab tenants move into the new building.

A7. Construction BMPs at the trailer location must be maintained throughout the full duration of the lab building construction. Upon achieving substantial completion of the entire project, responsibility for ongoing BMP maintenance will be transferred to PUD. No touch-ups of trailer are required after lab tenants move into the trailer, however, damages caused by Design-Builder will be the responsibility of the Design-Builder to repair or replace to equal or better condition.

Q8. **Vending Machines**

Drawing TS102 indicates that the Common Areas will require vending machines. Please confirm these vending machines are Owner Furnished Owner Installed.

A8. Vending machines are to be Owner Furnished, Owner Installed.

Q9. **Copier Machine**

Drawing A1.102 note 11.506 indicates a copier machine to be provided. Please clarify if this equipment is to be part of FF&E or if it is to be provided as part of the construction contract.

A9. Copy machines are a part of the FF&E and not the construction lump sum item.

Q10. **Mechanical As-Builts**

On mechanical dwg M1.100 it indicates that “EXISTING MECHANICAL UNITS SERVING BASEMENT ZONES TO BE DEMO'D AND REPLACED IN A LIKE FOR LIKE REPLACEMENT”. This appears to apply to the entire basement area with an H-2 Occupancy. We do not see any as-built documents for the mechanical systems in that area. Can the mechanical as-builts be provided for that area?

A10. The basement mechanical as-builts are included in the as-builts G-suite link provided in the RFP. Check the following link: https://drive.google.com/drive/folders/18ZWr9Gn41e-CMkE0s4lKZODvqDjNpbHD?usp=drive_link
Sheets M-12 & M-12A

Q11. **ELAP Accreditation**

A. Per RFP Pg 6, “ELAP Accreditation,” please clarify Owner’s vs. Design-Builder's responsibility with accreditation processing. For example, applications, fees, and submitting to State Water Resources Control Board.

B. Please advise if this accreditation activity happens once, at the end of the project or if it is required at completion of interim phases 1 &2.

A11. The City of San Diego, Public Utilities Department (PUD), Environmental Management and Technical Services (EMTS) Division, along with the selected Design-Builder will take responsibility for accreditation processing. Accreditation will need to occur at the end of each phase. Lab staff cannot move into a new lab until it has been accredited. The old lab will need to continue running until the new lab is accredited. Thus, there will be brief periods at the end of each construction phase where the old labs need to be kept intact while the new lab is accredited. This means the demo of the old labs cannot begin until the new lab is accredited.

Q12. Section 11.1.1. of the RFP notes that the RFP response 50-page limit is "exclusive of resumes, graphics, forms, pictures, photographs, dividers, front and back cover, etc." Please confirm that the detailed schedule can be excluded from the 50-page count. Please confirm that the detailed schedule is allowed to be on 11"x17" size pages.

A12. Confirmed.

Q13. **Trailer Elevations**

Are interior and/or exterior elevations available for the Trailers?

A13. The temporary trailer is a state approved deferred submittal. Selected Design-Builder to work with manufacturer and City Representative to determine trailer design.

Q14. **Trailer Storage Room Shelving/Cabinets**

Are the shelving/cabinets in the Trailer Storage Room part of the FF&E or to be furnished by Design-builder with the trailers.

A14. To be furnished by Selected Design-Builder with the Trailer.

Q15. **Wireless Access Points**

No wireless networks have been identified. Please confirm access points etc. are not required.

A15. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q16. **IDF Room Racks**

Confirm rack type and quantity for new IDF room(s).

A16. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q17. **IT Cabling Specifications**

IT Telecom specifications 2.10 calls for Cat6 cabling. Cabling standards (2) provides information on Cat 6 and Cat 6A cabling. Please confirm Cat6 shall be used. Please provide Cat 6 and Single mode fiber cabling specifications: Cable manufacturer, type, and performance requirements.

A17. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q18. **Security Cameras**

IT Telecom specifications 2.1.4.4 requires a commercial grade networked video surveillance system. Provide locations and quantities of cameras/devices required.

A18. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q19. **FF&E Allowance**

Section 7 of the Solicitation Document Items #6 & #7 state that the furnishings are provided as part of the allowance. Please confirm that delivery and labor of installation is to be part of the lab and trailer improvements.

A19. Confirmed that delivery and labor of installation shall be included in the Lump Sum Bid item for "**Construction of Alvarado Laboratory Improvements**" for the FF&E related to the Lab Building. For FF&E related to the temporary trailer, the delivery and labor of installation shall be included in the Lump Sum Bid item for "**Construction of Alvarado Laboratory Improvements Trailer**".

Q20. **Window Dimensions**

(Ref. A4.603 & A4604) The lengths and heights indicated on the storefront schedule differ from what is illustrated on the elevations of the same page. What dimensions should be used? Please clarify.

A20. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q21. **Missing Window Tags**

(Ref. A1.102 & A1.201) Floor plan - Phase 1 Plan sheet A1.102's West grid line "AA" has window tag 116c (between GL 11 &22). Between grid lines 22 & 44 there are two unidentified windows. Additionally, they are not indicated on A1.201 / 3 building elevations. Are these elevations part of the projects and what are their window tag numbers.

A21. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q22. **Window 10A and 211B**

(Ref. A1.102, A1.103 & A4.603) 1st & Second Floor plans of phase 1 indicate window frames 102A & 211B being set between columns. The window schedule of plan sheet A4.603 shows these windows as continuous. Are these openings to be se in between or to mount to the exterior similar to what is shown at elevation 211A? Please clarify.

A22. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q23. **Door Schedule**

(Ref. A4.603) The door schedule of plan sheet A4.603 Is missing frame information, Details and glazing requirements. Can more information be provided? Please clarify.

A23. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q24. **Window 117a & 211a**

(Ref. A4.603) Window Opening 117a & 211a show a different mullion (at the top run of bays of 117a & the right 4 bays of 211a). Can more information be provided about what the intent of this condition is? Please clarify?

A24. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q25. **Window Flashing detail**

(Ref. A4.603) Window Note 13 indicates moisture barrier flashing at openings. Then directs to a detail with no call out. Please clarify.

A25. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q26. **Laboratory Turnover**

Please provide the timeframes required for the Owner turnover and certification and activation period of the individual labs as construction renovation proceeds.

A26. The City estimates there will need to be a 5 month cross-over where the old labs and their new counterparts have to be operating simultaneously during the ELAP certification process.

1 month to set up new lab
1 month to complete IDOCs (Initial Demonstration of Capability)
1 month to complete PT (Proficiency Testing) study
1-2 months for expedited assessment + report + application

The Selected Design-Builder is responsible for the design and construction schedule and phasing of the project.

Q27. **P35 Section 2**

Is there sufficient infrastructure capacity (water, sewer, electric, data) to support the trailer, or will infrastructure upgrades be required?.

A27. Bid per plan/specification.

Q28. **Appendix O Partnership Specifications Section 3.A.2**

Will a City-provided allowance be specified in the Price Proposal Sheet for the IPI Certified Partnering Facilitator scope, recognizing the City wants to be involved in the selection process post-award?

A28. An allowance for Partnering is included in the Price Proposal Sheet.

Q29. **Appendix P ZEMBOP CP-900-03 Council Policy p14 Section E Fossil Fuel Elimination Plans**

Please clarify the meaning of AMD. Please confirm if the Design-Builder needs to include a Fossil Fuel Elimination Plan in their scope.

A29. AMD stands for Asset Managing Department. For this project specifically, the AMD is the Public Utilities Department (PUD). The DB is not responsible for the Fossil Fuel Elimination Plan.

Q30. Can we assume the City will pay the premium for Express plan check?

A30. The Building Permit allowance line item in the Price Proposal Sheet will cover plan check costs.

Q31. **Attachment G Section 4.1.7**

Can the City provide Revit files of the bridging document design (site and existing building included) to the proposers for use in evaluating alternates? If Revit files are not available, CAD files would be useful.

A31. Revit files have been provided in Addendum 1.

Q32. **Page 8 of 652, Item 12, Subcontractor Participation Percentages**

Please confirm that the 3.4% mandatory participation can be any combination of SLBE and/or ELBE participation and that we are only held to the combined 3.4% and are not necessarily required to achieve the specific breakdown of SLBE & ELBE as shown here.

A32. Correct, the mandatory SLBE/ELBE goal for this project can be met with any combination of the City of San Diego certified SLBE/ELBEs.

Q33. Please confirm that only first-tier subcontractors (subcontractors contracted directly with the prime contractor) count toward the SLBE/ELBE participation percentages.

A33. Correct, please see RFP Attachment C, Section B, Subsection C-1 for more information.

Q34. **Reference Attachment G, Section 6 (page 565 of 652)**

Reference Attachment G, Section 6 (page 565 of 652), Section 6 allocates 25% of the technical evaluation score to EOCP participation. On a $144M highly specialized laboratory project, this weighting creates an evaluation imbalance and could incentivize proposers to shift major scopes of work to small firms well beyond the mandatory 3.4% SLBE/ELBE requirement. Such an approach introduces delivery and financial risks given bonding limits, staffing, and technical capacity, and it diminishes the weight of more critical factors such as technical approach and construction planning. The mandatory 3.4% threshold already ensures compliance with City policy objectives and meaningful subcontractor participation.

We respectfully request that the City revise Attachment G, Section 6 to remove the 25% scoring allocation and evaluate EOCP strictly on compliance with the 3.4% minimum requirement, reallocating those points to more critical categories such as technical approach, construction plan, team qualifications or value-driven innovations.

A34. The City will not change this requirement.

Q35. **General**

For the trailer, there are only drawings for electrical, none for mechanical or plumbing. Based on the job walk, it was discussed that there would be no design scope associated with the trailer. Please confirm extents of work. Our understanding is a single point of connection for electrical, and no mechanical or plumbing design is required.

A35. The site plans have been approved/permitted by Development Services Department (DSD). However, the prefabricated trailer is a state approved deferred submittal. The Design-Builder is responsible for designing the trailer and submitting to local jurisdiction (City of San Diego DSD) for final building permit. Electrical, mechanical and plumbing design will be required for the temporary trailer.

Q36. **RFP Section 7-3.1**

In reviewing section 7-3.1.8/The Bid Form - New Lab Equipment is shown at $1,000,000 and to reflect non-fixed lab equipment. Please confirm the following items shown on drawing LQ-87.01 (Safety Cabinets, Fume Hoods, Autoclaves, etc.) should not be included in these costs and should be priced under "Construction of Alvarado Laboratory Improvements".

A36. Confirmed.

Q37. **RFP Section 7-3.1**

In reviewing Section 7-3.1.10, the removal and reinstallation of existing lab equipment is noted as the GC’s responsibility. Please confirm whether this applies only to the existing OFCI items shown on drawings LQ.88.02–LQ.88.04, or if it is also intended to include OFOI items.

A37. OFOI items are not included in the GC's responsibility.

Q38. **RFP Page 37 - Moving/storage of existing equipment**

Per page 37 of the RFP, the design-build contractor is responsible for moving office equipment, furniture, and personal items. However, the finish schedule does not identify which specific equipment must be

relocated. Additionally, KN 6 on page 96 of the RFP states that GCs are responsible for delivery and installation labor.

Please confirm whether this scope of work is intended to be covered under the $1.5M and $145K allowances listed under line items #13 and #39. Also, please confirm that this scope does not need to be bid at this time, and that GCs may utilize these allowances after award.

A38. The scope of work referenced is not to be covered under the allowance bid item "Furniture, Fixtures, and Equipment (FFE) (EOC Type I)" for the Trailer or for the Alvarado Lab Building. The scope of work referenced in the question is to be included in the "Construction of Alvarado Laboratory Improvements" Lump Sum Bid item and "Construction of Alvarado Laboratory Improvements Trailer" Lump Sum Bid item.

Q39. **KN11/A1.102**

Is Audio Visual system required for this project?

A39. Yes.

Q40. **Trailer Building**

Please provide entry door requirements for the trailer building.

A40. The temporary trailer is a state approved deferred submittal. Selected Design-Builder to work with manufacturer and City Representative to determine trailer design.

Q41. **Mechanical Drawings**

Please confirm if sound attenuators are intended for the air handlers to meet the sound requirements set both in the Project manual.

A41. It is the responsibility of the selected Design-Builder to determine the appropriate equipment and design solutions—such as sound attenuators—to ensure compliance with the sound requirements outlined in the Project Manual and program documents.

Q42. **Structural Analysis**

Can the existing building structural analysis models, checklists and supporting calculations be provided for the ASCE 41 existing building analysis?

A42. Refer to Addendum 2, folder "Question 51 Seismic Report" for structural analysis report.

Q43. **RFP Page 20**

Are the vendors who prepared the bridging documents excluded from submitting pricing for this pursuit?

A43. Yes.

Q44. **RFP Attachment G**

Attachment G Section 3 lists "Industrial Hygienist" as a required discipline, but the Price Proposal Form contains no line item for this scope. A Hazardous Materials Report is provided by the City, but it is unclear who provides project IH services for monitoring and clearances.

Please confirm whether the City will provide the Industrial Hygienist, or whether the Design-Builder is expected to retain and manage this discipline. If Design-Builder-provided, please clarify whether the IH scope applies to both the laboratory improvements and trailer work.

A44. The selected Design-Builder is expected to retain and manage the Industrial Hygienist discipline.

The industrial hygienist's role includes but is not limited to monitoring noise and dust levels during construction to help ensure the health and safety of lab staff working in close proximity to the construction activities. Additionally, hazard identification, risk evaluation, control measures, training and education and regulatory compliance. The scope applies to both the laboratory improvements and trailer work.

Q45. **RFP Attachment G**

Attachment G Section 3 lists "Commissioning Agent (CxA)" as a required discipline, but the Price Proposal Form has no corresponding line item.

Division 26 specifications describe contractor/manufacturer startup and commissioning, but not the role of an independent third-party CxA.

Please confirm whether the City will provide the Commissioning Agent, or whether the Design-Builder is expected to retain and manage this discipline. If Design-Builder-provided, please clarify whether the scope applies to the laboratory improvements, the trailer, or both.

A45. The selected Design-Builder is expected to retain and manage the Commissioning Agent. The scope applies to both the laboratory improvements building and trailer.

Q46. **Bid Form**

The Price Proposal Form includes a column labeled “Design Element (For City Use).”

Please confirm whether proposers are required to enter any values in the unit price/amount columns for these rows, and if so, whether the associated items are to be treated as lump sum contractor scope or as City-controlled allowances.

A46. Proposers are required to enter values in the unit price/amount columns for those rows. Please refer to the "Unit" column to determine if line items are to be lump sum or allowance bid items.

Q47. **RFP KN8 Page 96**

Equipment identified as “non-fixed” is currently included under the allowance for “New Lab Equipment.” However, many of the items listed on LQ.87-01 could also be considered non-fixed. Please either provide a list of lab equipment that falls under KN8 on page 96, or confirm that all items on LQ.87-01 should be excluded from this allowance.

A47. Items listed on LQ.87-01 are considered fixed.

Q48. **RFP Section 3.7.6.1**

Per Section 3.7.6.1, VDC Technology Services are outlined as follows: Drone progress timeline video, Professional milestone photography, 5D model integration (scheduling and costing)

Please confirm whether the design-build contractor is required to include costs and provide these services as part of the project scope.

A48. The selected Design-Builder is required to include costs and provide these services as part of the project scope.

Q49. Did the original ASCE41 report address the following:

- Foundation and possible anchorage to concrete deficiencies
- Weak axis moment frames
- Chevron frame beam deficiencies

A49 Please reference the Seismic Assessment Report uploaded in Addendum 2.

Q50. Regarding EV chargers - is the assumption to provide EV ready spaces only (meaning infrastructure only) or does the design build team need to provide EV chargers as well as part of the project.

A50. The Design-Builder is responsible to provide EV ready spaces / infrastructure only. The City will install the chargers.

Q51. Refer to Attachment G Evaluation and Selection Criteria, Section 3.5 indicates that we are to provide an organizational chart of all key members of the project team from Project Manager to all subcontractors/suppliers on your team. Please confirm we are only expected to show our teamed subcontractors/suppliers on this organizational chart.

A51. Confirmed.

Q52. **Partnering**

Please verify the $75,000 identified on the Price Proposal Form for Partnering covers both The City's 50% portion of that fee as well as The Design-builder's 50% portion of that fee as included in Appendix O and outlined in Section 4 of Specification Section 01 95 00.

A52. Confirmed.

Q53. **EEO Contracting Participation**

Section 6 of the Evaluation and selection criteria lists the maximum possible points for the SLBE, ELBE and DVBE participation. Please

confirm that this participation percentage is based on the subcontract value versus the overall project contract value.

A53. The Proposer's subcontractor participation that will be counted towards meeting the mandatory goal is calculated based off of the total contract value, minus "Field Orders" and "City Contingency" Bid items, Alternate Bid items, and Allowance Bid items designated as "EOC Type II". For more information, please see the RFP Attachment C, section A – EOCP General Requirements - subsection F. Please note: the SLBE/ELBE goal established for this project is determined based on the availability of SLBE/ELBE firms, as well as the scope of work of the project. Proposers must meet the mandatory SLBE/ELBE participation percentage or submit adequate Good Faith Effort documentation as outlined in the RFP.

Q54. **Trailer Sprinklers**

Please verify The County of San Diego Fire Code applies to trailers for the Admin Relocation and should those trailers include fire sprinklers and associated fire alarm systems as required by The County Fire Code.

A54. The trailer is a state approved deferred submittal. The selected Design-Builder to work with the manufacturer to complete the design and permit the trailer while adhering to all necessary government codes.

Q55. Sheet Note 6 on 1E.001 in the Bridging Documents indicates an Add/Alternate price for a new 2000kW generator to provide sufficient load for cooling and heating on standby. The Price Proposal Sheet doesn't indicate any Line Item or Add/Alternate for this piece of equipment. Please advise how this add/alternate is to be submitted.

A55. Please reference the revised price proposal sheet released in Addendum 3.

C. CHANGES TO THE REQUEST FOR PROPOSALS

1. To **ATTACHMENT A, PROJECT DESCRIPTION, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AND BRIDGING DOCUMENTS**, page 38, **ADD** the following:

8. Water Quality Laboratory Performance Reference

The Alvarado Laboratory project shall be designed and built to be fully functional in every capacity with requirements equal to or exceeding the existing County of San Diego, County Public Health Laboratory. Information on the County is below:

Contact Information

San Diego Public Health Laboratory
5540 Overland Ave, San Diego, CA 92123
Phone: (858) 325-6400
Fax: (858) 268-4102
Email: **phslaboratory.hhsa@sdcounty.ca.gov**

Water Quality Laboratory
5540 Overland Avenue, San Diego, CA 92123
Phone: (858) 325-6412
Email: **phlabwaters.hhsa@sdcounty.ca.gov**

Hours of Operation: Monday- Friday, 8:00 a.m. – 5:00 p.m.
Specimen Drop Off: Monday-Friday, 8:00 a.m. – 4:30 p.m.

https://www.sandiegocounty.gov/content/sdc/hhsa/programs/phs/phs_laboratory.html

Core Responsibilities

- **Hazard Identification**

  Assess workplaces for potential health risks such as chemicals, noise, heat, biological agents, poor air quality, or ergonomic stressors.

- **Exposure Monitoring**

  Measure levels of dust, gases, vapors, noise, and other hazards using specialized equipment.

- **Risk Evaluation**

  Compare measured exposures against occupational health standards (like OSHA, NIOSH, or ACGIH limits).

- **Control Measures**

  Recommend engineering controls (ventilation systems, noise dampening), administrative controls (work rotation, policies), or personal protective equipment (respirators, gloves, etc.) to minimize risks.

- **Training & Education**

  Teach workers and management about safe practices, hazard awareness, and proper use of protective equipment.

- **Regulatory Compliance**

  Ensure that workplaces follow federal, state, and local occupational safety and health regulations.

2. To ATTACHMENT E, SUPPLEMENTARY SPECIAL PROVISIONS, SECTION 7 – MEASUREMENT AND PAYMENT, **7-3.1, General,** page 97, **ADD** the following:

   13. The Lump Sum Bid item for Additive Alternate B, **"2000 kW Generator"** shall include the equipment, delivery, and installation cost.

3. To ATTACHMENT H, PRICE FORMS, **TOTAL PRICE FOR DESIGN-BUILD PROPOSAL**, page 570, **DELETE** in its entirety and **SUBSTITUTE** with page 21 included in this Addendum.

D. EXCEL PRICE PROPOSAL SHEET

To the Excel Price Proposal Sheet on PlanetBids "Documents Tab", **DELETE** in its entirely and **REPLACE** with file "EXCEL Price Proposal Sheet" issued October 30, 2025.

Rania Amen, Director
Engineering & Capital Projects Department

Dated: *October 31, 2025*
San Diego, California

RA/AM/yk

TOTAL PRICE FOR DESIGN-BUILD PROPOSAL

Total Price For Design-Build Proposal, (Excel Price Proposal Sheet, Items 1 through 37, inclusive) plus Additive Alternate A, Item 1, plus Additive Alternate B, Item 1 (Excel Price Proposal Sheet Alternates, inclusive) amount written in words:

_____

Design-Builder: _____

Title: ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

Signature: _____

The names of all persons interested in the foregoing proposal as principals are as follows:

_____

_____

_____

IMPORTANT NOTICE: If Design-Builder or other interested person is a corporation, state secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Design-Builder or other interested person is an individual, state first and last names in full.

Price Proposal Sheet

The Design-Builder agrees to the design and construction of **Alvarado Laboratory Improvements and Alvarado Laboratory Improvements Trailer**, for the City of San Diego, in accordance with these contract documents for the lump sum price listed below. The Design-Builder guarantees the proposed prices for a period of 120 Days from the date Proposals are due. The duration of the price guarantee may be extended as required by mutual consent.

Item No.	Base Proposal for	NAICS CODE	Description	Quantity	D*	Unit	Unit Price	Extension
1	Main Bid (L-22000.1)	524126	Bonds (Payment and Performance)	1		LS		$0.00
2	Main Bid (L-22000.1)	541330	Engineering and Design Services	1	D	LS		$0.00
3	Main Bid (L-22000.1)	238220	Construction of Alvarado Laboratory Improvements	1		LS		$0.00
4	Main Bid (L-22000.1)	236220	Building Permit (EOC Type I)	1		AL	150000	$150,000.00
5	Main Bid (L-22000.1)	EOC2	City Contingency (EOC Type II)	1		AL	8000000	$8,000,000.00
6	Main Bid (L-22000.1)	541330	SWPPP Development	1	D	LS		$0.00
7	Main Bid (L-22000.1)	237310	SWPPP Implementation	1		LS		$0.00
8	Main Bid (L-22000.1)	541330	SWPPP Permit Fee (EOC Type I)	1		AL	25000	$25,000.00
9	Main Bid (L-22000.1)	541330	Partnering (EOC Type I)	1		AL	75000	$75,000.00
10	Main Bid (L-22000.1)	541330	Inspection Paid For By the Contractor (EOC Type I)	1		LS		$0.00
11	Main Bid (L-22000.1)	541370	Survey Services	1		LS		$0.00
12	Main Bid (L-22000.1)	238210	Utilities Fees (EOC Type I)	1		AL	100000	$100,000.00
13	Main Bid (L-22000.1)	Other	Furniture, Fixtures & Equipment (FFE) (EOC Type I)	1		AL	1500000	$1,500,000.00
14	Main Bid (L-22000.1)	541330	Biological Monitoring and Reporting	1		LS		$0.00
15	Main Bid (L-22000.1)	238390	New Lab Equipment (EOC Type I)	1		AL	1000000	$1,000,000.00
16	Main Bid (L-22000.1)	541330	Special Material Testing: Structural Welding & Welding Size Type T3 Testing	1		LS		$0.00
17	Main Bid (L-22000.1)	541330	Special Material Testing: Structural Steel	1		LS		$0.00

18	Main Bid (L-22000.1)	541330	Special Material Testing: Concrete	1		LS		$0.00
19	Main Bid (L-22000.1)	541330	Special Inspections and Tests: Seismic Resistance	1		LS		$0.00
20	Main Bid (L-22000.1)	541330	Special Inspections: Cold-Formed Steel Light-Frame	1		LS		$0.00
21	Main Bid (L-22000.1)	541330	Special Inspections and Tests: Cast-in-Place Deep Foundation Elements	1		LS		$0.00
22	Main Bid (L-22000.1)	541330	Special Material Testing: Soils	1		LS		$0.00
23	Main Bid (L-22000.1)	541330	Condition Assessment of the 72" Pipeline (EOC Type I)	1		AL	75000	$75,000.00
24	Main Bid (L-22000.1)	238390	Existing Lab Equipment Transport and Calibration	1		LS		$0.00
25	Main Bid (L-22000.1)	541330	Traffic Control and Engineered Traffic Control Plans	1		LS		$0.00
26	Main Bid (L-22000.3)	524126	Bonds (Payment and Performance)	1		LS		$0.00
27	Main Bid (L-22000.3)	238220	Construction of Alvarado Laboratory Improvements Trailer	1		LS		$0.00
28	Main Bid (L-22000.3)	236220	Building Permit (EOC Type I)	1		AL	20000	$20,000.00
29	Main Bid (L-22000.3)	EOC2	City Contingency (EOC Type II)	1		AL	100000	$100,000.00
30	Main Bid (L-22000.3)	541330	WPCP Development	1	D	LS		$0.00
31	Main Bid (L-22000.3)	237310	WPCP Implementation	1		LS		$0.00
32	Main Bid (L-22000.3)	541330	Inspection Paid For By the Contractor (EOC Type I)	1		LS		$0.00
33	Main Bid (L-22000.3)	238210	Utilities Fees (EOC Type 1)	1		AL	50000	$50,000.00
34	Main Bid (L-22000.3)	Other	Furniture, Fixtures & Equipment (FFE) (EOC Type I)	1		AL	145000	$145,000.00
35	Main Bid (L-22000.3)	541330	Biological Monitoring and Reporting	1		LS		$0.00
36	Main Bid (L-22000.3)	541330	Traffic Control and Engineered Traffic Control Plans	1		LS		$0.00
37	Main Bid (L-22000.3)	541330	Geotechnical Survey	1		LS		$0.00

* Design Element (For City Use)

TOTAL: $11,240,000.00

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 4

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ No.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
DECEMBER 17, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

http://www.sandiego.gov/cip/bidopps/l

DEPUTY CITY ENGINEER

The Engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:

	11/20/2025	Seal:
For City Engineer	Date	



Signed
11/20/2025

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ON THE COVER PAGE.**

B. ADDENDUM

1. To **ADDENDUM 1**, **Section B. CHANGES TO CONTRACTOR DOCUMENTS**, Item **1.,** page 3, **DELETE** in its entirety and **SUBSTITUTE** with the following:

    1. To Attachment A, Project Description, Scope Of Work, Technical Specifications, and Bridging Documents, Item 3, BRIDGING DOCUMENTS, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AS BUILTS, page 36, new link is provided for Addendum 1, which includes the REVIT files for the project. The user is subjected to conditions as stated in the signed release.

    https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Addendum%201.zip

2. To **ADDENDUM 2**, Section **B. BIDDER's QUESTIONS**, **Responses to RFIs 1a**., **7., 8.**, **18., 22.**, **25., 28.,**and **51**, **DELETE** "ALL (google) links" and **SUBSTITUTE** with the following link:

    https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Addendum%202.zip

3. To **ADDENDUM 2**, Section **B. BIDDER's QUESTIONS, Response to RFI 1b,** page 4, **DELETE** in its entirety and **SUBSTITUTE** with the following:

    Alvarado Lab Building Solar/PV is the one installed at Earl Thomas Tank. Tank 24 and Tank 21 Solar/PV is not a part of Alvarado Lab Building Solar/PV. The as-builts for the solar/PV system have been uploaded to the folder titled Question 1 Utility Bills Attachments, in sub-folder titled Alvarado Solar/PV in the link below:
    https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Addendum%202.zip

4. To **ADDENDUM 2**, Section **B. BIDDER's QUESTIONS**, **Response to RFI 12**., page 6, **DELETE** "(google) link" and **SUBSTITUTE** with the following link:

   https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Alvarado%20Laboratory%20Improvements%20Trailer.zip

5. To **ADDENDUM 2**, Section **B. BIDDER's QUESTIONS**, **Response to RFI 29**, page 10, **DELETE** "(google) link" and **SUBSTITUTE** with the following link:

   https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Alvarado%20Laboratory%20Improvements.zip

6. To **ADDENDUM 3**, Section **B. BIDDER's QUESTIONS**, **Response to RFI 10**., page 7, **DELETE** in its entirety and **SUBSTITUTE** with the following:

   The Basement Mechanical As-Builts are included in the As-Builts link provided in the RFP. Check the following link:

   https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Alvarado%20Laboratory%20Improvements.zip

   Sheets M-12 & M-12A.

C. CHANGES TO THE REQUEST FOR PROPOSALS

1. To Section 1. INTRODUCTION AND PROJECT OVERVIEW, subitem **1.1. SOLICITATION**, page 6, Subitem **1.1.10., DELETE** "google link" and **SUBSTITUTE** with the following link:

   https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Release%20Forms.zip

2. To Section **13. SELECTION AND AWARD SCHEDULE,** Subsections **13.4. Proposal Due, 13.5. Presentations or Interviews, 13.6. Selection and Notification,** and **13.7. Limited Notice to Proceed,** page 9, **DELETE i**n their entirety and **SUBSTITUTE** with the following:

13.4. Proposal Due Date	**DECEMBER 17, 2025 at 2:00 PM**
13.5. Presentations or Interviews	**FEBRUARY 2026**
13.6. Selection and Notification	**APRIL 2026**
13.7. Limited Notice to Proceed	**JUNE 2026**

3. To ATTACHMENT A PROJECT DESCRIPTION, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AND BRIDGING DOCUMENTS, Item **2. SCOPE OF WORK, Alvarado Laboratory Improvements Trailer (WBS# L-22000.3)**, page 35, **DELETE** "google link" and **SUBSTITUTE** with the following link:

   https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Alvarado%20Laboratory%20Improvements%20Trailer.zip

4. To ATTACHMENT A, PROJECT DESCRIPTION, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AND BRIDGING DOCUMENTS, Item **3. BRIDGING DOCUMENTS, SCOPE OF WORK, TECHNICAL SPECIFICATIONS, AS-BUILTS**, page 36, **DELETE** "google link" and **SUBSTITUTE** with the following link:

   https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Alvarado%20Laboratory%20Improvements.zip

5. To ATTACHMENT E, SUPPLEMENTARY SPECIAL PROVISIONS, Section 3 – CONTROL OF THE WORK, Subsection 3-9, TECHNICAL STUDIES AND SUBSURFACE DATA, **Item 6**, page 72**., DELETE** "google link" and **SUBSTITUTE** with the following link:

   https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Technical%20Studies.zip

D. EXCEL PRICE PROPOSAL SHEET

To PlanetBids "Documents Tab", to the "Excel Price Proposal Sheet", **DELETE** in its entirely and **REPLACE** with file "**EXCEL Price Proposal Sheet**" issued **November 20, 2025**.

Rania Amen, Director
Engineering & Capital Projects Department

Dated: *November 20, 2025*
San Diego, California

RA/MA/yk/egz

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 5

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ No.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
DECEMBER 17, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

http://www.sandiego.gov/cip/bidopps/

DEPUTY CITY ENGINEER

The Engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:

	11/20/2025	Seal:
For City Engineer	Date	



Signed
11/20/2025

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

Q1. **Zero Net Energy On-Site Renewables**

On mechanical dwg 1M.001 under the heading "GENERAL UTILITY PLANT" it indicates in two locations that "CITY UNDERSTANDS NET ZERO IS NOT ACHIEVABLE FOR EXISTING SITE BUT DESIGN BUILD CONTRACTOR SHOULD DESIGN TO MINIMIZE BUILDING EUI." Does this mean that the project does not need to meet the Zero Net Energy requirement for the project with on-site renewables?

A1. Our bridging document consultant's preliminary analysis determined that ZEMBOP was not achievable, however, the Selected Design-Builder shall work with City Representative to determine if ZEMBOP compliance is possible. Design-Builders shall bid with the intent to meet ZEMBOP.

Q2. **Environmental**

Per RFP Pg 562, please confirm intent with including an "Environmental" consultant among the "Project Team" on this page, and describe their required deliverable. For example, is this required for follow up CEQA and/or EIR monitoring?

A2. The environmental consultant shall provide qualified staff to perform construction biological monitoring for the project. Specific requirements are provided in the Survey Brief and Habitat Assessment included in this addendum, see pages 59 through 82.

Q3. **Signage Requirements**

Regarding Bridging Documents, A6.103 Signage Details & Schedules, please provide Building Exterior and Site Monument signage requirements, or confirm no Building Exterior or site monument signage is required in this project.

A3. Exterior signage is required. The selected Design-Builder shall work with the City Representative to determine appropriate exterior signage. Design-Builder to bid for one exterior Site Monument.

Q4. **Vibration Criteria**

A. Please confirm existing building meets the vibration criteria requirements for lab space and that no testing or structural retrofit is required.

B. Please confirm the vibration criteria requirements for the new building addition, specifically the lab space.

C. At the new building, please confirm that this vibration criteria only applies to lab spaces and not the office space types.

A4. A. Design-Builder to hire acoustics/vibrations engineer to determine if existing building meets design criteria based on lab equipment sensitivity/requirements.

B. Design-Builder to hire acoustics/vibrations engineer to develop design criteria based on lab equipment sensitivity/requirements.

C. Vibration criteria is dependent on lab equipment sensitivity/requirements.

Q5. **Trailer Finish Schedule**

Please provide a finish schedule or basis of designs for finishes in the Trailer.

A5. The temporary trailer is a state approved deferred submittal. Selected Design-Builder to work with manufacturer and City Representative to determine finishes.

Q6. **Trailer Door Schedule**

Please provide a door schedule and hardware groups or basis of designs for doors in the Trailer.

A6. The temporary trailer is a state approved deferred submittal. Selected Design-Builder to work with manufacturer and City Representative to determine hardware/door schedule.

Q7. **Trailer Countertops**

Please indicated material type and requirements for countertops in the Trailer.

A7. The temporary trailer is a state approved deferred submittal. Selected Design-Builder to work with manufacturer and City Representative to determine countertop material types.

Q8. **Trailer Roofing**

Please indicate the required roof material and performance specifications for roofing at the Trailer.

A8. The temporary trailer is a state approved deferred submittal. Selected Design-Builder to work with manufacturer and City Representative to determine roofing material.

Q9. **Trailer CCTV**

Please indicate requirements and locations for any CCTV at the Trailer.

A9. CCTV is required. Selected Design-Builder to work with City Representative to determine locations of CCTV for the Trailer.

Q10. **Trailer Lighting Title 24**

Please verify if The City requires the Trailer to meet full Title 24 lighting controls and calculations.

A10. The temporary trailer has received City internal ZEMBOP exemption, however, CBC Title 24 code compliance is subject to Development Services Department (DSD) review and approval. Selected Design-Builder is responsible for obtaining all permit approvals.

Q11. **Trailer HVAC**

Please verify power for the HVAC units is to be "3-phase, 208V" or "Single-phase, 120V".

A11. The temporary trailer is a state approved deferred submittal. Selected Design-Builder to work with manufacturer to determine.

Q12. **Roof Installation**

Drawing TS102 states roof will include R-38 rigid insulation. A4.601 indicates it should be R-30. Please clarify the thermal requirements of the roof insulation.

A12. For bidding purposes, assume R-38. However, Selected Design-Builder shall recommend appropriate roof installation based on need.

Q13. Please confirm that the organizational chart required in Section 3.5 (page 563) of the RFP is considered a graphic and is not included in the 50-page limit, as was the case with the RFQ submission.

A13. Confirmed.

Q14. Bridging document civil plan sheet 1.C.104 shows two underground detention vaults, presumably for hydromodification compliance, but does not reference how these vaults were sized. Was there preliminary sizing done with the bridging documents, either in a Preliminary Storm Water Quality Management Plan (SWQMP) or Hydromodification Report prepared with the bridging documents, and can that document be released to the bidders?

A14. It is the selected Design-Builders responsibility to determine if these documents are required. A Hydromodification Report and Preliminary Storm Water Quality Management Plan was not prepared as part of the Bridging Documents. Selected Design-Builder shall refer to the Stormwater Standards Manual for guidance on determining if the project requires hydromodification plan management.

Q15. Are there vehicle weight limits on top of the Earl Thomas reservoir? If so, please specify the entrance for vehicles that exceed this weight.

A15. Passenger vehicles only across Earl Thomas. Construction vehicles, trucks, etc. to use gate north of the main gate.

Q16. Are there any current hazardous classified areas in the existing building (class I div 2 or class 1 div 1) spaces. Is the expectation to have hazardous classified spaces as part of the new project?

A16. The laboratory does not currently have Class 1 Division 1 or 2 hazardous spaces. Chemical Engineer needed to analyze chemical quantities and classifications as provided by the laboratory users. Determine maximum allowable quantities based on chemical classification and determine occupancy type and fire/life safety parameters for occupancy.

Q17. **Boundary Survey**

Please confirm if a Boundary Survey will be a required deliverable. Legend note #2 on C.002 of the bridging documents notes that a boundary survey was not performed.

A17. Confirmed.

Q18. **Stormwater Quality & Hydromodification Criteria**

Please confirm the accuracy and intent of the volumes of the underground detention vaults indicated on the plans. Please provide the preliminary sizing calculations and criteria for the underground detention vaults indicated on the bridging documents Sheet

1C.104. The volumes of storage provided on the plan in the callouts do not appear to align with the footprints as drawn and corresponding pipe invert elevations (depths).

A18. The intent of the underground detention vaults are part of the permanent BMPs for the project. The footprint as drawn in the Bridging Document is diagrammatical. Selected Design-Builder is Engineer of Record (EOR) to determine appropriate size.

Q19. **Hours of Operation**

Please confirm hours of operation for the overall building and each lab group.

A19. Hours of operation for each section and workgroup does vary. Core hours are approximately 6am – 6pm but it is not uncommon for staff from different groups to start at 4-5am or stay until 7-8pm.

Q20. **Fire Alarm Clarifications**

Please identify what Fire Alarm system is currently in place. Also, please confirm if the Fire Alarm system has a campus wide "Tie In". If the system has a campus wide "Tie In", identify the location of the "Tie In".

A20. Fire suppression system is provided by Low Voltage.

The lab has an EDWARDS fire alarm panel.

Q21. **Expansion Joints**

Drawing A1.102 note 07.903 shows a seismic joint is required between the new and existing building per the CBC requirements. This note is indicated on the east side of the new lab building. Please indicate if a seismic joint is also required between the existing building and the new electrical room on 2/A1.102.

A21. Selected Design-Builder is responsible for completing the design including any necessary studies and recommendations to the City to meet program requirements.

Q22. **Battery Energy Storage System**

The bridging documents show locations for PV systems on the roof, but they do not show locations for a BESS (Battery Energy Storage System). Battery energy storage systems are not prescriptively required for the project by the 2025 CEC, as laboratory facilities are exempt and not prescriptively required to have PV with battery storage, and the Zero

Emissions Municipal Buildings and Operations Policy guidelines indicate "Sizing of Battery Energy Storage Systems shall be evaluated based on their economic impact to facility operations, reliability benefits, and availability of physical space for BESS." If the ZNE requirements for the project are met with the PV systems, the reliability requirements are met with the standby generators, and all other energy goals are met without the BESS, is there a need for the BESS system for the project? If so, what economic criteria should be used to size the BESS?

A22. BESS is required; however, selected Design-Builder is to determine appropriate size.

Q23. **Laboratory Equipment Schedules**

Please confirm that all equipment listed as 220, 230 and 240V can operate at 208V and provide respective amps.

A23. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q24. **Laboratory Equipment Schedules**

Please provide voltage phase (single-phase or three-phase) for equipment which indicate voltages greater than 120V.

A24. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q25. **Laboratory Equipment Schedules**

Please identify the specific voltage and phase for equipment which indicate voltage range between 100-240 and 200-230 and provide respective amps.

A25. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q26. **Parking Count**

Regarding Bridging Documents, A1.001 Site Plan Phase 1, please confirm minimum net-required parking spaces, and stall sizes (ex. are compact stalls allowed) and any other requirements. Please confirm if there is a required number of covered stalls in the total net count.

A26. Selected Design-Builder is responsible for compliance with City standards, program requirements, and obtaining plan approval and permits for the design and construction of the project.

Q27. **Insurance Carriers**

Please confirm if the city carriers FM Global as an insurance carrier.

A27. FM Global is not an insurance carrier for the City.

Q28. **CEQA Categorical Exemption NOE Technical Studies**

Please provide any technical studies prepared by the applicant or lead agency to support the NOE as required by a Class 32 categorical exemption (in-fill developments). Specifically,

a) demonstrate the project site has no value as habitat for endangered, rare or threatened species.

b) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.

c) The site can be adequately served by all required utilities and public services.

A28. See Survey Brief, Alvarado Laboratory Improvements Project, dated February 24, 2025, and Habitat Assessment, Alvarado Laboratory Improvements Trailers Project, dated March 10, 2025, prepared by the Engineering & Capital Projects Department biologist staff, included in this addendum, see pages 59 through 82.

NOE is included in the RFP. No further studies are published.

Q29. **FF&E**

Regarding Bridging Documents, A1.1 series, Note #10. "Use FF&E allowance to relocate and purchase new equipment and furniture." Please confirm type of equipment to be assumed as part of the "E" within FF&E. Also, whether the City will be providing a specification & procurement schedule for this equipment.

A29. This note is referring to non-permanently fixed equipment. Selected Design-Builder to work with City Representative to determine the procurement schedule for the equipment.

Q30. **Trailer PV**

Please confirm solar panels are NOT required on top of the Trailers and the only solar required for the trailers will be installed on top of the storage tank per Keynote 15 on Sheet AS-0.

A30. Solar panels are not required on top of the Trailer.

Q31. **Paging and Emergency Notifications**

IT Telecom specifications 2.10.2 Paging and Emergency Notifications call for a paging system and emergency notification system to interface with VOIP phone system. No rooms have been identified for these systems. Please confirm both systems are functions of the phone system, and no separate devices are required.

A31. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q32. **Lab Benches Data Requirements**

Lab Data: Requirements call for a duplex data at each bench and dedicated data connection at each piece of lab equipment that requires data connections.

a. Please confirm that (1) Duplex data shall be provided per bench regardless of bench length or number of seats.

b. Please confirm data is not required at short benches intended for sinks.

c. Please provide equipment list indicating equipment that requires a data connection. Please confirm we can assume (1) single data per equipment identified.

d. Please confirm no wall data or data in wall mounted raceways are required. (Not identified as benching)

e. Please confirm no data required in process closets, unless specifically identified for equipment in the equipment matrix.

f. Please confirm no data is required in equipment rooms unless specifically identified for equipment in the equipment matrix.

A32. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q33. **Audio Visual**

No AV systems are identified in the RFP. Please confirm pathways only for displays in conference rooms will satisfy the AV scope.

A33. AV display is required in all conference rooms. Selected Design-Builder shall determine all AV requirements.

Q34. **Backbone Network Cabling**

No backbone networking scope is identified. Please confirm backbone scope requirements for extension to new IDF.

A34. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q35. **Site Fire Access**

Please provide the existing site fire lanes for the Alvarado WTP campus, confirming the entrance(s) and exit(s) for fire access and where the project is to tie into the existing fire lane network.

A35. All roads that are minimum 26-ft wide are part of the site fire access, including access road behind existing lab building. Please contact Development Services Department for Fire Access requirements. Selected Design-Builder is the EOR and shall determine the appropriate fire lane access requirements.

Q36. **Windows on GL "GG/CC"**

(Ref. A1.102 & A2.101, 2/A1.402) Between Phase 1 and phase 2&3 there are a row of windows between grid lines "GG & "C". These windows appear to be the existing windows at the exterior breezeway. Please confirm that these windows are to stay in place an that portions of them will be part of the interior build out.

A36. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q37. **Window Clarification**

(Ref. A1.303 / 1) Plan sheet Plan Sheet A1.303 / 1 shows a different material at the top of what is believed to be window 117A. Additionally Plan sheet A1307 / 2 indicates spandrel glazing where occurs. The window schedule does not list all glazing requirements or where they occur. Please clarify glazing requirements and location

A37. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q38. **Door #192 Clarification**

(Ref. A3.101) Is door 192 to have a fire rating? Please clarify

A38. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q39. **NTP vs LNTP**

The contract period states that there is 920 working days from NTP. Trailer scope indicates beneficial occupancy of trailer shall be 12 months after LNTP. Under "Phase Funding Provisions" page 40 section 2.1 of the solicitation indicates that the City will issue a separate NTP for each phase. 920 working days from NTP to completion with finish to start of the following is extremely aggressive:

a. Trailers - 12mos.

b. New Build

c. Phase 2 Renovation

d. Phase 3 Renovation

Is the 920 working days indicated as the contract period intended to include the trailer phase (12 months), New Laboratory, and 2+ phases of renovation work?

A39. The trailer shall be occupied within 12 months of issuing LNTP. The trailer schedule is firm and shall be constructed as the laboratory portion of the project is being designed and permitted. The Selected Design-Builder will work with the City representative to develop a schedule that includes time for ELAP certification. Design-Builder is encouraged to propose alternative ways of achieving the completion of the project within the working days presented in the RFP. The Selected Design-Builder is responsible for the design and construction schedule and phasing of the project.

Q40. When is your desired occupancy date? Is there a funding constraint or any other constraints driving occupancy date?

A40. The desired occupancy date for the trailer is 12 months after LNTP. The entire project shall be completed within 920 working days from NTP.

Q41. Please specify insurance limits Architects and Engineers are required to carry for:

1. General Liability
2. Workers Comp
3. Automobile Liability

Please confirm Architects and Engineers are not subject to:

1. Contractors Pollution Liability Insurance

2. Contractors Hazardous Transporters Pollution Liability Insurance
3. Contractors Builders Risk Property insurance

A41. Refer to Attachment E, Section 5-4 in the RFP for insurance requirements.

Q42. **Appendix P ZEMBOP CP-900-03 Council Policy p8 Section 2 Table 2: Proposed Site EUI Targets for Major Renovation Projects**

Is there a site EUI target for laboratories for Major Renovation projects?

A42. Both the renovation and the new lab shall meet target "Laboratory" EUI in Table 1 of ZERO EMISSIONS MUNICIPAL BUILDINGS AND OPERATIONS POLICY 900-03.

Q43. **Appendix P ZEMBOP CP-900-03 Council Policy p9 Section B.2 Zero Emission Buildings**

Onsite renewable energy sized to match the annual average building electricity consumption for energy-intensive laboratories will be significant. Have you completed a feasibility/preliminary study that you can share for estimated sizing/footprint? Please confirm the renewable energy match is based on the annual average electricity consumption for the renovated area only and not the entire site.

A43. Selected Design-Builder to determine and propose onsite renewable energy sizing, needs, and locations. Selected Design-Builder is the EOR and shall determine the appropriate requirements.

Q44. Please confirm whether the City intends to allow proprietary one-on-one meetings or a process for submitting proprietary RFIs. This is a fairly typical practice among other public agencies in best-value design-build procurements and helps protect proposer innovation and sensitive concepts while maintaining compliance.

A44. The City does not intend to allow any proprietary one-on-one meetings or allow any proprietary RFIs as it violates the City municipal code.

Q45. Please confirm that the price entered on the Price Proposal Form should reflect only the bridging documents as issued, along with City-defined Additive Alternate A, and should not include voluntary alternates or options proposed by the Design-Builder.

A45. The Design-Builder is encouraged to propose alternative designs as a part of their technical proposal and will be scored accordingly. However, for bidding purposes, confirmed, price proposal form shall reflect bridging documents /RFP.

Q46. **Page 18 of 652, Item 13 Subcontractor Information and Attachment H Price Forms**

Reference Page 18 of 652, Item 13 Subcontractor Information and Attachment H Price Forms, The RFP language in Item 13 reads as though proposers are required to submit a full and comprehensive subcontractor list at this stage (any trades in excess of one-half of one percent of the contractor's bid). Typically, with best value design-build procurements, and as allowable under California Public Contract Code Sections 22160 et seq. and 22170 et seq., the awarding entity does not require a full subcontractor list at proposal stage since the design documents are not complete. After award, the successful Design-Builder proceeds with design and later bids out a fully developed set of design documents to subcontractors, at which point a comprehensive subcontractor list is provided.

Requiring a full subcontractor list at this time does not seem reasonable. Please confirm that the only subcontractor information required at proposal stage is to provide the Design-Build subcontractors (if any) per Attachment H, and to list any first-tier subcontractors needed to achieve the mandatory 3.4% EOCP participation, and that a complete list of all subcontractors is not required at this time. This request is consistent with the RFI below which seeks clarification on the specific EOCP documentation required at proposal stage.

A46. The City recognizes that the Design-Build entity is charged with performing both design and construction. Because a Design-Build contract may be awarded prior to the completion of the design, it is often impracticable for the Design-Build entity to list all subcontractors at the time of the award.

If a Design-Build entity seeks to obtain credit toward the mandatory subcontractor participation, then the Design-Build entity shall list any first-tier subcontractors needed to achieve the mandatory subcontractor participation and a complete list of all subcontractors is not required at this time. Please refer to Municipal Code §22.3309 Work Listing for more information.

Q47. **Attachment H – Price Proposal Forms; Attachment C, Section F – Subcontractor Participation Percentages.**

Attachment H – Price Proposal Forms; Attachment C, Section F – Subcontractor Participation Percentages.

References: Attachment H – Price Proposal Forms; Attachment C, Section F – Subcontractor Participation Percentages.

The Price Proposal Form (Attachment H) lists 37 base bid items plus Additive Alternate A. All items are shown as “Lump Sum,” but several appear to be allowances (e.g., EOC Type I, EOC Type II, City Contingency). Attachment C, Section F excludes some of these from EOCP percentage calculations, but the overlap is unclear.

a. Please confirm, item by item, which of the Price Proposal Form bid items (1–37 plus Alternate A) will be included in the denominator for calculating the mandatory 3.4% SLBE/ELBE participation.

b. Please confirm which line items are considered true lump sum (contractor-controlled and at contractor’s risk) versus allowances (owner-controlled and contractor's risk).

A47. a. Please see RFP Attachment C, Section A, Subsection F-3 and F-4 for more information on what will and will not be accounted for achieving the mandatory subcontractor participation percentages.

b. Refer to price proposal sheet unit column. If it states "LS", that is a lump sum item that is Contractor controlled and at contractor's risk. If it states "AL", see Whitebook for definition. An allowance is a City pre-determined budget amount.

Q48. **Attachment G Section 8.1**

Attachment G Section 8.1 requests a minimum of three (3) references. Please clarify whether the City is looking for references from the General Contractor, Architect, or both. If both, is the City looking for three separate references for the GC, and three separate references for the Architect?

A48. The City does not distinguish the architect and contractor as separate entities. The City will contract with the Design-Builder as a single entity. The City is looking for a minimum of three references. The Design-Builder may provide the three references in any combination. It is up to the Design-Builder to determine how best to provide their qualifications to the City.

Q49 **General**

Do we need to account for only code minimum EV chargers to be added as a result of the addition?

A49. For bidding purposes, confirmed. However, Selected Design-Builder shall recommend appropriate design and work with City Representative to complete the design that meets the program and requirements.

Q50. **General**

The standards say to comply with 2016 California Building Standards (Title 24). Confirm if the intent is comply with current code (2025).

A50. Conform with the current 2025 code.

Q51. **General**

The RFP references a project budget of $144.5M. Would it be possible to receive the detailed project estimate that supports this value?

A51. A detailed estimate will not be provided. The $144.5M is the engineers estimate and not the project budget.

Q52. **RFP**

The project documents reference achieving “net zero”. However, there is no indication of the anticipated yearly kWh usage of the facility. In order to properly size the PV system to meet this requirement, please provide the estimated yearly kWh usage for the facility.

A52. The selected Design-Builder is responsible for the design of the project including the usage of the facility to properly size the PV system. Reference Addendum 2 for utility bills of existing facility. See Section C, item 2 of this Addendum for updated Addendum 2 link.

Q53. **RFP Page 41, Phase Funding**

There is a document titled Phase Funding Schedule Agreement on page 41 of the RFP, which lists Phases 1–4 without providing direction on the phasing.

A - Is the phase funding schedule required to be turned in as part of the RFP?

B - Please provide funding phases and describe if there are any start/finish dates associated with the defined phases.

A53. A - The Design-Builder is encouraged to turn in their proposed construction phasing/sequencing as part of their technical proposal. The phase funding agreement will be discussed, agreed upon by both the City and the Design-Builder and finalized after the selection has been made.

B - The proposed “Phases 1–4” mentioned in the RFP refer to the project development stages, not necessarily the funding phases, and are for reference only. The proposed phasing is as follows:

(1) Construction of the trailer and completion of the 72" pipeline assessment

(2) Pipeline rehabilitation (if needed) and construction of the new lab building

(3) Renovation of a portion of the existing lab building

(4) Renovation of the remaining portion of the existing lab building

Design-Build teams are welcome to propose alternative phasing strategies that could improve the project schedule, reduce costs, or minimize disruption to lab staff during transition periods and will be scored accordingly.

Q54. **Bridging Document TS102 Design Narrative Summary Section 4.0 Geotechnical Report**

Attachment G Section 3 requires proposers to present qualifications for “Geotechnical,” and Item 37 of the Price Proposal Form lists “Geotechnical Survey” under the trailer scope only. Division 31 further states that the Owner will retain the testing agency for soils testing and inspection.

Please confirm whether the City intends to retain and provide the Geotechnical Engineer, or whether the Design-Builder is expected to carry this discipline. If carried by the Design-Builder, please clarify whether the scope applies only to the trailer (as shown in the bid form) or also to the laboratory improvements.

A54. The temporary trailer is a state approved deferred submittal. The permitting of the trailer, which is the responsibility of the selected Design-Builder, will require a geotechnical investigation and report to support the trailer foundation.

The entire project, including lab portion and 72-inch pipeline will require a geotechnical engineer. The Design-Builder will be the Geotechnical Engineer of Record and will be responsible for all geotechnical reports and any testing needed. The geotechnical reports provided by the City are for reference only. The cost for the Geotech survey for the trailer will be included in the Lump Sum bid item, “Geotechnical Survey” (line item 37 of the Price Proposal Sheet). The remaining geotechnical services for the project shall be included in the lump sum line item 2.

Q55. **Plumbing Drawings**

Please confirm floor drain or floor sink will NOT be required at EWSS?

A55. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q56. **RFP Page 99**

Please clarify what scope "Biological Monitoring & Reporting" is intended to cover (e.g., nesting bird surveys, species monitoring, construction oversight) and confirm whether this role is City-provided or Design-Builder-provided. Please also clarify whether it applies only to the trailer or to both the trailer and laboratory improvements.

A56. Biological monitoring requirements are provided in the Survey Brief, Alvarado Laboratory Improvements Project, dated February 24, 2025 and Habitat Assessment, Alvarado Laboratory Improvements Trailers Project (WBS # L-22000) dated March 10, 2025, included in this Addendum, see pages 59 through 82.

Q57. Refer to Attachment G, Section 5.1.11.

1) Please clarify what "Environmental monitoring" is referencing (i.e., what is being monitored?)

2) Please clarify the reference to "avoid cross-contamination," as there were not any contaminants mentioned in the RFP. What are the contaminates and where are they located?

A57. 1) Biological monitoring requirements are provided in the Survey Brief, Alvarado Laboratory Improvements Project, dated February 24, 2025 and Habitat Assessment, Alvarado Laboratory Improvements Trailers Project (WBS #L-22000) dated March 10, 2025, included in this Addendum, see pages 59 through 82.

2) The reference to "avoid cross-contamination" pertains to preventing construction activities-and any associated dust, debris, or disruptions-from interfering with the ongoing operations of the laboratory. Portions of the lab will remain active throughout the project, and lab staff must be able to continue their work without interruption. It is essential that construction be planned and executed in a way that maintains a clean and safe environment for lab personnel at all times. Design-Builder is required to hire an industrial hygienist.

Q58. Were the bridging documents vetted by DSD for code compliance?

A58. No. The selected Design-Builder is responsible for obtaining all necessary permits required to complete the project.

Q59. The improvements to the existing parking stalls to the East may trigger modernization of those stalls, including finger island planters. This is a gray area in the code and ultimately up to the reviewer's interpretation. Has this been discussed or vetted with DSD?

A59. No. The selected Design-Builder is responsible for obtaining all necessary permits required to complete the project.

Q60. Standardized annual EUI:

Without having reliable utility data for the existing building and a clear operational schedule (building, occupancy, shifts, equipment), a standardized or consistent methodology for estimating expected annual energy usage should be provided to DB teams. Without this consistency, there are many ways to estimate expected annual energy usage of the new program and the city may receive significantly different ZNE PV array sizes/capacities based on individual and different calculation methodologies. Can the city provide a referenced energy use intensity (EUI) or annual kWh/sq ft, so this calculation is standardized across bidding firms and proposed Zero Net Energy PV arrays are sized & priced consistently?

A60. The selected Design-Builder is responsible for the design of the project including the usage of the facility to properly size the PV system. Both the renovation and the new lab shall meet target EUI in Table 1 of ZERO EMISSIONS MUNICIPAL BUILDINGS AND OPERATIONS POLICY 900-03.

Q61. Since this is a design-build pursuit and we are not able to get complete bids from each trade at the time of submitting our proposal, please confirm that we are NOT required to have all subcontractors, suppliers, and manufacturers complete the 'Debarment and Suspension Certification – Subcontractors, Suppliers and Manufacturers' form found on page 648 and submit this with our proposal. These forms will be provided when subcontractor awards are made.

A61. This form must be completed by the Prime contractor with the subcontractors known at the time of Proposal due date.

Q62. **Subcontractor Listing**

Solicitation Section 13.1 Listing of Subcontractor Information indicates that any scope of work in excess of 0.5% of the Contractor's total bid must be listed. In a design-build project these subcontractors are not able to be contracted until design has progressed past the point of the bridging documents provided. Please confirm that sub listing will not be a requirement of this project.

A62. The City recognizes that the Design-Build entity is charged with performing both design and construction. Because a Design-Build contract may be awarded prior to the completion of the design, it is often impracticable for the Design-Build entity to list all subcontractors at the time of the award.

If a Design-Build entity seeks to obtain credit toward the mandatory subcontractor participation, then the Design-Build entity shall list any first-tier subcontractors needed to achieve the mandatory subcontractor participation and a complete list of all subcontractors is not required at this time. Please refer to Municipal Code §22.3309 Work Listing for more information.

Q63. **LEED**

Is the City's expectation that LEED and LEED Zero certifications only include the new addition, or that the existing building also be included in the LEED boundary?

A63. Per City's council policy, both the renovation and the new building shall be included in the LEED boundary.

Q64. **GC's/GR's**

Specification 01 50 00 Temporary Facilities Parts 3.2-3.4 within the Alvarado Lab -100_BD Project Manual Section states the contractor shall make arrangements to use existing electricity and water and if not available, contractor is responsible to provide and pay for service.

Specification 01 50 00 Temporary Facilities and Controls Section 1.3 Use Charges Paragraphs A-D within the Solicitation Document states that water, sewer, electric power, telephone and data from existing systems are available for use without metering and without payment of charges.

The Whitebook 2021 Section 2-5.2 Temporary Utility Services states that the contractor shall provide and pay for all electrical, gas and water

required for construction and maintenance activities until acceptance.

There is conflicting information regarding the payment of temporary utilities between the three aforementioned documents. Please clarify which document governs.

A64. The Design-Builder shall follow 2021 Whitebook section 2-5.2.

Q65. **Testing & Special Inspection**

Note 1 on Drawing S002 states that the complete structural inspection requirements shall be provided by the Design Build Team. Specification 01 45 00 Quality Control Services Section 1.3.1 states that the costs of initial testing and inspection will be paid for by the Owner. Section 4 4-3.4 of the Solicitation Document also indicates several inspections to be paid by the Contractor. Please clarify who is responsible for the costs of testing and inspection.

A65. The selected Design-Builder is responsible for the costs of testing and inspection.

Q66. **BIM**

Per RFP Pg 71, “Design-Builder shall use Revit for the development of the plans and Building Information Model (BIM) model. Level of Development shall be LOD 400 or better. Design-Builder shall submit to the City the Revit files and 3D model (Navisworks file) at each stage of design (30%, 60%, 90%, 100%)." Please confirm that LOD 400 (fabrication level modelling) is not required with 30%, 60%, 90%, 100% Revit submittals.

A66. LOD 400 is required for 90% and 100% design.

Q67. **Construction Type**

Conflicting information is provided on the bridging documents. Please confirm the construction type of the existing building (Type IA or IB).

A67. Type IA.

Q68. **Existing Utility Conflicts**

General note on drawing 1C.101 indicates the removal of unneeded and plugged utilities, that are tested, televised and then found to be in conflict with the new lab and site work installation. Please confirm that

the City will perform the testing and video indicated and that any relocation or removal of these unknown utilities will be considered a change in condition.

A68. The selected Design-Builder will be responsible for performing testing and video to determine any utility conflicts. Any relocation or removal of these unknown utilities to be performed by the Design-Builder will be considered a change in condition.

Q69. **Trailers Site Restoration**

Does the 7-wide trailer complex (trailer plans 0102328-1D through 0102328-35D), remain in-place at completion of this project? If no, what is required for restoration of the trailer improvement site once the lab improvements are complete? What will be required for permitting? If removed, can this area be used for stormwater mitigation/treatment?

A69. Trailer to remain in place at completion of the project.

Q70. **Hazardous Material Business Plan**

Please confirm whether the City will be providing a Hazardous Material Business Plan if required by the AHJ, for example, as a condition of final occupancy of the facility.

A70. The selected Design-Builder shall be responsible for the AHJ if needed.

Q71. **Renewable Energy to meet ZNE**

To achieve the RFP requirement for the facility to be Zero Net Energy (ZNE) verified through the New Building Institute (NBI) or through LEED Zero Energy program, the project will need to either have all its renewable energy (i.e. PV) located on-site or have a contract for off-site renewable energy contracted for a minimum of either 15 years (NBI ZNE) or 3 years (LEED Zero Energy). Are you expecting the project to utilize all on-site renewable energy to meet the ZNE requirement? If so, even with the most aggressive energy efficiency measures, there is not enough roof area to locate PV panels to fully offset the new and existing building's expected energy usage. If that is the case, can we use a combination of PV on the new and existing bldg. roofs, and take credit for the existing PV currently located on the adjacent Earl Thomas Tank for the renewable energy requirements to get to ZNE? It appears the existing PV system is powered through the same service switchgear “MSC” as the Alvarado Laboratory, so can be considered part of the on-site renewable energy source.

A71. All renewable energy shall be located on-site. For bidding purposes, Design-Builders shall not use existing PV as part of their calculations. Design-Builder

is responsible for proposing renewable energy system and locations (such as new roof, existing roof, carports, etc.) in their technical proposal. If Design-Builder proposes renewable system on existing roof, Design-Builder shall be responsible for ensuring structural integrity is adequate.

Q72. **Laboratory Equipment Book**

Regarding Bridging Documents, LQ drawing series and schedules indicating new and existing laboratory equipment:

A. Please confirm whether a corresponding laboratory equipment book with cutsheets will be made available to bidders to get a detailed understanding of dimensions, weights, utility, and vibration requirements, for example. If the laboratory equipment book is unavailable, please confirm whether this research will be provided by the City instead.

B. Please confirm whether any additional surveying of existing lab equipment to be relocated is still required.

A72. A. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

B. Additional surveying of existing lab equipment to be relocated is still required.

Q73. **Existing Lab Equipment Warranty**

Drawing A1.100 note 8 indicates that the existing laboratory equipment will be relocated using a specialized lab equipment relocating company that can calibrate the equipment in the new location and warranty it. The note does not indicate a timeframe for this warranty, but since it is not equipment provided by the contractor, please confirm that a warranty specific to this existing equipment is not required.

A73. Selected Design-Builder is not responsible for existing equipment warranty.

Q74. **Existing Elevator**

Please verify what temporary vertical transportation measures (e.g., material hoist/personnel lift) are required while the existing elevator is offline for replacement.

A74. Temporary vertical transportation is needed mainly to transport samples and heavy equipment.

Q75. Please confirm that any elevator manufacturer is acceptable for this project and there is not a specific elevator manufacturer required due to an existing owner elevator maintenance agreement.

A75. Confirmed. The elevator manufacturer is responsible for maintaining the elevator during the warranty period.

Q76. **Patch Cables**

Confirm all patch cables will be supplied by and installed by owner.

A76. Design-Builder shall supply and install all patch cables.

Q77. **Card Readers**

Door schedule on A4.602 lists (14) access control locations. Please confirm that those are the only locations that require access control/card readers.

A77. For bidding purposes, confirmed. However, Selected Design-Builder shall recommend appropriate design and work with City Representative to complete the design that meets the program and requirements.

Q78. **p36 Section 2 Scope of Work**

Please clarify the desire for the Design-Builder's Lab Planner Specialist to be responsible for assisting the Client Department in the creation and selection of the new laboratory equipment list. This normally starts with the end user's Lab Director or Lab Manager who determines the type of testing and scientific investigations to be done. Can you please specify the City's lab staff's role to define the testing types and scales?

A78. The Alvarado Laboratory houses four different laboratory sections that are under the management of Senior Environmental Scientists (Laboratory Directors). They will identify the testing needs and develop a draft list of new laboratory equipment needed, with the guidance and advisement of the Design-Builder's Lab Planner.

Q79. New main switchboard "4MSB1A" on Electrical sheet 1E.701 appears to have two utility grade meters, please confirm if the intent of the electrical renovation is to have two utility grade meters (one for the main switchboard and one for the employee owned EV charging)

A79. Confirmed.

Q80. **Page 17 of 652, Item 11.11.1, Technical Proposal Requirements**

Reference Section 11.1.1 which requires proposals to be submitted in

Times New Roman, 12 pt. We recognize the intent of this requirement is to ensure readability, consistency, and fairness across submittals, however we respectfully request alternatives to offer flexibility in formatting. Please confirm if the following widely accepted government fonts may be used as alternatives, given their comparable readability and page density: Arial 11 pt, Calibri 11 pt or Cambria 12 pt.

A80. Approved to use Arial 11 pt, Calibri 11 pt or Cambria 12 pt.

Q81. **General**

Can the City confirm the comment "the building is running out of power" and what issues that entails for their existing facility?

A81. This mainly refers to the subpanels being full with limited amperage. The overall service to the building still has capacity.

Q82. **72-inch Pipeline Lining Specification 01020**

During the General Contractor site walk, it was stated that the 72-inch pipeline cannot be shut down for more than 24 hours. However, the specifications (Section 01020) describe a Phase 1 shutdown duration of seven days, during which the pipeline is to be taken offline for valve replacement and condition assessment. Additionally, Section 01010 and 01019 reference coordination with City staff for shutdowns during off-peak demand periods, typically between November and March.

Please confirm the following:

Is the maximum allowable shutdown duration for the 72-inch pipeline limited to 24 hours, as stated during the GC walk? or should we proceed per specification section 010110?

A82. 72-inch pipeline technical specification sections 01020 and 01019 have been revised to reflect the correct shutdown durations. Refer to Section 01020, Construction Sequence and Pipeline Shutdowns and 01019, Pipeline Condition Assessment, included in pages 51 through 58 of this Addendum.

Q83. **Lab Gas - LQ90-00**

Detail 17 on sheet LQ.90-00 shows Hydrogen gas on the ceiling service panel. No Hydrogen gas is shown on the laboratory piping plans. Please confirm if Hydrogen will be used on this project.

A83. Confirmed. Selected Design-Builder to work with City Representative for the final design of the project.

Q84. **Fire Alarm**

Provide existing Fire Alarm system manufacture and campus standards

A84. The Water Treatment plant uses Cosco as their fire alarm monitoring system. The Lab uses Low Voltage for fire alarm and suppression services. The lab has EDWARDS FA system manufacturer.

Q85. **Mechanical Drawings**

Please confirm if any room contaminant detection systems such as Aircuity are required.

A85. Not Required.

Q86. We assume based on Cal Green and municipal code requirements, additional trees are required in proposed parking lots. Please confirm. Bridging documents appear to be deficient.

A86. Selected Design-Builder is responsible to complete the design to comply with all necessary codes.

Q87. Irrigation plans do not identify the location and capacity of the existing controller. Where is the existing controller? Is it intended to be replaced?

A87. The controller is inside the Solar Panel inverter cage. For bidding purposes, it is intended to be replaced.

Q88. RFP Section 5.1.5 requests the proposed safety program and 5.1.6 requests a proposed Emergency Response plan. We plan to give an overview of the program/plan within the RFP response, but would like to include a more complete plan in the Appendix. Please confirm supplemental documents can be included in an Appendix without counting towards the overall page limit of the technical response.

A88. Confirmed.

Q89. - What are the operation requirements for the building? Is there a standard operation schedule (i.e. 8am to 6pm) or does the lab need to be operated 24/7, etc.?

- What are the ventilation requirements for the building? Are there different ventilation requirements during occupied hours and unoccupied hours?

A89. Hours of operations varies between the different groups. Hours can range between 4am to 8pm.

For ventilation, the HVAC system and fumehoods shall remain operational 24/7.

Q90. **ELAP Field of Accreditations (FOAs)**

Please verify the anticipated number of Field of Accreditations (FOAs) required for ELAP Accreditation.

A90. 637 FOAs.

Q91. Please confirm a Refrigerant Monitoring System is required for the enclosed chiller room. If so, what system brand is preferred or allowed?

A91. Selected Design-Builder to work with City Representative to complete design that meets program and requirements.

Q92. **Grease Interceptor**

Please verify if a Grease Interceptor is required for the Café and will the Café have to go through the Health Department permitting review?

A92. A grease interceptor is not required.

Q93. **Tandem Parking**

Should the project pursue tandem parking employee spaces using the Neighborhood Development Permit?

A93. No.

Q94. **Generator Alternate**

Please clarify whether the alternate pricing for the 2000kW Generator needs tot include relevant downstream electrical equipment, feeders, devices or pricing for the Generator only.

A94. Refer to Section C, item 2 of Addendum 3.

Q95. Please confirm that the organizational chart required in Section 3.5 (page 563) of the RFP can be shown on a 11"x17" size page, as was the case with the RFQ submission.

A95. Confirmed.

Q96. **Wildfire Hazard Severity Zone**

Please confirm the site is in a wildfire hazard severity zone and will need to comply with the requirements of the Wildland Urban-Interface Code and the City of San Diego requirements. If yes, please confirm if the temporary construction trailer needs to comply with the requirements for buildings in wildfire hazard severity zones.

A96. Design-Builder will be responsible to comply with all relevant building codes as well as the San Diego Municipal Code to complete the design and construction of the project.

Q97. **Gas Equipment**

Drawing AD1.100 note 5 states "Eliminate and replace gas service with electric equipment if the lab operations do not require it. See MEP Drawings." Drawing 1PD.101 Note 2 states "Design Build Contractor to remove existing gas meter and all utility gas piping to accommodate buildout of Phase 1. Design Build Contractor to verify no equipment serving Phase 2 or 3 is fed from gas meter." Please clarify if there is any equipment in the existing building utilizing gas.

A97. The new building will be required to comply with ZEMBOP. The laboratory does not utilize natural gas for any scientific instruments or analyses.

Q98. **Manual and Motorized Roller Shades**

The Spec 12 49 40 indicates that there might be potential for motorized shades. The Room Finish Schedule does not provide the locations for Motorized shades. Please indicate if motorized shades are required and include the locations if required.

A98. For bidding purposes, roller shade is not required. Selected Design-Builder to work with City Representative to design desired room finishes that meets program and requirements.

Q99. **Miscellaneous Laboratory Exhaust Requirements**

Dedicated individual laboratory exhaust fans have not been scheduled for the following uses, please confirm ducting them into the combined (general room exhaust/fume hood exhaust) laboratory exhaust systems through the general room lab exhaust air valves is acceptable: Autoclave Hoods, Glasswasher exhaust connections, Biosafety Cabinets & any other lab equipment hoods.

A99. Selected Design-Builder to work with City Representative to complete design that meets program and requirements. Provide a redundant Exhaust Fan (EF) system for service/repair. For bidding purposes, provide a redundant EF system for service/repair. City may contemplate a combo general room/fume hood EF system if submittals reflect a Direct Digital Control (DDC) dedicated controls system to serve process exhaust/equipment and allow for isolation.

Allowable Stress Design (ASD) vs Load and Resistance Factor Design (LRFD) shall be decided by the Structural Engineer of Record (SEOR) under the Design-Builder team. It is the Design-Builder's responsibility to meet all required codes and regulations.

Q100. **Window Structural Notes**

(Ref. S001) Can the Components & Cladding Pressure be added to the General notes of the structural drawings to include the design criteria (ASD or LRFD). This information is required for material selection and engineering requirements.

A100. ASD vs LRFD shall be decided by the SEOR under the Design-Builder team. It is the Design-Builder's responsibility to meet all required codes and regulations.

Q101. **Thermal Break**

(Ref. Specification 08 32 11 / 2.02 A. 4.) Specification 08 32 11 / 2.02 A. 4. states "Polyamide plastic less than 3/4" (20 mm) wide or pour and de-bridge thermal break will not be accepted". Is this comment stating that the thermal break cannot be less than 3/4"? In Lieu of this requirement can the thermal, SHGC & U-Factor performance requirements be stated to insure they are being meet? Please clarify

A101. It is up to the Design-Builder to meet the performance criteria set forth in the RFP.

Q102. **Specification 084113 Clarification**

(Ref. Specification 08 41 13 / 2.1.1) Specification 08 41 13 / 2.1.1 states Western Integrated Materials. Are interior storefront (non-fire rated) systems intended to be open throat Western Integrated framing materials? And are these frames to include Western Integrated doors (not Aluminum Storefront)? Please clarify.

A102. It is up to the Design-Builder to meet the performance criteria set forth in the RFP.

Q103. **Specification 088100 Clarification**

(Ref. Specification 08 81 00 / 2.1.7.6.2.2) Specification 08 81 00 / 2.1.7.6.2.2 States low E coating or prior approved equal that conforms to T24. There is not a T24 report in the plan sheets. Can one be provided? Please clarify.

A103. The Design-Builder shall prepare a T24 report.

Q104. **Specification 088100 Clarification**

(Ref. Specification 08 81 00) Glass Make ups of door schedule are not clearly identified. Door remarks (G) have three types, two of which reference the window schedule. The Window Schedule has three types noted (Glass types) which are not identified on the actual schedules or

elevations. Glass type three of the window schedule indicates laminated (thicker than 1"). There are not any call outs for spandrel. Specification 08 81 00 only illustrates one glass make up with performance requirements for that make up. Can specifications be updated to include correct glass make-ups to include interior, obscured, exterior, spandrel (Specific color and or pattern and type) & STC requirements? And can this information clearly be stated as to where its required? Please clarify.

A104. The Design-Builder shall be responsible for the final door and window schedule based on the performance requirements of the RFP, including STC requirements.

Q105. **Phase 2 windows**

(Ref. 2/A2.301 and 1/A2.302) Phase 2 elevations / sections have a keynote "08.401 - Storefront system per plan and schedule" near gridline D and between gridlines 6-17, however there are no window tags / schedule to reference. Please confirm these windows are existing and to remain or are new windows. If new, please provide window tags / sizes.

A105. Assume new windows. The Design-Builder shall be responsible for the final door and window schedule based on the performance requirements of the RFP, including STC requirements.

Q106. **Phase 2/3 Furred Columns**

(Ref. AD2.101, AD3.101 and A2.101, A3.101) The Phase 2/3 interior demo plans show the existing furred column walls being demolished; however, the phase 2/3 floorplans do not show the steel columns with new furred partition enclosures. Please confirm all steel columns require new furred partitions.

A106. The Design-Builder may propose alternatives that meet the intent of the performance specs. However, for bidding purposes, assume all steel columns require furred partitions.

Q107. **Automatic Door Operators**

(Ref. A4.602) No automatic door operators are shown on the door schedule, please confirm none are required.

A107. Automatic door operators are required at accessible route/path of travel locations.

Q108. **Partition Resilient Channel**

(Ref. Spec 054000, A4.601) Specification 054000- 3.5 notes resilient channel, however none is shown on the A4.601 partition types. Please confirm resilient channel is not required or clarify where it would be needed.

A108. It is up to the Design-Builder to meet the performance criteria set forth in the RFP.

Q109. **Phase 3 baffle ceiling**

(Ref. A3.103) Please clarify ceiling type at sheet A3.103, gridline C/8.

A109. It is up to the Design-Builder to meet the performance criteria set forth in the RFP.

Q110. **Appendix A Notice of Exemption, Attachment G Section 3.1.8**

Noted the project meets the categorical exemption criteria set forth in CEQA State Guidelines, Section 15301 (Existing Facilities). Please describe the scope for the Environmental consultant to be retained by the Design-Builder. Is their scope limited to GHG Emissions Compliance Report as indicated on p13 Section D.1.a) of Appendix P ZEMBOP CP-900-03 Council Policy?

A110. In addition to GHG Emission reporting, see Survey Brief, Alvarado Laboratory Improvements Project, dated February 24, 2025, and Habitat Assessment, Alvarado Laboratory Improvements Trailers Project, dated March 10, 2025, prepared by the Engineering & Capital Projects Department biologist staff, included in this Addendum, see pages 59 through 82. The Design-Builder will work with City representative to meet ZEMBOP requirements and LEED Silver at a minimum.

Q111. **Sheet 2M.101 and 3M.101**

Multiple rooms with pressure requirements. Currently no additional sealing of walls or ceilings are identified. Please confirm intent of construction of rooms to properly maintain pressurization.

A111. Design-Builder to propose methods of construction to properly maintain pressurization of rooms in technical proposal.

Q112. **Sheet 1M.801**

0.4% Enthalpy condition for Montgomery is 83 FDB / 71.4 F WB. Cooling coils are scheduled with a lower entering air temp for the 100% OSA units. Please confirm intent.

A112. It is up to the Design-Builder to meet the performance criteria set forth in the RFP.

Q113. **General**

Currently cooling is not on E-power but ventilation is for the labs. Some of the rooms such as those containing mass specs will heat up rapidly without any cooling during E-Power. Please confirm if any areas require cooling to be on E-Power.

A113. It is up to the Design-Builder to meet the performance criteria set forth in the RFP.

Q114. **Civil - 1C.104**

Note 4 indicates that the new 4-inch C900 PVC domestic water line is to be connected to the existing 4-inch domestic water line. The drawing indicates that the existing line could be AC (asbestos cement). Please confirm the existing 4-inch domestic water line is AC pipe?

A114. Assume AC pipe. Design-Builder to verify.

Q115. **1C1.04**

Drawing shows cleanouts on the 18" RCP storm drain, but there is no detail for that type of connection. Please advise on this type of connection.

A115. Design-Builder to verify clean out type.

Q116. **Elevations**

The glass makeups shown in the door and window schedules are unclear. Door remark (G) lists three types, two of which reference the window schedule. The window schedule lists three glass types, but they are not identified on the schedules or elevations. Glass type 3 indicates laminated (thicker than 1"), and there are no callouts for spandrel glass.

Specification 08 81 00 only provides one glass makeup with performance requirements.

Please identify all required glass makeups (interior, obscured, exterior, spandrel-including color, pattern, and type-as well as STC requirements), and indicate where each type is required.

A116. The Design-Builder shall be responsible for the final door and window schedule based on the performance requirements of the RFP, including STC requirements.

Q117. **1LQ.101A - Lab Casework**

See sheet 1LQ.101.A – The two ICP rooms on right side indicate epoxy top (EB36FIX) but do not show base cabinet. Please confirm if only stile panels are to be provided or specify a series of base cabinets.

A117. Assume stile cabinets.

Q118. **1LQ.101.B**

See sheet 1LQ.101.B – Oven room on left side. There seems to be tops here though EB36FIX was not noted. Please confirm tops are required at Oven Room.

A118. Assume tops are required.

Q119. **Spec 12 35 53.13**

Spec Section 12 35 53.13 calls for acid storage cabinets to be metal cabinets with polypropylene (PP) lining, fully seam welded. Listed manufacturers are Scimatco, Nuaire, or approved equal.

Scimatco offers PP-lined wood cabinets, not metal.

Nuaire does not appear to provide acid cabinets.

Clarifications Requested:

Is the intent an all-PP construction cabinet rather than a PP-lined metal cabinet?

Should polypropylene acid/flammable cabinets only be provided under polypropylene fume hoods? Or is the requirement intended for all acid cabinets?

The cabinet schedule shows two shelves with one pullout option, but we cannot find a cabinet that matches this configuration. Please confirm requirements.

A119. Selected Design-Builder may propose alternatives and work with City representative to meet program requirements.

Q120. **1E.202A**

Please provide the make and model of Panel 2SDP2A so add to existing breakers can be properly identified.

A120. Design-Builder to verify during design.

Q121. **Low Voltage Scopes**

Please confirm GCs/Electrical Subcontractors will be responsible for design build Low Voltage Scopes for Div 27 and 28 which would include Tele/Data, Security and Audio Visual.

A121. The Design-Builder team will be responsible.

Q122. **Ceiling Service Panels, LQ.90-00, 1LQ-101A, 3LQ.101B**

Detail 17 on sheet LQ.90-00 shows three ceiling service panels each requiring different services.

The floor plans (1LQ.101A - 3LQ.101B) refer to detail 17 but do not distinguish which panel to use.

Please specify which ceiling service panel is to be used.

A122. Design-Builder to verify during design.

Q123. **Ceiling Service Panels**

1LU.101A - 3LU.103A

Please confirm that all Ceiling Service Panels without notes do not require gas (1LU.101A - 3LU.103A)

A123. No gas required.

Q124. **Plumbing - P.801**

Please specify the manufacturer and model of S-1 on P.801.

A124. Design-Builder to verify during design.

Q125. **Plumbing - P.801**

The Phase 3 drawings show a LAV-3. No LAV-3 is listed in the plumbing schedules on sheet P.801. Please confirm specifications for LAV-3.

A125. Design-Builder to verify during design.

Q126. **RFP Page 502**

According to Appendix P, Item #22 on page 502 of the Solicitation Document, Phase I requires a Retro-Commissioning process to identify efficiency improvements and establish methodologies for continuous improvement on existing systems. Given that the building is scheduled for demolition and new construction is planned, please clarify which systems this requirement applies to.

A126. Design-Builder and Commissioning Agent to propose and decide which equipment requires retro-commissioning as part of their commissioning plan.

Q127. **Lab Casework - 1LQ.101A**

1LQ.101A –There are two rooms noted as “ICP” on referenced sheet. Rooms show equipment on countertops, but there are no cabinet callouts or elevations. Please advise what is to support the countertops in these rooms?

A127. Design-Builder to design and construct.

Q128. **Lab Casework - 1LQ.101A**

1LQ.101A – For General Note 8 (TYP), please provide model numbers and/or detail of required PPE items.

A128. Design-Builder to design and construct.

Q129. **Lab Casework - 2LQ.101**

2LQ.101 – Per Sheet Note 5 on referenced page, gas cylinder restraints to be provided in the "Gas Closet", but none are shown on the floor plan. Please advise how large and how many cylinder restraints are needed. Example, are they 2 cylinders wide by 2 deep, etc. as it is difficult to tell from referenced detail 18/LQ90-00.

A129. Design-Builder to verify during the design process.

Q130. **Lab Casework - LQ.86-01**

LQ.86-01 – Please reference the tall cabinets labeled as 'FS' and 'FV'. Please confirm the FS is a flammable cabinet and the FV is an acid cabinet.

A130. Confirmed.

Q131. **Lab Casework - 2LQ.101**

2LQ.101- In the room labeled "Extraction Room" there are not enough base cabinets to enclose the bottom of the 12' fume hood ORG-FH-010 on the west wall. Please advise what cabinet is needed here.

A131. Design-Builder to design and construct cabinets.

Q132. **Lab Casework - 2LQ.101**

2LQ.101 – In the room labeled "Extraction Room" there are no id/tags for the benches or the islands. Please confirm which bench is needed here.

A132. Design-Builder to design and provide benches.

Q133. **Lab Casework - LQ.86-01**

LQ.86-01 - Please confirm there are no wall cabinets or wall shelving needed for this project. They are shown on the cabinet schedule but not shown on the floor plans. DB to design and provide cabinets

A133. Design-Builder to design and provide cabinets.

Q134. **Lab Casework - 3LQ.101B**

3LQ.101B - There are no base cabinets shown under fume hood on the south wall in room “VOC”. Please advise what is required here.

A134. Design-Builder to design and provide cabinets.

Q135. **Lab Casework - 17/LQ.90-00**

17/LQ.90-00 – There appears to be 3 different types of CSP’s, but there are not any CSP type designations on the floor plans. Please advise the CSP designations and or provide a schedule.

A135. Design-Builder to verify during the design process.

Q136. **Lab Casework - 16/LQ.90-00**

16/LQ.90-00 - Please confirm task lights are to be provided at the bottom of all bench shelving and advise if at every bottom shelf or every-other bottom shelf.

A136. Assume every bottom shelf.

Q137. **Lab Casework - 13 & 16/LQ.90-00**

13 & 16/LQ.90-00 - please provide plumbing services and/or electrical circuit requirements at all benches.

A137. It is the Design-Builder's responsibility to design and construct.

Q138. **Lab Casework - 3/LQ.90-00**

3/LQ.90-00 - please confirm removable knee space panel can run horizontally in lieu of vertically.

A138. It is the Design-Builder's responsibility to design and construct.

Q139. **Lab Casework - 8/LQ.90-00**

8/LQ.90-00 - Please advise if Unistrut or metal framing is required for island umbilical's and confirm if required floor to ceiling or only bench to ceiling.

A139. It is the Design-Builder's responsibility to design and construct.

Q140. **Lab Casework - 5 & 8/LQ.90-00**

5-8/LQ.90-00 - Umbilical on floor plans are not scaling to 36” per detail 8. Please confirm all umbilical's are to be 36” wide. Detail 5 states pegboards to be 18” or 30” wide and are only shown to be provided on umbilical's in detail 8. Please confirm all pegboards to be 18” as shown in detail 8.

A140. It is the Design-Builder's responsibility to design and construct.

Q141. **KN11/A1.102**

Floor plan notes carry allowance for Data, Alarm and Security to purchase these systems. Please clarify if this allowance should cover rough-in.

A141. No. Please include as part of lump sum.

Q142. **KN11/A1.102**

Clarify if CCTV is part of the Security allowance.

A142. CCTV is part of the lump sum.

Q143. **KN11/A1.102**

Clarify if the IDS system is part of the allowance.

A143. Part of lump sum.

Q144. **KN11/A1.102**

Clarify if the Paging and Emergency notification system is part of the allowance.

A144. Part of the lump sum.

Q145. **KN11/A1.102**

Floor plan notes carry allowance for Data, Alarm and Security to purchase these systems. Please clarify if this allowance should cover rough-in.

A145. No. Please include as part of lump sum.

Q146**. KN11/A1.102**

Clarify if CCTV is part of the Security allowance.

A146. CCTV is part of the lump sum.

Q147. **KN11/A1.102**

Clarify if the IDS system is part of the allowance.

A147. Part of lump sum.

Q148**. KN11/A1.102**

Clarify if the Paging and Emergency notification system is part of the allowance.

A148. Part of the lump sum.

Q149. **Mechanical Drawings**

The mechanical drawings currently show a constant volume approach to the air distribution. To comply with California energy standards and the net zero intent of the building confirm if variable volume should be utilized.

A149. Variable volume should be utilized.

Design-Builder may propose alternate methods of design to meet the net zero intent of the building.

Q150. **Specification section 23091**

Under miscellaneous systems, -10 and -20 inches W.C. are identified for industrial exhaust, however no fans are scheduled for pressures greater than 5 inches W.C. Please confirm if lower pressure can be utilized that is more in line with the pressure generated by the exhaust fan."

A150. It is the Design-Builder's responsibility to design and construct.

Q151. **Specification section 23091**

Please confirm extents of stainless steel ductwork required from fume hoods. Is it acceptable to provide stainless steel from the hood to the main.

A151. It is the Design-Builder's responsibility to design and construct.

Q152. **Bridging Documents, Sheet TS101**

Sheet TS101 notes the zone for the site as AR 1-1 within the City of San Diego. The floor area ratio, lot coverage, required setbacks and building height are all noted to be NA. This is not consisted with what is shown on SDMC Table 131-03C. Is this site exempt from those requirements?"

A152. It is the Design-Builder's responsibility to design to all applicable codes/regulations.

Q153. **Glazing Scope - Specification 08 81 00**

Glass types are unclear. Door remarks (G) reference three types, but the window schedule shows three different types that are not identified on the drawings. Glass type 3 notes laminated (>1"), and no spandrel callouts are provided. Spec 08 81 00 only shows one generic makeup.

Question: Please provide the correct glass makeups (interior, obscured, exterior, spandrel with color/pattern, and STC) and indicate where each is required.

A153. It is the Design-Builder's responsibility to design and construct.

Q154. **A1.102 - GL AA**

Floor plan - Phase 1 Plan sheet A1.102's West grid line "AA" has window tag 116c (between GL 11 & 22). Between grid lines 22 & 44 there are two unidentified window's. Additionally they are not indicated on A1.201 / 3 building elevations. Please confirm these openings are similar to 116C opening.

A154. It is the Design-Builder's responsibility to design and construct.

Q155. **1/A1.303**

Plan sheet Plan Sheet A1.303 / 1 shows a different material at the top of what is believed to be window 117A. Additionally Plan sheet A1307 / 2 indicates spandrel glazing where occurs. The window schedule does not list all glazing requirements or where they occur. Please clarify glazing requirements and locations.

A155. It is the Design-Builder's responsibility to design and construct.

Q156. **A3.101**

Is door 192 to have a fire rating? Please clarify.

A156. It is the Design-Builder's responsibility to design and construct.

Q157. **A4.603**

Window Opening 117a & 211a show a different mullion (at the top run of bays of 117a & the right 4 bays of 211a). Can more information be provided about what the intent of this condition is?

A157. It is the Design-Builder's responsibility to design and construct.

Q158. **KN13/A4.603**

Window Note 13 indicates moisture barrier flashing at openings. Then directs to a detail with no call out. Please provide what is required here.

A158. It is the Design-Builder's responsibility to design and construct.

Q159. Windloads provided in Project Manual section 084100 1.5.2.2.1 call for 15 psf acting inward and 20 psf acting outward but it is not provided if these are LFRD or ASD. Please confirm which one is correct.

A159. Design-Builder to verify wind loads as the EOR.

Q160. The provided specifications have no STC, OITC & U-Value requirement documentation for glazing systems, please provide.

A160. Design-Builder shall design to meet the performance requirements of the RFP.

Q161. Project Manual section 08 71 00 lists Best as standard, Schlage as approved equal but then in 2.2.1.4, it states lock series design as Schlage D Series.

The Facilities Stds and Spec Guideline says Best lock no alternate.

The Facilities Stds and Spec Guideline also shows mortise locks and cylindrical locks.

A161. For bidding purposes, assume Best locks.

Q162. See sheet 1LQ.101.A – The two ICP rooms on the right side indicate epoxy top (EB36FIX) but do not show a base cabinet. Please confirm if only stile panels are to be provided or specify a series of base cabinets

A162. Base cabinets required. Design-Builder to propose design that meets intent of the RFP.

Q163. See sheet 1LQ.101.B – Oven room on left side. There seems to be tops here though EB36FIX was not noted.

A163. Assume EB36FIX top required.

Q164. Acid storage cabinets – Metal Lab Casework Specs 12 35 53.13 noted acid cabinets as being metal cabinets, polypropylene (PP) lined that is "fully seam welded". Manufacturers are Scimatco, Nuaire or approved equal. Scimatco has PP lined cabinets but they are wood cabinets. As for Nuaire, I do not see cabinets and I don't believe we would get acid cabinets only from them. Hanson uses Securall cabinets. They are not PP lined but have Polyethylene (PE) trays over the shelves.

1. Could this be referring to an all PP construction cabinet, and not a PP lined cabinet?
    a. Should we provide polypro acid and flammable cabinets under polypro fume hoods only?
2. Seems like a blanket statement for all acid cabinets. But maybe this is referring to PP lined cabinets under PP fume hoods only.
3. The Cabinet Schedule shows them with two shelves, one that is a pullout. I do not see any cabinet having this option.

Please clarify the requirements regarding acid and flammable cabinets which are generally under the fume hoods.

A164. Selected Design-Builder may propose alternatives and work with City representative to meet program requirements.

Q165. Regarding Telecom/Security/AV - Bridging documents only show IT telecom specifications and IT security standards and guidelines, 100% DD documents do not show any Telecom sheets. Please confirm the assumption is for the design-builder to propose a full telecom/Security/AV system based on these specifications and standard documents.

Please also advise if a DASS system will be required. We have assumed that DASS will be required in the parking basement. Please confirm.

A165. Confirmed, the Design-Builder to propose a full telecom/Security/AV system/DASS.

DASS system is required.

Q166. **Phase 2/3 Existing roof demo and new roof**

(Ref. AD2.102 / AD3.102 , A2.102, A3.102) The phase 2/3 roof demo plans are not clear on the extent of demolition and new roofing assemblies.

1. Please clarify if the phase 2/3 roofing demolition includes the existing perlite LWIC slab or is limited to the single-ply roofing membrane only.
2. Phase 2/3 roof plans do not have a roofing assembly tag, just KN 07.502 "single ply roofing per specifications". Please clarify if the phase 2/3 new roofing is a single ply roofing membrane over existing LWIC slab only, or if this new roof also requires new built-up insulation due to the demolition of LWIC slab (ref. question 1).

A166. 1. Assume demo of entire LWIC slab.

2. Assume new built-up insulation.

Q167. Phase 1 Roof Type "(Ref. A1.104, A1.302, A4.601) The phase 1 building section roof is tagged assembly "R2", per A4.601 is a single ply roof over drainboard / concrete and no insulation. Keynote 07.501 states "Single ply roofing over cover board and tapered insulation". Please confirm phase 1 new roof assembly requires R-30 min tapered insulation per spec 07 2217.

A167. Confirmed.

Q168. **Manual and Motorized Roller Shades**

The Room Finish Schedule A5. 101 indicates V1 window treatments to receive Roller Shades. Please confirm the locations shown reflect the extent the window treatment scope of this project.

A168. It is the Design-Builder's responsibility to design and determine locations.

Q169. **Phase 3 - New Window Fire Rating**

(Ref. A2.101) At room 147 on sheet A2.101 the interior storefront 129b, 129c, 129d, 129e all indicate on sheet A4.603 that they are required to be 1 hour fired rated. Exterior window 129a at the same room is indicated to not require the same 1 hour fire rating. Please confirm that exterior 129a window system is to remain non fire rated as indicated.

A169. Design-Builder to verify during the design process. As the EOR, the Design-Builder is responsible for meeting all codes/regulations and obtaining necessary building permits.

Q170. **Phase 1 - Topping Slab Waterproofing**

(Ref. A1.102) Please clarify if a waterproofing membrane is required at KN 03.310 (3" topping slab) location, between structural deck and topping slab.

A170. For bidding purposes, assume yes, required.

Q171. **Phase 3 East Elevation - Building Awning?**

(Ref. A3.101, A3.102, A3.201) Phase 3 floorplan, roof plan, and east elevation at gridline M/7-10 appear to shown an awning /overhang and what appears to be a vertical sun-shade, please clarify design intent and provide additional information."

A171. Design-Builder to verify during the design process. As the EOR, the Design-Builder is responsible for meeting all codes/regulations and obtaining necessary building permits.

Q172. **Phase 3 East Elevation - New Windows**

(Ref. A3.101, A3.201) Phase 3 east elevation 2/A3.201 has a note with arrows pointing to the existing storefront that states “New Phase 3 Storefront”. The A3.101 floor plan shows the same windows and entry as existing and the window schedules on A4.603, and A.604 do not show or indicate a new storefront is required at these locations. Please confirm if new storefront windows and entrance with doors are required. If they are required, please provide an updated window schedule and an updated door schedule indicating quantities and sizes required.

A172. Design-Builder to verify during the design process. As the EOR, the Design-Builder is responsible for meeting all codes/regulations and obtaining necessary building permits. For bidding purposes, assume new storefront is required at these locations (Design-Builder to design and construct).

Q173. **Aluminum Solar Screen Spacing**

Phase 1 keynote 07.02 states 2" x12" fixed vertical aluminum solar screen at 12" o.c., see specifications", however specification 107113 - 1 (Part 2 Products). 2.01 A states 2x12 tubes at 15" o.c., please clarify.

A173. Design-Builder to verify during the design process. As the EOR, the Design-Builder is responsible for meeting all codes/regulations and obtaining necessary building permits.

Q174. Are pressure-independent control valves required for all valves including lab zones, fan coil units, air handling units, and central plant systems?

A174. Design-Builder may propose alternatives during design phase. However, for bidding purposes, assume pressure-independent control valves are required for all locations.

Q175. Does the lighting control system need to be integrated to the BAS?

A175. For bidding purposes, confirmed.

Q176. Does plumbing equipment need to be integrated or monitored on the BAS? If so, which items specifically? Water heaters, circulation pumps, waste neutralization system, air compressors, vacuum skids, RO/DI skid, gas switchover manifolds, etc.?

A176. For bidding purposes, confirmed. Plumbing equipment needs to be incorporated into the BAS system including: Water heaters, circulation pumps, waste neutralization system, air compressors, vacuum skids, RO/DI skid, gas switchover manifolds

Q177. Please confirm whether utility meters (electric, water, submeters) need to be integrated in the BAS.

A177. For bidding purposes, confirmed.

Q178. **Trailer AOR/EOR**

Is the Design-Build team intended to assume AOR/EOR responsibilities for the permitted trailer plan set?

A178. The Design-Builder is responsible for the deferred submittal and shall be the EOR for the deferred submittal.

Q179. **Parking Cal green - Voluntary Measures**

Do we need to comply with Cal Green 2025 Nonresidential Voluntary Measures Tier 1 or Tier 2 for this project?

A179. Tier 2.

Q180. **Communications Rooms Backup Power**

Please clarify whether the communications rooms (e.g. MPOE, IDF and Server) are required to be on generator backup power.

A180. For bidding purposes, Yes. Confirmed.

Q181. **Inorganics Support Lab - Chiller connection to ICP**

Who is responsible for providing connection between chillers to ICP equipment?

A181. The Design-Builder is responsible.

Q182. **Lab Water Line – Vacuum Breakers**

Plumbing drawings show Industrial water lines in lab and shows faucets with vacuum breakers at these water lines. Are vacuum breakers required at laboratory faucets? Typically it is not common to see vacuum breakers on industrial water lines.

A182. Design-Builder may propose alternatives during the design process. For bidding purposes, assume vacuum breakers are required at the mentioned locations.

Q183. Sheet K-26-2318-DB2-3-C includes allowances for "Building Permit (EOC Type I)".

1) Please confirm this allowance will apply to all permit costs including but not limited to: grading and excavation permits, site utility permits, right of way permits, building permits, demolition permits, deferred submittal for temporary office trailer.
2) Please also advise if SDG&E permit fees will be covered under the "Building Permit (EOC Type 1)" allowance or the "Utilities Fees (EOC Type 1)" allowance.

A183. 1) City will reimburse the Design-Builder for invoices paid to DSD and other permitting agencies.

2) SDG&E permit fees will be covered under the "Utility Fees (EOC Type I)"

Q184. RFP - IT Telecomunications Specifications and IT Security Standards Guidelines - Please confirm that DB team scope of work with regards to CyberSecurity is limited to providing the Security infrastructure, access controls, cameras, intrusion detection systems, and intercom systems that are built into the building and that The City of San Diego Cyber Security Team shall implement their proprietary cybersecurity programs as indicated on IT Security Standard Guidelines.

A184. Confirmed.

Q185. Refer to RFP Attachment G - Evaluation and Selection Criteria, Item 10 - Final Selection Based on Weighted Criteria. Please clarify if the Contract Price that will be used for scoring is based on the total price proposal with or without the alternate pricing included.

A185. The Contract Price to be used in the selection process will be determined by the Base Proposal plus all the Alternates.

Q186. Sheet K-26-2318-DB2-3-C includes allowances for "Utilities Fees (EOC Type 1)". Please confirm this allowance applies to all utilities both temporary and permanent for construction. Please confirm this allowance applies to all types of utilities including power, water, sewer, and gas.

A186. The allowance only covers reimbursement for invoices from regulatory agencies such as DSD, SDG&E, etc., for expenses related to utility plan review fees.

Q187. Per page 97 of the RFP, the relining of the 72" existing pipe is to be listed as an alternate. Please confirm all work after the condition assessment (listed as an allowance) shown on document "1.1 2025-05-14 Alvarado Lab Imp 72in pipe dwgs" should be listed in this alternate. This would include relining, new replacement of valves, new vaults, etc.

A187. Confirmed.

Q188. **KN2/E.001**

Per KN2/E.001 GCs are required to include an alternate for a new 20,000 kW generator. However, the Bid Form does not include a section to carry this cost. Please confirm that the Bid Form can be modified to include the requested alternates.

A188. Refer to bid sheet. See Section E of this Addendum.

Q189. **TS102 and Ph 1, 2, & 3 Plans**

For pricing coordination, the Bridging Doc Program on TS102 requires a total of (25) 120 sf private offices, but the BD Plans only show a total of 13, which is 12 fewer. Which governs?

A189. For Bidding purposes, Design-Builder to price per sheet TS102. Selected Design-Builder to work with City Representative to finalize floor planning that meets program and requirements.

Q190. **TS102 and Ph 1, 2, & 3 Plans**

For pricing coordination, the Bridging Doc Program on TS102 requires a total of 167 cubicles, and the BD Plans show a total of 202, which is 27 cubicles higher. Which governs?

A190. For Bidding purposes, Design-Builder to price per sheet TS102. Selected Design-Builder to work with City Representative to finalize floor planning that meets program and requirements.

Q191. **Large (12' and 18') Fume Hood Sizes**

For pricing coordination, are the large (12' and 18') fume hoods (which are all multiples of 6'), truly a single custom unit, or really multiple 6' fume hoods?

A191. City is ok with either option, as long as the Design-Builder's Lab Planner confirms the fume hoods are adequately sized to meet the performance requirements in the RFP.

Q192. **Attachment A 2. Scope Of Work**

Is the trailer required to meet the LEED Silver, ZEMBOP requirements?

A192. The temporary trailer has received City internal ZEMBOP exemption, therefore, it does not require to meet LEED Silver.

Q193. The Trailer scope of work notes that they scope of work includes fire alarm, infrastructr and security systems to be part of the state approved deferred submittal. Other than Access control, no other security, fire alarm or IT infrastructure is indicated on the drawings. Will performance specs and/or a design for these items be provided?

A193. The trailers will require internet access via SANNET for all PUD employees. All telecom, IT infrastructure, access control, and security systems shall be the Design-Builder's responsibility to design and construct as part of the deferred submittal.

Q194. Is the trailer required to provide a path of travel to the ROW on Lake Murray Blvd, or will the only access to the temporary trailer be from the Pathway that leads up to the existing building?

A194. Only access to the temporary trailer will be from the pathway that leads up to the existing building.

Q195. Sheet E-0.1 under Project Scope/ Bid Notes #3 notes that changes made without prior approval are not allowed. Will the original design team be available for these types of reviews in the event the Relocatable Trailer Manufacturer makes modifications to the design to accommodate their manufacuring process?

A195. Confirmed.

Q196. **Sheet G-6**

Are the portions of the temporary trailer within the reduced BMZ Zone 1 areas required to be non-combustible, one hour fire-rated Type IV or HT construction?

A196. Design-Builder will be responsible to comply with all relevant building codes as well as the San Diego Municipal Code to complete the design and construction of the project.

Q197. **Sheet D-1**

Sheet D-1 notes an area or clear and grub, will this already be completed due to the Mid-City Pipeline PH2 Project?

A197. Confirmed.

Q198. **AS-1**

Will any electronic access control be required for the existing chain link site access gate?

A198. No.

Q199. Will emergency power be required for the Phase 2 and 3 spaces after the completition of phase 1?

A199. Yes.

Q200. **Existing Lab Equipment Recalibration/Recertification**

Please confirm which equipment listed on sheets LQ.88-01, LQ.88-02, LQ.88-03, and LQ LQ.88-04 on the bridging documents will require calibration and certification "by owner" vs "design-builder" during each phase of relocation.

Typically most of the equipment listed on the above sheets are recalibrated and recertified "by owner" following laboratory protocols including service by manufacturer(s) to align with the ELAP requirements.

Please confirm third-party certifier is required. Does The City have an approved list of third-party companies who have performed recalibration(s) and recertification(s)? Does The City require these companies to be used or are other vendors allowed to provide this service? Are there any pieces of equipment that The City is fluent with recalibrating/recertifying and therefore will perform this service in-house?

A200. Assume Design-Builder shall be responsible for transportation, installation, calibration, and certification for all laboratory equipment,

under the supervision of City/PUD staff. Third-party certification is required; Design-Builder to select a qualified firm to provide calibration/certification services.

Q201. **BIM Level 400 for Structural elements**

Does The City require BIM 400 for Structural elements (e.g., waffle slabs, foundations, moment frames)?

A201. Yes. Confirmed,

Q202. **1C.101**

Plans show a telecom line to be removed. Is this line already abandonded or will we be required to provide a new connnection between the filtration plant and the new lab facility.

A202. Assume new connection line.

Q203. **Trailer Drawings - Construction Admin**

Will the bridging documents design team be responsible for the construction administration scope of work for the permitted trailer drawings? Will RFI's during construction be issued to the brinding documents design team, or will they need to be issued to the DBE's design team?

A203. No. The construction administration of the trailers shall be the responsibility of the Design-Builder. The bridging architect/City team may help in reviewing and answering RFIs, however, the Design-Builder team is ultimately responsible for the design completion, construction, and installation of the trailers.

Q204. **Security**

Please provide the required and acceptable security solutions for CCTV, Access Control, Intrusion, etc.

A204. Design-Builder shall be responsible for the design of the security components, including CCTV, Access Control and Intrusion, etc.

Q205. **Trailer drawings - Construction administration**

Given that another design team served as the Architect of Record (AOR) and Engineers of Record (EOR) for the permitted construction documents for the trailer and associated site improvements, will this team be retained by the City of San Diego to carry out the Construction Administration (CA) services for this scope-including, but not limited to,

reviewing submittals, answering Requests for Information (RFIs), performing field observations, and preparing record drawings for the City? Or, is the expectation that the design team within the Design-Build Entity carry out the Construction Administration services for this scope? We believe there is a key legal and professional benefit to the City of retaining the original AOR/EOR to maintain responsibility for the CA services in relation to the design they permitted.

A205. The City will retain Roesling Nakamura Terada Architects, Inc. RNT throughout the construction process. The Bridging Architect/City Team may help in reviewing and answering RFIs, however, the Design-Builder team is ultimately responsible for the design completion, construction, and installation of the Trailer.

Q206 Electrical plans included in the bridging documents indicate a temporary generator to provide backup power to the existing electrical distribution system. However, the documents do not specify the desired run time for the generator. To ensure consistency across all bidding teams and accurate pricing, please confirm the intended run time that should be used for base bid purposes.

A206. For bidding purposes, minimum of 4 hours continuous runtime. Selected Design Builder is to properly size the emergency generator based on code requirements.

Q207. Please confirm if there is an existing easement or dedication from Colorado Avenue extending into the site as shown on Bridging Documents Sheet C.002.

A207. No existing easement.

Q208. Please confirm Trailer Project does not require LEED Certification

A208. Confirmed.

Q209 Per page 7 of the RFP, the project must be completed within 920 working days from NTP. Please confirm that this duration does not include Design, Preconstruction, or Permitting. Additionally, please confirm that the NTP referenced applies to the first phase of construction only and excludes design, preconstruction, and permitting activities.

A209. 920 working days includes all activities for the completion of the project, includes but not limited to design, permitting/acquisition, construction and plants establishment period.

Q210. Per the answer to question A26. The City estimates that there will need to be a 5 month cross-over where the old labs and their new counterparts have to be operating simultaneously during the ELAP certification process. This response would add 5 months to our overall construction duration. Please confirm 920 working days is a desired duration, but not a requirement for responsiveness.

A210. 920 working days is a requirement for the completion of the project. Reference, Section 3-13.1 Completion, Whitebook.

C. ADDENDUM

1. To Addendum 4, Section C. Changes To The Request for Proposals, page 5, Item 4, in "https://ecpfiles.sandiego.gov/CIP_Contracts/K-26-2318-DB2-3-C/Alvarado%20Laboratory%20Improvements.zip", Alvarado Laboratory Improvements, Technical Specifications, L22000.1 Lab and 72-inch Pipeline, 72_Pipeline Specifications, in 2025.06.17 Alvarado 72-inch Pipeline Lining Specifications, **DELETE** Sections **"01019, Pipeline Condition Assessment"** and **"01020, Construction Sequence and Pipeline Shutdowns"** in their entirety and **SUBSTITUTE** with pages 51 through 58 of this Addendum.

Rania Amen, Director
Engineering & Capital Projects Department

Dated: *November 21, 2025*
San Diego, California

RA/MA/yk

SECTION 01019 - PIPELINE CONDITION ASSESSMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section describes the pipeline condition assessment required for the existing 72-inch pipeline from Vault D, Station 0+00 to Vault #2, Station 4+69.

B. The existing 72-inch Reinforced Concrete Steel Cylinder (RCSC) pipe conveys treated water from the Earl Thomas Reservoir to the East Clearwell. The pipeline was built in 1956. In 1992, the City built the Joint Lab Facility over a portion of the pipeline. The building included cast-in-place piers, constructed to protect the pipeline from excessive vertical loading. There is no known record of any breaks on the 72-inch pipe, and the current condition of the pipeline is not known.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Greenbook and Whitebook Section 6 Prosecution and Progress of the Work
B. Section 01020 – Construction Sequence and Pipeline Shutdowns
C. Greenbook Section 306-8.9.4 Disinfection
D. AWWA M651, Disinfecting Water Mains

1.03 SUBMITTALS

A. Provide a pre-inspection submittal of the Contractor’s recommended inspection process including the inspection approach per Section 3.03 of this specification.
B. Prepare and submit a condition assessment letter report for the existing 72-inch Reinforced Concrete Steel Cylinder (RCSC) Pipeline from Sta 0+00 to Vault #2 at approximate Station 4+65.
C. Prepare and submit a lockout- tagout procedure for entering the 72-inch pipeline.
D. Prepare and submit a Health and Safety Planning and Emergency Preparedness Plan.
E. Prepare and submit confined space entry descriptions and documentation of training for each employee scheduled to enter the 72-inch pipeline during the condition assessment.
F. Prepare and submit documentation of relevant experience and certifications inspecting large diameter pipelines for each person involved in inspecting the 72-inch pipeline and preparing the letter report.
G. Prepare and submit a written description of the inspection process including roles of each person for both the internal pipe inspection and the support staff at the ground surface.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 WORK REQUIREMENTS IN ADVANCE OF PIPELINE INSPECTION

A. The Contractor is required to coordinate with City staff in advance of entering and inspecting the 72-inch pipeline. The Contractor is encouraged to review and become familiar with the record drawings and shop drawings pertinent to the 72-inch pipeline of the contract documents. The list of pertinent drawings can be found in the Bridging Documents link in the RFP. The Contractor is encouraged to review and become familiar with data in the Geotechnical Report, which is included in the Technical Studies link in the RFP.

B. The work requirements in advance of the pipeline inspection shall include, but not be limited to the following:

- Coordinate with City Staff in advance to schedule a shutdown during off-peak water demands, typically between November and March of each year.
- Work with City staff to develop a lockout- tagout procedure for entering the 72-inch pipeline.
- Provide a Health and Safety Planning and Emergency Preparedness Plan.
- Provide confined space entry descriptions and documentation of training for each employee scheduled to enter the 72-inch pipeline during the condition assessment.
- Provide documentation of experience inspecting large diameter pipelines for each person involved in inspecting the 72-inch pipeline and preparing the letter report.
- Provide a written description of the inspection process including roles of each person for both the internal pipe inspection and the support staff at the ground surface.
- Provide a disinfection plan for disinfecting the 72-inch pipeline between Vault D and Vault No. 2 after the internal inspection is completed and before the pipe is placed back in service.
- Coordinate with the Engineer to allow for City Staff and/or their representatives to accompany the Contractor during the condition assessment inspections.

C. The Contractor shall conduct the pipeline condition assessment inspection during the Phase 3 shutdown, described in Section 01020. The Contractor shall remove the 72-inch Spool Pieces in Vault D and Vault No. 2, along with any pipe appurtenances necessary to access the pipe interior. The Contractor shall install temporary steel blind flanges on each end of the pipe to enable workers to safely enter the pipe.

3.02 PIPELINE CONDITION ASSESSMENT REQUIREMENTS

A The Contractor shall conduct a pipeline condition assessment to allow the City to decide whether minor repairs to the pipe joints, or installation of a new structural liner will be used to extend the service life of the 72-inch RCSC pipeline. The Contractor shall prepare and submit a letter report to the Engineer for review and acceptance. The condition assessment shall include the following minimum requirements:

- Determination of the current condition and structural integrity of the existing 72-inch RCSC pipeline.
- Assessment of the risk and consequences of failure at the current condition.
- Recommendation of immediate rehabilitation/repair locations and procedures, if needed.
- Recommendation of future types and frequency of inspections.

- Documentation of the interior inspection of the 72-inch pipe from Sta 0+00 to Vault #2 near Sta 4+69. This includes photographs, interior measurements, mapping of cracks of the pipe lining, and descriptions of observations related to the pipeline condition.

3.03 PIPELINE INSPECTION APPROACH

A The Contractor shall provide the City with a recommended inspection process for the pipeline condition assessment. Scanning technologies such as X-rays or Magnetic Flux Leakage are not recommended due to their high costs, probability of inconsistent results, and calibration issues associated with analyzing a relatively small length of the pipe. The pipe sections under the Lab Building are subject to approximately 8 psi. The inspection process shall include, but not be limited to the following items:

Inspect Pipeline Lining

- Inspect for significant cracking, more than 1/8" wide
- Document observations for the pipe crown, invert, and springline locations
- Inspect cement mortar lining for spalling, gaps, erosion, or signs of corrosion
- Use Mason's hammer or similar tools for "sounding" the pipe to identify signs of delamination

Inspect Pipeline Joints

- Identify any signs of cracking
- Identify signs of pipe corrosion such as staining or spalling of the lining
- Inspect for signs of groundwater infiltration while the pipe is out of service
- Inspect the condition of field-applied cement mortar lining
- Inspect for any pulls in the joints

Document Pipe Interior Dimensions

- Inspect pipe for vertical deflection (a cause of coating distress)
- Take measurements of internal diameter, vertical & horizontal, for each pipe section
- Check for ovality. Document any locations with out-of-round pipe

Document Pipe Exterior (in locations requiring excavation and exposure)

- Identify any signs of cracking
- Identify signs of pipe corrosion such as staining or spalling of the coating
- Inspect the condition of field-applied cement mortar coatings at joints
- Inspect pipe sections to be removed by core sampling or saw cutting to obtain a representative cross-section of the pipe wall.

END OF SECTION

SECTION 01020 CONSTRUCTION SEQUENCE AND PIPELINE SHUTDOWNS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This section describes the construction sequence and pipeline shutdowns required for flow isolation and pipeline condition assessment.

B. During periods when a pipeline is shut down at the Alvarado Water Treatment Plant, the City of San Diego (City) may be impacted by a reduced redundancy and capacity of water it can deliver to its customers. Full water deliveries can only be resumed following completion of the work required during each shutdown. It is essential that the Contractor schedule its operations and perform the necessary work before the start of each shutdown so the work required to complete connections and modifications to existing pipelines and other facilities is performed within the time allotted for each shutdown.

C. There will be multiple pipeline shutdowns needed to perform the work. The Phase 1 shutdown is necessary to replace the existing 72-inch butterfly valve in Vault D. The Phase 1 shutdown has an allowable duration of 24 hours. The Phase 2 shutdown is necessary to replace the existing 72-inch butterfly valve in Vault #2. The Phase 2 shutdown has an allowable duration of 24 hours. The Phase 3 shutdown is for the pipeline inspection and condition assessment. The Phase 3 shutdown has an anticipated duration of seven days.

After the Phase 3 shutdown, the Contractor shall prepare the pipeline condition assessment report. City staff will determine if the 72-inch pipeline requires 1) A new structural liner per the contract drawings, or 2) Minor repairs such as repairing joints or pipe interior. The Phase 4 shutdown is needed to isolate portions of the 72-inch pipeline between Vault D and Vault #2 to install a new manway, access manway and other pipeline improvements. The City will close the two new 72-inch butterfly valves installed by the contractor. The Contractor shall install temporary blind flanges or other means to isolate the work area. The duration of the Phase 4 shutdown will be dependent on the pipeline condition assessment and the agreed upon scope of work for the 72-inch pipeline.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Greenbook and Whitebook Section 6 Prosecution and Progress of the Work
B. Section 01019 – Pipeline Condition Assessment
C. Greenbook Section 306-8.9.4 Disinfection
D. AWWA M651, Disinfecting Water Mains

1.03 SUBMITTALS

A. Shutdown plans shall be coordinated with City operations and management staff. Prepare and submit a detailed shutdown and connection plan and schedule for Phases 1, 2, and 3 shutdowns within 60 Days of receipt of the Notice to Proceed. Describe the work to be accomplished during each scheduled shutdown, the work to be accomplished to make connections necessary to return pipelines to service, and the work to be performed after the scheduled shutdown. The shutdown plans shall include all labor, equipment, materials and spare parts required for each shift. The shutdown schedule for Phases 1 and 2 shall show the progress of work on an hourly basis. The shutdown schedule shall include milestones for: 1) Removal of the flexible coupling, spool piece and the 72-inch valve in each vault, 2) Preparation of flanges and hardware, and 3) Installation of

the new valves and appurtenances. Identify areas of concern that may cause delays in completing the work and provide possible solutions to recover schedule time and minimize delays. Obtain written approval from the Engineer of the shutdown plan and schedule at least 30 Days before the start of the pipeline shutdowns.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 PIPELINE SHUTDOWNS

A. The City will schedule pipeline shutdowns to isolate the water flow as detailed in the construction sequence below. Coordinate with City Staff in advance to schedule a shutdown during off-peak water demands, typically between November and March of each year. The City may revise scheduled shutdown dates to meet the area's water demands during an emergency or unplanned event.

B. Complete all work after the pipeline has been dewatered and before the necessary City Forces fill duration. For purposes of shutdown scheduling, the day will begin at 7:00 a.m. and end at 7:00 a.m. the following day. The City will dewater the pipeline with the exception of localized water catchments no greater than 18 (inches deep). Unless the City provides advanced, written authorization, the Contractor shall not have access to the City's pipeline or structures until the dewatering operation is complete. Complete all work required within the shutdown durations to allow pipeline operations to resume. Failure to complete the work within the allowable time will result in liquidated damages.

C. Coordinate dewatering and filling operations with the Engineer and the City's Public Utilities Department. After the pipeline dewatering operation is complete, the Contractor shall remove all piping, valves, and appurtenances necessary to complete the work. The Contractor shall install all new piping, valves, and appurtenances in accordance with the contract drawings, to allow the pipeline to be put back into operation.

D. Adhere to the detailed shutdown schedule after it is submitted and accepted in writing by the Engineer. Revisions to the Contractor's detailed shutdown schedule shall not be permitted without written approval from the Engineer and shall be submitted at least 30 Days before the start of the first shutdown. The Engineer may revise the start of the scheduled shutdown upon seven Days written notice to the Contractor without consequence. Any revision to the schedule by the Engineer will be to meet the water delivery demands of the City.

E. Verify that all materials and spare parts are delivered and inventoried on-site a minimum of 14 Days before the start of the scheduled shutdown. Perform inventory of materials and spare parts in the presence of the Engineer.

F. Once the work on a shutdown has begun, work continuously to enable the existing pipeline to be placed back in service within the allowable timeframe. Monitor the work and provide hourly updates to the Engineer during the shutdown. Monitor the progress of the work relative to the scheduled milestones and implement recovery actions such as supplementing work crews if the work falls behind schedule.

G. If the Engineer deems any schedule to be inadequate to secure the completion of work in the time submitted, the Engineer may require the Contractor to correct and resubmit schedules, change the order of prosecution of work, or mobilize additional staff, equipment or materials to ensure proper and timely execution.

H. Provide written notification to the Engineer when work is complete for each shutdown phase.

3.02 CONSTRUCTION SEQUENCE

A. In accordance with Greenbook and Whitebook Section 6 – Prosecution and Progress of the Work, include the project milestones, sequence of work, and coordination requirements outlined in this section.

B. Construction of the project shall follow the general sequence of work described in this section and in accordance with the Contract Drawings and other Contract Documents:

Phase 1 Shutdown:

By City Forces:
Prepare filters for a partial plant shutdown.
Take the 72-inch piping offline from Earl Thomas Reservoir to the East Clearwell.
Drain the 72-inch pipeline.

By Contractor:
Remove the flexible coupling, spool piece and 72-Butterfly Valve in Vault D.
Install temporary bulkheads or other means to isolate the work area.

By Contractor:
Install the new 72-inch valve in Vault D.
Swab interior pipe and valve surfaces with disinfectant.
Re-install the flexible coupling, spool piece and appurtenances in Vault D.

By City Forces:
Return all water treatment facilities, reservoirs and pipelines back into service.

Phase 2 Shutdown:

By City Forces:
Prepare filters for a partial plant shutdown.
Take the 72-inch piping offline from Earl Thomas Reservoir to the East Clearwell.
Drain the 72-inch pipeline.

By Contractor:
Remove the flexible coupling, spool piece and 72-Butterfly Valve in Vault #2.
Install temporary bulkheads or other means to isolate the work area.

By Contractor:
Install the new 72-inch valve in Vault #2.
Swab interior pipe and valve surfaces with disinfectant.
Re-install the flexible coupling, spool piece and appurtenances in Vault #2.

By City Forces:
Return all water treatment facilities, reservoirs and pipelines back into service.

Phase 3 Shutdown:

By City Forces:
Prepare filters for a partial plant shutdown.
Take the 72-inch piping offline from Earl Thomas Reservoir to the East Clearwell.
Drain the 72-inch pipeline.

By Contractor:
Remove the flexible couplings and spool pieces in Vault D and Vault #2 to gain access to the 72-inch pipe.
Install temporary steel blind flanges or other means to isolate the work area.

By Contractor w/ City Staff:
Perform the 72-inch pipeline inspection and condition assessment.

By Contractor:
Re-install the Spool Piece, flexible couplings and appurtenances in Vault D and Vault #2.

By City Forces:
Return all water treatment facilities, reservoirs and pipelines back into service.

Phase 4 Shutdown

By City Forces:
Take the 72-inch piping offline from Vault D to Vault No. 2.
Drain the 72-inch pipeline.

By Contractor – If structural relining is not necessary:
Install temporary steel blind flanges or other means to isolate the work area. If a structural relining is not necessary, install manway and manway access near Sta 1+00. Install an 8-inch flanged outlet with blind flange near Sta 4+75.

By Contractor – If structural relining is necessary:
Install temporary steel blind flanges or other means to isolate the work area. If a structural relining is necessary, excavate pipe near Sta 1+00, remove two pipe sections for the relining portal. Reline the 72-inch pipe from Sta 1+24 to approximately Sta 4+60.

Install new steel pipe with concrete encasement at the relining portal. Install new manway on a new section of 66-inch steel pipe at the relining portal. Construct access around manway.

Install an 8-inch flanged outlet with blind flange near Sta 4+75.

By Contractor:
Test and disinfect piping and appurtenances from Vault D to Vault No. 2.

By City Forces:

Open 72-inch butterfly valves in Vault D and Vault #2 to place the pipeline into service.

C. The remainder of the Work shall be completed in accordance with the Contract Documents including, but not limited to the following general sequence of work:

1. Installation of any cathodic protection test stations;
2. Return all work areas to pre-construction grades;
3. Restore roadways, curbs, gutters sidewalk and driveways;
4. Restore all areas disturbed by construction; and
5. Clean up site and demobilize.

END OF SECTION

THE CITY OF SAN DIEGO

M E M O R A N D U M

DATE: March 10, 2025

TO: Blake McCormick, Associate Planner, Engineering & Capital Projects Department

FROM: Leslie Yen, Environmental Biologist III, Engineering & Capital Projects Department

SUBJECT: Habitat Assessment, Alvarado Laboratory Improvements Trailers Project (WBS# L-22000)

This memo summarizes a habitat assessment for potential Environmentally Sensitive Lands (ESL) and biological resources at the City of San Diego Alvarado Laboratory Improvements Trailers project (Project). The purpose of this assessment is to give an overview of biological resources, identify the potential for sensitive species to occur in the Project area, and provide recommendations and considerations for protecting sensitive biological resources.

The Project is located at 5540 Kiowa Drive within the City of San Diego, California, south of Lake Murray, within the existing, operational Alvarado Water Treatment Facility. Coordinates for Project location are 32.779729, -117.041868. The Project is within the City of San Diego-owned Alvarado Water Treatment Facility, and not within City's Multiple Species Conservation Plan (MSCP) Multiple Habitat Planning Area (MHPA). The Project is currently utilized as a staging area for another project (Montezuma PPL).

The Project proposes to install prefabricated lab trailers, new concrete pedestrian ramp, and accessible walkway upgrades on land that is [graded/disturbed… please characterize in some way, even broadly]. Installation would include grading, clearing, and improvements to the existing site. The estimated footprint for this project is approximately 0.625 acre.

The Survey Area is not located within any federally designated critical habitat. No sensitive species, including species listed under the federal or state Endangered Species Act (ESA), are expected to occur within the Project footprint. The following sensitive species were determined to have a moderate or high potential to occur within the survey area:

- Orange-throated whiptail (*Aspidoscelis hyperythra*) – MSCP covered species
- Red-diamond rattlesnake (*Crotalus ruber*) – California Species of Special Concern (SSC)
- Coast horned lizard (*Phrynosoma blainvillii*) – SSC

Methodology

Habitat was classified within the Project footprint and a 300-foot buffer (Survey Area) using San Diego County vegetation mapping data (County of San Diego 2025a), US Fish and Wildlife Service (USFWS) National Wetlands Inventory Mapper (NWI, USFWS 2025a), and aerial photographs. Vegetation community identification follows Oberbauer et al. (2008), as adapted from Holland (1986).

The original Environmental Impact Report (EIR) for the Alvarado Water Filtration Plant Expansion and Rehabilitation project (City of San Diego, 1994) and the addendum to the EIR (2002) were also both reviewed.

The following data sources were reviewed for this desktop analysis:

- US Department of Agriculture (USDA) Soil Survey mapper
- US Fish and Wildlife Service (USFWS) Information for Planning and Consultation Tool (IPaC)
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB)
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants: 1-quad search (La Mesa, CA)
- San Diego Natural History Museum (SDNHM) Plant Atlas
- County of San Diego SanBIOS Observation Points

The desktop analysis used a 1-mile buffer around the Project footprint, except where noted above. Species were evaluated as sensitive based on the following criteria:

- Listed as candidate, threatened, or endangered under the federal Endangered Species Act, and/or;
- Listed as candidate, threatened, or endangered under the California Endangered Species Act, and/or;
- Listed as a 1 or 2 rank species by CNPS; and/or
- Listed by CDFW as a fully protected species (FP), or designated as a CDFW Species of Special Concern (SSC); and/or
- Covered by the San Diego Multiple Species Conservation Plan (MSCP)

Species were evaluated for potential presence and ranked as not expected, low, moderate, or high potential to occur within the survey area, based on information gathered from local, regional, and state references (CNPS 2025, Thomson et al. 2016, Tremor et al. 2017, Unitt 2004). Any species with moderate or high potential to occur are further evaluated as present, per the City of San Diego Biology Guidelines (City of San Diego 2018).

City Biologist, Leslie Yen, conducted the field habitat assessment survey of the proposed project footprint area plus a 300-foot buffer, on February 24, 2025. During the field visit plant and animal observations were recorded. Representative photos of the vegetation communities observed can be found in Attachment 1.

Results

The Project is not located within the City's MHPA. According to the original EIR, the Project area was entirely disturbed with grass on the slope in 1994. Portions of the slope was also used as an access road to the treatment plant. The EIR found no significant impacts and no mitigation was necessary. An addendum EIR analyzed the area again in 2002 and concluded that the project would primarily be landscaped with ornamentals and no new significant impacts were identified. According to as-builts from 2007, the project area was hydroseeded with a native plant mix. The revegetated area primarily consists of baccharis-dominated sage scrub and coastal sage – chaparral transition habitat. Weather during the survey ranged from 73-77° Fahrenheit, 0% cloud cover, and 5-10 mile per hour winds. Plant species observed on site included:

- California sagebrush, *Artemesia californica*
- California buckwheat, *Eriogonum fasciculatum*
- Sugarbush, *Rhus ovata*
- lemonade berry, *Rhus integrifolia*
- deerweed, *Acmispon glaber*
- California sunflower, *Encelia californica*
- California fescue, *Festuca californica*
- coyote brush, *Baccharis pililaris*
- golden yarrow, *Eriophyllum confertiflorum*
- small fescue, *Vulpia microstachys*
- deergrass, *Muhlenbergia rigens*
- white sage, *Salvia apiana*
- *Abutilon* species

Wildlife species observed included:

- Anna's Hummingbird, *Calypte anna*
- Red-shouldered Hawk, *Buteo lineatus*
- American Crow, *Corvus brachyrhynchos*
- House Finch, *Haemorhous mexicanus*
- California Towhee, *Melozone crissalis*
- Yellow-rumped Warbler, *Setophaga coronata*

Immediately adjacent to the north of the project footprint is approximately 0.75 acres of continued restoration of sage scrub/chaparral habitat from the same 2007 hydroseeding effort. The surrounding area is primarily developed by the water treatment facility to the north, housing development to the east, south, and west. The Project is a part of the Alvarado Water Treatment Facility and approximately 800 feet south of Lake Murray.

The topography in the survey area consists of a top flat area at approximately 538 feet above mean sea level, a lower proposed flat trailer area at approximately 530 feet above mean sea level, with a cut slope between the two flat areas. Soils were identified as Diablo-Urban land complex, 5 to 15 percent slopes and Redding-Urban land complex, 2 to 9 percent slopes, which are not considered hydric soils. The Diablo–Urban land complex soil profile is focused on the northwest corner of the site and characterized by clay in horizon H1 to 15 inches, clay in horizon H2 from 15 to 32 inches, weathered bedrock in horizon H3 from 32 to 36 inches,

well drained, and more than 80 inches depth to water table. The remainder of the site consists of Redding – Urban land complex soil profile and is characterized by gravelly loam in horizon H1 to 15 inches, gravelly clay in horizon H2 from 15 to 30 inches, indurated in horizon H3 from 30 to 45 inches, well drained, and more than 80 inches depth to water table (UDSA 2025).

Vegetation Communities

The following communities were identified within the project survey area: Baccharis – dominated Diegan Coastal Sage Scrub (32530) and Coastal Sage-Chaparral Transition (37G00) habitats. However, a majority of the lower flat area where the proposed trailers would be installed, has already been cleared by another, unrelated project and approximately 0.298 acres is now considered Disturbed (11300).

The surrounding area within the Survey Area (300-foot buffer) contains Diegan Coastal Sage Scrub to the north, and primarily Urban/Developed (12000) to the west and south. The area to the east is also primarily Disturbed but also contains scattered oak and oak hybrids, likely planted as landscaping, amongst non-native grass species.

Baccharis – dominated Diegan coastal sage scrub is characterized by low, soft-woody subshrubs to about 3 feet high: many species are drought-deciduous (Oberbauer et al. 2008). The dominant species are identified as coyote brush (*Baccharis pililaris*), California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), and white sage (*Salvia apiana*).

Coastal Sage-Chaparral Transition is characterized by a mix of woody chaparral species and drought deciduous sage scrub species (Oberbauer et al. 2008). Dominant species observed include lemonade berry (*Rhus integrifolia*), sugarbush (*Rhus ovata*), coyote brush (*Bahiospsis pilularis*), California sagebrush, and California buckwheat.

Sensitive Species – Flora

Table 1 presents the results of the desktop survey and analysis for potential sensitive plant species. The survey area is not located within any federally designated critical habitat. No federal or state listed species are expected to occur within the Project footprint. As this area consists of a previously restored site, no sensitive plants were planted and only a low potential of sensitive planta are likely to occur due to suitable habitat and the potential for wildlife to transport seeds while traversing through the site.

Sensitive Species – Fauna

No sensitive animal species within or near the survey area were observed during the survey period.

Table 2 presents the results of the desktop survey and analysis for potential sensitive animal species. The survey area is not located within any federally designated critical habitat. No federal or state listed species are expected to occur within the Project footprint. Four additional sensitive animal were determined to have a moderate potential to occur within the survey area: orange-throated whiptail (*Aspidoscelis hyperythra,* MSCP covered), red-diamond

rattlesnake (*Crotalus ruber*, CDFW Species of Special Concern [SSC]), and coast horned lizard (*Phrynosoma blainvillii*, SSC).

It should be noted that coastal California gnatcatcher (*Polioptila californica californica*, SSC, Federally Threatened, MSCP covered) has a low potential to occur due to suitable habitat. However, it is unlikely for the project area to be utilized due to the habitat size and lack of connectivity to any other suitable nesting habitat. There is a low potential for this species to incidentally forage on the site for traversing individuals, but regular use and nesting is not expected.

MSCP Consistency

Since the project footprint is not within the MHPA, No MSCP consistency analysis is required.

However, MSCP covered species orange-throated whiptail have moderate potential to occur onsite. For MSCP covered species potentially present, the following Conditions of Coverage from the City's Subarea Plan are also in place:

Species Name	Conditions of Coverage
Orange-throated whiptail	Area specific management directives must address edge effects.

Recommended measures below include a Pre-construction Herpetofauna Survey to ensure the conditions of coverage are implemented.

Impact Analysis

Based on the desktop analysis, previous reports, current site use, and proposed project description, no direct impacts to sensitive wetland habitats are anticipated. Although approximately 0.206 acres of Coastal Sage-Chaparral Transition and 0.127 Baccharis – dominated Diegan coastal sage scrub habitats exist on site, these two vegetation communities are not considered to be sensitive as they are on manufactured slopes that were planted for the purpose of erosion control during the previous water treatment plant expansion. As per the City's Biological Guidelines, in the Biological Significance Determination section*:*

> *(e) Habitat mitigation is not required for impacts to manufactured slopes or areas that have been planted with native species for the purpose of erosion control.*

Additionally, no sensitive plants are anticipated to be directly impacted by the Project. City EPS biology staff recommend implementation of the below avoidance/minimization measures to ensure potential sensitive plants in the surrounding area are not disturbed during construction.

No direct impacts to any sensitive animal species are anticipated; however, animals may incidentally use the landscaped areas within the Project footprint for nesting, shelter, or migration. To avoid any potential direct impacts to mobile species, biological monitoring and pre-construction surveys are recommended by EPS biology staff, as described below.

Recommendations

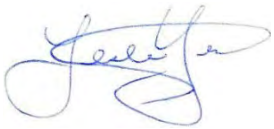
Based on the results from the biological resources desktop review, the biology team is making the following recommendations and considerations:

1. Avoidance and minimization measures during Construction protocol should be incorporated into the Project design and included within the project specification and/or depicted on the construction documents under the Heading "Environmental Requirements" .
    a. **Biologist Verification** - The owner/permittee shall provide a letter to the City's Environmental Designee section stating that a Project Biologist (Qualified Biologist) as defined in the City of San Diego's Biological Guidelines (2018), has been retained to implement the project's biological monitoring program. The letter shall include the names and contact information of all persons involved in the biological monitoring of the project.
    b. **General Avian Protection Requirements** – to avoid any direct impacts to any species identified as listed, candidate, sensitive, or special status in the MSCP, and species protected under the Migratory Bird Treaty Act (MBTA) removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15). If removal of habitat in the proposed area of disturbance must occur during the breeding season, a Qualified Biologist shall conduct a preconstruction survey to determine the presence or absence of nesting for sensitive bird species or MBTA-covered species on the proposed area of disturbance. The preconstruction survey shall be conducted within 10 calendar days prior to the start of construction activities or if work is halted and are then resumed (including removal of vegetation). The applicant shall submit the results of the preconstruction survey to the City's Environmental Designee for review and approval prior to initiating any construction activities.
    c. **Resource Delineation** - prior to construction activities, a Qualified Biologist shall supervise the placement of orange construction fencing or equivalent along the limits of disturbance adjacent to sensitive biological habitats and verify compliance with any other project conditions as shown on the BCME. This phase shall include flagging plant specimens and delimiting buffers to protect sensitive biological resources (e.g., habitats/flora & fauna species, including nesting birds) during construction. Appropriate steps/care should be taken to minimize attraction of nest predators to the site.
    d. **Pre-construction Herpetofauna Survey** –prior to any construction activities, a pre-construction survey should be conducted by a Qualified Biologist to determine the presence of sensitive reptile species (orange-throated whiptail, red-diamond rattlesnake). Surveys shall incorporate appropriate methods to detect these species, including searching for individuals in burrows, leaf litter, or loose soil/rocks. The preconstruction survey shall be conducted within 10 calendar days prior to the start of construction activities or if work is halted and then resumed. The applicant shall submit the results of the preconstruction survey to the City's Environmental Designee for review and

approval prior to initiating any construction activities. If any special status reptiles are found, a Qualified Biologist shall stop all earthmoving activities: the Qualified Biologist may capture the individual(s) safely and relocate to a nearby appropriate habitat, or the individual(s) shall be allowed to leave the project site voluntarily.

e. **Subsequent Resource Identification** - The Qualified Biologist shall note/act to prevent any new disturbances to habitat, flora, and/or fauna onsite (e.g., flag plant specimens for avoidance during access, etc). If active nests or other previously unknown sensitive resources are detected, all project activities that directly impact the resource shall be delayed until species specific local, state or federal regulations have been determined and applied by the Qualified Biologist.

If there are any questions, please contact me via email at lyen@sandiego.gov.



Leslie Yen
Environmental Biologist III, Engineering and Capital Projects

TABLES
Table 1. Plant Species Potential to Occur
Table 2. Animal Species Potential to Occur

ATTACHMENTS
Attachment 1. Representative Site Photos

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Table 1. Plant Species Potential to Occur

Scientific Name	Common Name	Federal/ State Status	CNPS Rank	City of San Diego	Habitat	Potential to Occur
Acanthomintha ilicifolia	San Diego thorn-mint	FT/SE	1B.1	MSCP, NE	Annual herb. General habitats are chaparral, coastal scrub, vernal pools, valley/foothill grassland. Soil associations are clay and openings. Blooming period is Apr-Jun. Elevation range 35-3150 feet	Not expected to occur. No suitable soils present. One CNDDB record within 1 mile that is undated and noted as extirpated. Site is not thin critical habitat.
Adolphia californica	California adolphia	-/-	2B.1	-	Perennial deciduous shrub. General habitats are chaparral, coastal scrub, valley/foothill grassland. Soil associations are clay. Blooming period is Dec-May. Elevation range 35-2430 feet.	**Low** potential to occur. Suitable habitat and soils present. One record from CNDDB within 1-mile from 1934 recorded as '1/2 mile southwest of Murray Lake.'
Ambrosia monogrya	Singlewhorl burrobrush	-/-	2B.2	-	Perennial shrub. General habitats are chaparral and Sonoran Desert scrub. Soil associations are sandy. Blooming period is Aug-Nov. Elevation range 35 - 1640 feet.	Not expected to occur. No suitable habitat or soils present. No records within 1-mile.
Ambrosia pumila	San Diego ambrosia	FE/-	1B.1	MSCP, NE	Perennial rhizomatous herb. General habitats are chaparral, coastal scrub, vernal pools, and valley/foothill grasslands. Soil associations are alkaline, clay, disturbed areas, loam, and sandy. Blooming period is Apr-Oct. Elevation range 65 - 1360 feet.	Not expected to occur. No records within 1-mile. Site is not within critical habitat.
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	FE/-	1B.2	MSCP	Perennial evergreen shrub. General habitats are chaparral (maritime, sandy). Blooming period is Dec-Jun. Elevation range 0-1200 feet.	Not expected to occur. No suitable habitat or soils present. No records within 1-mile. No critical habitat designated for this species.
Berberis nevinii	Nevin's barberry	FE/CE	1B.1	MSCP	Perennial evergreen shrub. General habitats are chaparral, cismontane woodland, coastal scrub, and riparian scrub. Soil associations are gravelly (sometimes), sandy (sometimes). Blooming period is Mar-Jun. Elevation range 230-2705 feet.	Not expected to occur. No suitable soils present. No records within 1-mile. Site is not within critical habitat.

Scientific Name	Common Name	Federal/ State Status	CNPS Rank	City of San Diego	Habitat	Potential to Occur
Bloomeria clevelandii	San Diego goldenstar	-/-	1B.1	MSCP	Perennial bulbiferous herb. General habitats are chaparral, coastal scrub, vernal pool, valley/foothill grassland. Soil associations are clay. Blooming period is Apr-May. Elevation range 165 - 1525 feet.	**Low** potential to occur. Suitable habitat and soils present. One record from CNDDB within 1-mile from 2010 recorded as 'between Lake Murray and Lake Shore Drive.'
Brodiaea filifolia	Thread-leaved brodiaea	FT/FE	1B.1	MSCP	Perennial bulbiferous herb. General habitats are chaparral (openings), cismontane woodland, coastal scrub, playas, vernal pools, valley/foothill grassland. Soil associations are clay. Blooming period is Mar-Jun. Elevation range 80-3675 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile. Site is not within critical habitat.
Brodiaea orcuttii	Orcutt's brodiaea	-/-	1B.1	MSCP	Perennial bulbiferous herb. General habitats are closed-cone coniferous forest, chaparral, Cismontane woodland, meadows, seeps, vernal pools, and valley/foothill grassland. Soil associations are clay and mesic. Blooming period is May-Jul. Elevation range 100-5550 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile.
Ceanothus otayensis	Otay mountain ceanothus	-/-	1B.2	-	Perennial evergreen shrub. General habitats are chaparral. Soil associations are gabbro, metavolcanic. Blooming period is Jan-Apr. Elevation range 1970-3610 feet.	Not expected to occur. No suitable habitat or soils present. Site is below estimated elevation. No records within 1-mile.
Ceanothus verrucosus	Wart-stemmed ceanothus	-/-	2B.2	MSCP	Perennial evergreen shrub. General habitats are chaparral and coastal scrub. Soil associations are usually eroded gabbro or sandstone soils. Blooming period is Dec-May. Elevation range 5-1245 feet.	Not expected to occur. No suitable habitat present. Distinctive species that was not observed during fieldwork. One CNDDB record within 1-mile from 1897 that is extirpated.
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	-/-	1B.1	-	Annual herb. General habitats are chaparral, coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools. Soil associations are clay (often). Blooming period is Apr-Jul. Elevation range 100-5020 feet.	**Low** potential to occur. Suitable habitat and soils present. One record from CNDDB within 1-mile from 2010 recorded as 'east side of Lake Murray along road/trail along edge of the lake.'

Scientific Name	Common Name	Federal/ State Status	CNPS Rank	City of San Diego	Habitat	Potential to Occur
Clarkia delicata	Delicate clarkia	-/-	1B.2	-	Annual herb. General habitats are chaparral, cismontane woodland. Soil associations are gabbroic (often). Blooming period is Apr-Jun. Elevation range 770-3280 feet.	Not expected to occur. No suitable soils present. Site is below estimated elevation. No records within 1-mile.
Comarostaphylis diversifolia ssp. *diversifolia*	Summer Holly	-/-	1B.2	-	Perennial evergreen shrub. General habitats are chaparral and cismontane woodland. Blooming period is Apr-Jun. Elevation range 100 - 2590 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile.
Dudleya variegata	Variegated dudleya	-/-	1B.2	MSCP, NE	Perennial herb. General habitats are chaparral, cismontane woodland, coastal scrub, vernal pools, valley, and foothill grassland. Soil associations are clay. Blooming period is Apr-Jun. Elevation range 10-1905 feet.	**Low** potential to occur. Suitable habitat and soils present. One record from CNDDB within 1-mile from 2001 recorded as 'SW end of Lake Murray in Mission Trails Regional Park.'
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	-/-	1B.1	-	Perennial evergreen. General habitats are chaparral and coastal scrub. Soil associations are mesic. Blooming period is Jul-Nov. Elevation range 100-1970 feet.	**Low** potential to occur. No suitable soils present. One CNDDB record within 1-mile from 1965 that is 'in the general vicinity of La Mesa.'
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE	1B.1	MSCP, VPHCP	Annual/perennial herb. General habitats are coastal scrub, valley/foothill grasslands, vernal pools. Soil associations are mesic. Blooming period is Apr-Jun. Elevation range 65-2035 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile. No critical habitat designated for this species.
Ferocactus viridescens	San Diego barrel cactus	-/-	2B.1	MSCP	Perennial stem. General habitats are chaparral, coastal scrub, vernal pools, valley/foothill grassland. Soil associations are sandy. Blooming period is May-Jun. Elevation range 10-1475 feet.	**Low** potential to occur. Distinctive species that was not observed during fieldwork. No records within 1-mile.
Grindelia hallii	San Diego gumplant	-/-	1B.2	-	Perennial herb. General habitats are chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland. Blooming period is May-Oct. Elevation range 605-5725 feet.	Not expected to occur. No suitable habitat present. Site is below estimated elevation. No records within 1-mile.

Scientific Name	Common Name	Federal/ State Status	CNPS Rank	City of San Diego	Habitat	Potential to Occur
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	-/-	1B.2	-	Perennial shrub. General habitats are chaparral, coastal scrub (often disturbed areas, sandy). Blooming period is Apr-Nov. Elevation range 35-820 feet.	**Low** potential to occur. Distinctive species that was not observed during fieldwork. One CNDDB record within 1-mile from 2013 in 'east side of Lake Murray.'
Iva hayesiana	San Diego marsh-elder	-/-	2B.2	-	Perennial herb. General habitats are marshes and swamps, playas. Blooming period is Apr-Oct. Elevation range 0-1640 feet.	Not expected to occur. No suitable habitat present. 2 CNDDB records within 1-mile, one from 1935 recorded as '0.5 mile southwest of Lake Murray Dam' and one from 2010 recorded as 'northeast of Lake Murray.'
Lepechinia cardiophylla	Heart-leaved pitcher sage	-/-	1B.2	MSCP	Perennial shrub. General habitats are chaparral, cismontane woodland, closed-cone coniferous forest. Blooming period is Apr-Jul. Elevation range 1706-4495 feet.	Not expected to occur. No suitable habitat present. Site is below estimated elevation. No records within 1-mile.
Monardella viminea	Willowy monardella	FE/SE	1B.1	MSCP	Perennial herb. General habitats are chaparral, coastal scrub, riparian forest/scrub/woodland. Soil associations are alluvial terraces and washes. Blooming period is Jun-Aug. Elevation range 165-740 feet.	Not expected to occur. No suitable soils present. No records within 1-mile. Site is not within critical habitat.
Navarretia fossalis	Spreading navarretia	FT/-	1B.1	MSCP, NE, VPHCP	Annual herb. General habitats are chenopod scrub, marshes, and swamps (shallow freshwater), playas, and vernal pools. Blooming period is Apr-Jun. Elevation range 100-2150 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile. Site is not within critical habitat.
Navarretia prostrata	Prostrate vernal pool navarretia	-/-	1B.2	-	Annual herb. General habitats are coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools. Blooming period is Apr-Jul. Elevation range 10-3970 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile.
Orcuttiana californica	California Orcutt's grass	FE/SE	1B.1	MSCP, VPHCP	Annual herb. General habitat is vernal pools. Blooming period is Apr-Aug. Elevation 50-2165 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile. No critical habitat designated for this species.

Scientific Name	Common Name	Federal/ State Status	CNPS Rank	City of San Diego	Habitat	Potential to Occur
Pogogyne abramsii	San Diego mesa mint	FE/SE	1B.1	MSCP, NE, VPHCP	Annual herb. General habitat is vernal pools. Blooming period is Mar-Jul. Elevation range 295-655 feet.	Not expected to occur. No suitable habitat present. No records within 1-mile. No critical habitat designated for this species.
Pogogyne nudiuscula	Otay mesa mint	FE/SE	1B.1	MSCP, NE, VPHCP	Annual herb. General habitat is vernal pools. Blooming period is May-Jul. Elevation range 295-820 feet.	Not expected to occur. No suitable habitat present. One CNDDB record within 1 mile from 1930 and noted as extirpated. Species was not identified by USFWS IPaC search.
Quercus dumosa	Nuttall's scrub oak	-/-	1B.1	-	Perennial evergreen shrub. General habitats are closed-cone coniferous forest, chaparral, coastal scrub. Soil associations are clay, loam, and sandy. Blooming period is Feb-Aug. Elevation range 50-1310 feet.	**Low** potential to occur. Distinctive species that was not observed during fieldwork. No records within 1-mile.
Salvia munzii	Munz's sage	-/-	2B.2	-	Perennial evergreen shrub. General habitats are chaparral and coastal scrub. Blooming period is Feb-Apr. Elevation range 375-3495 feet.	**Low** potential to occur. Distinctive species that was not observed during fieldwork. No records within 1-mile.
Senecio aphanactis	Chaparral ragwort	-/-	2B.2	-	Annual herb. General habitats are chaparral, cismontane woodland, and coastal scrub. Soil associations are alkaline. Blooming period is Jan-May. Elevation range 50-2625 feet.	Not expected to occur. No suitable soils present. No records within 1-mile.
Stemodia durantifolia	Purple stemodia	-/-	2B.1	-	Perennial herb. General habitat is Sonoran Desert scrub. Blooming period is Jan-Dec. Elevation range 590-985 feet.	**Low** potential to occur. No suitable habitat present. Site is below estimated elevation. One record within 1-mile from 1938 and recorded as '70th Street… ½ mile north of El Cajon Blvd'
Stylocline citroleum	Oil neststraw	-/-	1B.1	-	Annual herb. General habitats are chenopod scrub, coastal scrub, and valley/foothill grasslands. Soil associations are clay. Blooming period is Mar-Apr. Elevation range 165-1310 feet.	Not expected to occur. One record within 1-mile from 1883 with no recorded location within San Diego.

STATUS CODES

Federal Status
FE = Listed as endangered under the federal Endangered Species Act (FESA)
FT = Listed as threatened under FESA
FC = Candidate for listing under FESA
FDL = Delisted under FESA

State Status
SE = Listed as endangered under the State of California Endangered Species Act (CESA)
ST = Listed as threatened under CESA
SR = Listed as rare by CDFW
SC = Candidate for listing under CESA
SDL = Delisted under CESA

California Native Plant Society (CNPS): California Rare Plant Ranks
1A = Species presumed extirpated or extinct because they have not been seen or collected in the wild in California for many years.
1B = Species rare throughout their range in California and elsewhere, most of the plants that are ranked 1B have declined significantly over the last century.
2A = Species presumed extirpated because they have not been observed or documented in California for many years, but more common elsewhere in their range.
2B = Species rare, threatened, or endangered in California but more common elsewhere; except for being common beyond the boundaries of California, plants with a rank of 2B would have been ranked 1B.
3 = Species which lack the necessary information to assign them to one of the other ranks or to reject them.
4 = Species of limited distribution or infrequent throughout a broader area in California.
Threat Ranks
0.1 = Species seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).
0.2 = Species fairly threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat).
0.3 = Species not very threatened in California (<20% of occurrences threatened/low degree and immediacy of threat or no current threats known).

City of San Diego
MSCP = City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan covered species.
NE = Narrow Endemic species in the Subarea Plan that have limited distributions in the region and require focused evaluations during project review.
VPHCP = City of San Diego Vernal Pool Habitat Conservation Plan (VPHCP) covered species.

Table 2. Animal Species Potential to Occur

Scientific Name	Common Name	Federal/ State Status	CDFW Status	City of San Diego	Habitat	Potential to Occur
Amphibians						
Spea hammondii	Western spadefoot toad	FC/-	SSC	-	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture.	Not expected to occur. No suitable habitat or ephemeral water sources present. Several records within 1-mile, one from 1932 in 'vicinity of Lake Murray' and three from 2002 in 'Mission Trails Regional Park.' No critical habitat designated for this species.
Reptiles						
Actinemys pallida	Southwestern pond turtle	FC/-	SSC	-	Flowing rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes, and other wetlands. Most frequently found in quiet reaches that experience little human impact with basking substrate (downed wood, large rocks). Will temporarily use semi-permanent or ephemeral water bodies.	Not expected to occur. No suitable habitat or perennial water sources present. No records within 1-mile. No critical habitat designated for this species.
Anniella stebbinsi	Southern California legless lizard	-/-	SSC	-	Occurs in sparsely vegetated habitats: coastal sand dunes, chaparral, pine-oak woodland, desert scrub, open grassland, and riparian areas. Microhabitat specialist requiring sandy or loose loamy substrates conducive to burrowing. Threats to the species include habitat loss and degradation, soil compaction, invasive plants, and disturbed soil moisture levels/temperature.	**Low** potential to occur. Suitable habitat, open patches and preferred substrate present. CNDDB records within 1-mile from 1931 in 'La Mesa, San Diego.'
Aspidoscelis hyperythra	Orange-throated whiptail	-/-	WL	MSCP	Semi-arid brushy areas typically with loose soil and rocks, including washes, stream sides, rocky hillsides, and coastal chaparral. Appears to tolerate habitat fragmentation better than many similarly distributed taxa.	**Moderate** potential to occur. Suitable habitat present. One CNDDB records within 1-mile 1929 in 'vicinity of La Mesa.'

Scientific Name	Common Name	Federal/ State Status	CDFW Status	City of San Diego	Habitat	Potential to Occur
Crotalus ruber	Red-diamond rattlesnake	-/-	SSC	-	Coastal sage scrub, chamise chaparral, redshank, desert slope scrub, desert washes, grassy fields, orchards, cactus patches, and rocky areas. Associated with heavy shrub and chaparral, rock outcrops and boulders.	**Moderate** potential to occur. Suitable habitat present. SanBIOS records within 1-mile from 1930-1949 in 'Murray Dam' and 'Alvarado Canyon.'
Phrynosoma blainvillii	Coast horned lizard	-/-	SSC	-	Open areas of sandy soil in valleys, foothills, and semi-arid mountains, including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats.	**Low** potential to occur. Suitable habitat, open patches, and preferred substrate present. CNDDB records within 1-mile from 1916, 1939, and 1967 in 'the vicinity of La Mesa and Spring Valley.'
Thamnophis hammondii	Two-striped garter snake	-/-	SSC	-	Often found in or near permanent and intermittent freshwater streams, creeks, and pools. Will also use artificial aquatic habitats such as cattle ponds. Associated vegetation types include willow, oak woodlands, cedar, coastal sage scrub, sparse pine, scrub oak, and chaparral. Terrestrial upland habitats and rodent burrows can be important habitat components.	Low potential to occur. No suitable perennial/intermittent water sources present. Two SanBIOS records within 1-mile from 1948 in 'Alvarado Canyon' and 'Murray Lake.'
Invertebrates						
Branchinecta sandiegonensis	San Diego fairy shrimp	FE/-	-	MSCP, VPHCP	Small, shallow vernal pools, occasionally ditches and road ruts	Not expected to occur. No suitable habitat present. No records within 1-mile. Site is not within critical habitat.
Danaus plexippus	Monarch butterfly	FC/-	-	-	California overwintering population cluster in eucalyptus trees, also use native trees such as Monterey pine, Monterey cypress, sycamore, and redwood. Primary host plants are milkweeds (*Asclepias* sp.). Visit a variety of flowers including composites, dogbane, lilac, red clover, lantana, and thistles.	**Low** potential for overwintering, not expected to occur for foraging. No records within 1-mile. Potential overwintering trees (*Eucalyptus* sp.) present: however, no recorded overwintering sites in vicinity. Site is not within proposed critical habitat.

Scientific Name	Common Name	Federal/ State Status	CDFW Status	City of San Diego	Habitat	Potential to Occur
Euphydryas editha quino	Quino checkerspot butterfly	FE/-	-	-	Patchy shrub or small tree landscapes with openings of several meters between large plants, or a landscape of open swales alternating with dense patches of shrubs. Optimal habitat appears to contain little or no invasive exotic vegetation. Primary host plants are dwarf plantain (*Plantago erecta*), woolly plantain (*Plantago patagonica*), white snapdragon (*Anterrhinum coulterianum*), and Chinese houses (*Collinsia concolor*).	**Low** potential to occur. No host plants observed and site is highly disturbed. One SanBIOS record within 1-mile from 1948 in 'Alvarado C.' Site is not within critical habitat.
Streptocephalus wootooni	Riverside fairy shrimp	FE/SE	-	MSCP, VPHCP	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds.	Not expected to occur. No suitable habitat present. No records within 1-mile. Site is not within critical habitat.
Birds						
Campylorhynchus brunneicapillus sandiegensis	Coastal cactus wren	-/-	SSC	MSCP	Cactus patches in coastal sage scrub/chaparral habitat. Maintain nests year-round and build almost exclusively in chollas or prickly pears.	Not expected to occur. No suitable habitat present. One SanBIOS record within 1-mile from 2000, recorded as two individuals with no further information provided.
Polioptila californica californica	Coastal California gnatcatcher	FT/-	SSC	MSCP	Prefers patches dominated or co-dominated by California sagebrush (*Artemisia californica*): occupies dense sage scrub less frequently than more open sites. Shrub cover around nest is typically between 20-60%. Typically nest on slopes less than 40%, within lower portions of gullies and drainages where available.	**Low** potential to occur. Suitable nesting habitat present. Several records within 1-mile from 1990-2002 with minimal information provided. Records from 1990 and 2002 observed 2 adults in each year, 'just west of Lake Murray' and 'southwest of Lake Murray.' Site is not within critical habitat.
Rallus obsoletus levipes	Light-footed Ridgway's rail	FE/SE	-	MSCP	Coastal salt marsh, though a few individuals have colonized brackish or freshwater sites. Prefer to nest in tidal marshes where cordgrass (Spartina sp.) dominates.	Not expected to occur. No suitable habitat present. No records within 1-mile. No critical habitat designated for this species.

Scientific Name	Common Name	Federal/ State Status	CDFW Status	City of San Diego	Habitat	Potential to Occur
Sternula antillarum browni	California least tern	FE/SE	SSC	MSCP	Typically nest in dunes and sand flats, however colonies have been found in: artificial sand flats, spoil fills, cracks in the pavement, gravelly areas, and small depressions. Least Terns have a high level of fidelity to colonies where they have established themselves as adults, but shifting among colonies is frequent due to disturbance. Forage in the bays and estuaries near nesting colonies, on the ocean near shore, and inland lakes in the coastal lowland.	Not expected to occur. No suitable habitat present. No records within 1-mile. No critical habitat designated for this species.
Vireo bellii pusillus	Least Bell's vireo	FE/SE	-	MSCP	Riparian woodland with a dense canopy for foraging, and a dense understory for nesting. On coastal slope willows and mulefat predominate at nest sites. Also uses upland scrub adjacent to riparian woodland regularly, foraging up to 200 feet from riparian edge, and nesting in non-riparian habitat. Primary nest predators are brown-headed cowbirds.	Low potential to occur. No suitable habitat present. One CNDDB record within 1-mile from 1916 recorded as 'La Mesa Heights.' Site is not within critical habitat.

STATUS CODES

Federal Status
FE = Listed as endangered under the federal Endangered Species Act (FESA)
FT = Listed as threatened under FESA
FC = Candidate for listing under FESA
FDL = Delisted under FESA

State Status
SE = Listed as endangered under the State of California Endangered Species Act (CESA)
ST = Listed as threatened under CESA
SC = Candidate for listing under CESA
SDL = Delisted under CESA

California Department of Fish and Wildlife (CDFW) Status
FP = Fully Protected, may not be taken or possessed except with authorization from CDFW.
SSC = Species of Special Concern
WL = Watch List

City of San Diego
MSCP = City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan covered species.
VPHCP = City of San Diego Vernal Pool Habitat Conservation Plan (VPHCP) covered species.

Attachment 1. Representative Site Photos



Photo 1. Main trailer area, previously cleared for Montezuma Project, facing east.



Photo 2. Area for proposed walkway, facing northeast.



Photo 3. Proposed entrance area, facing southeast.



Photo 4. View of western extent of proposed project area, facing southwest.

A habitat assessment was conducted at the Alvarado Lab Improvements project by City ECP Biologist, Leslie Yen, on February 24, 2025 from 10:45am to 12:15pm. This survey brief serves as a summary of findings of the Lab Improvements portion of the project only. A separate memo will be submitted at a later time for the Alvarado Trailer Project area. In summary, no environmentally sensitive lands or sensitive plant or wildlife species are expected to occur in this area as it is predominantly developed, disturbed land with vegetation removal planned only for non-native, ornamental species. Standard avoidance measures for Avian Protection Requirements are recommended. Example below.

> **Avian Protection Requirements** - To avoid any direct impacts to nesting birds, any species identified as listed, candidate, sensitive, or special status in the MSCP, and species protected under the Migratory Bird Treaty Act (MBTA) removal of habitat that supports active nests in the proposed area of disturbance should occur outside of the breeding season for these species (February 1 to September 15).
>
> If removal of habitat in the proposed area of disturbance must occur during the breeding season, the Qualified Biologist shall conduct a preconstruction survey to determine the presence or absence of nesting for these sensitive bird species or MBTA-covered species on the proposed area of disturbance. The preconstruction survey shall be conducted within 10 calendar days prior to the start of construction activities or if work is halted and are then resumed (including removal of vegetation). The applicant shall submit the results of the preconstruction survey to the City for review and approval prior to initiating any construction activities.
>
> If nesting activities for bird species are detected, a letter report or mitigation plan in conformance with the City's Biology Guidelines and applicable state and federal law (i.e., appropriate follow up surveys, monitoring schedules, construction and noise barriers/buffers, etc.) shall be prepared and include proposed measures to be implemented to ensure that take of birds or eggs or disturbance of breeding activities is avoided. The report or mitigation plan shall be submitted to the City for review and approval and implemented to the satisfaction of the City. The City's MMC Section or Resident Engineer, and Biologist shall verify and approve that all measures identified in the report or mitigation plan are in place prior to and/or during construction.

Survey Details:
Weather during the survey period ranged from 73-77° Fahrenheit, 0% cloud cover, and 5-10 mph winds. The proposed project area consists primarily of landscape and ornamental plants. No native plants are scheduled for removal at this time.

However, nesting bird habitat does exist on site within the surrounding non-native vegetation. Bird activity was moderate with some passerine species (house finch) exhibiting pre-mating behaviors. Red-shouldered hawk was observed calling, foraging, and actively capturing prey south of the project area, under Eucalyptus. Yellow-rumped warbler, Anna's hummingbird were also observed actively foraging within Eucalyptus. California towhee were also displaying pre-nesting behavior within loquat plants.

Plants observed:

- date palm, *Phoenix dactylifera*
- blue gum, *Eucalyptus globulus*
- red ironbark, *Eucalyptus tricarpa*
- loquat, *Eriobotrya japonica*
- Mexican fan palm, *Washingtonia robusta*
- American agave, *Agave americana*
- Pencil cactus, *Euphorbia tirucalli*

Wildlife observed:

- red-shouldered hawk, *Buteo lineatus*
- yellow-rumped warbler, *Setophaga coronata*
- Anna's hummingbird, *Calypte anna*
- American crow, *Corvus brachyrhynchos*
- California towhee, *Melozone crissalis*
- house finch, *Haemorhous mexicanus*
- western fence lizard, *Sceloporus occidentalils*

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 6

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ No.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
DECEMBER 17, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

http://www.sandiego.gov/cip/bidopps/

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

Q1. **Electrical Utility**

Sheet 1E.001 Note 3 states "Coordinate with SDGE to upgrade the electrical service transformer as required to accommodate new loads". The scope on sheet U001 does not match what is shown on the Electrical drawings. Please confirm that the Franchise Utility drawing U001 is the design intent and is to be priced accordingly.

A1. For bidding purposes, confirmed.

Q2. **Mechanical As-Builts**

The mechanical as-builts show a steam boiler plant which was confirmed to exist during the site-walk. The bridging documents do not show any steam generation systems. Will there be a requirement for steam use on-site? If so will the device requiring steam be provided with its own electric steam generator or will it be required to be provided by the Design-Build team.

A2. Design-Builder to provide the space and the taps for a future steam boiler production plant, to accommodate laboratory equipment/instruments with medium- to high-pressure steam requirements. The space for these types of monuments must be adequate in terms of maintenance, heavy repairs, and replacement. Design-Builder to design and provide ancillary power, drainage, and water supply to be readily available when designing the space for future use.

Q3. **Sheet 2M.101**

HEPA filtration is identified for Microplastic room. No specification or schedule is provided for HEPA filters. Is the intent to utilize fan powered HEPA filters?

A3. Yes, fan powered HEPA filters are intended to be used for air filtration for the microplastic room. Selected Design-Builder may provide alternatives or recommendations for City consideration.

Q4. **Low Voltage Scope**

Please confirm if ERRCS is part of this project,

A4. For bidding purposes, confirmed.

Q5. Please confirm whether alternate lab air valve manufacturers (Siemens, Accutrol) are acceptable.

A5. Siemens and Accutrol are acceptable substitutions. Refer to the RFP Document, Attachment E, Section 4-6 for proposed substitutions submittal requirements.

Q6. The project manual states Siemens, Trane, and Carrier are the BAS brands that will be considered for this project. This building currently has an old JCI system. Will the City consider other systems such as Distech or Alerton with an open Niagara 4 front end?

A6. BAS is preferred to be TRANE. SIEMENS, CARRIER, or METASYS. However, the City does allow substitutions per Whitebook section 4-6 Trade Names, additionally, please Refer to the RFP Document, Attachment E, Section 4-6 for proposed substitutions submittal requirements.

Q7. Does the City prefer BACnet IP or BACnet MS/TP as the primary BAS protocol?

A7. For bidding purposes assume BACnet IP.

Q8. Refer to RFP Attachment G - Evaluation and Selection Criteria, Item 6 - Equal Employment and Contracting Opportunity (25 Points Max). Please confirm that the % participation used for scoring this section will be calculated based on a denominator equal to the Total Price Proposal Value less the $8.1M of EOC Type II line items and not including the alternate pricing.

A8. Correct, the Proposer's subcontractor participation that will be counted towards meeting the mandatory goal is calculated based off of the total contract value, minus "Field Orders" and "City Contingency" Bid items, Alternate Bid items, and Allowance Bid items designated as "EOC Type II". For more information, please see the RFP Attachment C, section A – EOCP General Requirements - subsection F.

Q9. In reference to Addendum 2, Question 1 response regarding existing campus energy - We would like to clarify our original inquiry regarding the use of the existing photovoltaic (PV) system located on-site in our energy and electrical calculations for the design-build pursuit.

Our intent was to determine whether the electrical generation output from the existing Earl Thomas PV system—regardless of ownership—could be accounted for in our overall project energy balance. This would allow us to offset a portion of the new PV generation required to meet zero emissions program and LEED/EUI requirements.

We understand the preliminary response indicated that the existing system could not be used due to its privatized ownership. However, we believe there may have been a misunderstanding. We are not requesting to modify, or take ownership of the existing system, but rather to include its generation output as part of the site's total renewable energy contribution. Given that this existing system is tied to the building electrical system.

Background: We have run estimates for both scenarios:

Including the existing PV generation in our calculations.

Excluding the existing PV generation, requiring a much bigger new PV system.

If we are able to include the existing PV generation in our calculations, it would result in a cost savings of over 55% for the new PV system installation. This has significant budget implications and supports a more efficient and sustainable design approach.

A9. For bidding purposes, assume existing PV system cannot be used towards project energy balance.

Q10. **Laboratory Trailer Drawings**

Are there any emergency or standby power requirements for the temporary trailer?

A10. No owner-specific requirements for stand-by or emergency power for the temporary trailers. However, Design-Builder shall meet all applicable codes and standards.

Q11. **Laboratory Improvements**

What is the required generator run time?

A11. For bidding purposes, assume a minimum of four hours continuous run-time; however, Design-Builder shall be responsible for meeting the minimum run time requirements per codes/spec/regulations, including CBC, APCD, etc.

Q12. **Laboratory Accreditations**

ADDENDUM 03, SECTION C. CHANGES TO THE REQUEST FOR PROPOSAL, Item 1.8. indicates "The Alvarado Laboratory project shall be designed and built to be fully functional in every capacity with requirements equal to or exceeding the County of San Diego, Public Health Laboratory. According to The County's website, the County Public Health Laboratory maintains the following accreditations:

- Approved as a Public Health Laboratory by the State of California
- Certified as a Clinical Laboratory by the U.S. Centers for Medicare and Medicaid Services (CMS) under the Clinical Laboratory Improvement Amendment (CLIA)
- Certified as a Clinical Laboratory Improvement Amendments (CLIA) approved Clinical Reference Laboratory
- Certified as an Environmental Laboratory Accreditation Program (ELAP) approved Environmental Testing Laboratory under the TNI Standard
- Certified as a Select Agent Laboratory by the Center for Disease Control and Prevention – Division of Select Agents and Toxins (DSAT)

Are all these accreditations required for Alvarado Laboratory project? What Biosafety Level (BSL) does The City require (BSL-2, BSL-3, BSL-4)?

A12. The Alvarado Lab needs the following accreditation: Certified as an Environmental Laboratory Accreditation Program (ELAP) approved Environmental Testing Laboratory under the TNI Standard.

Q13. **ELAP Accreditation**

Addendum #3, Q/A 11 describes some of the ELAP responsibilities, but does not discuss fees. Please confirm that all the fees for ELAP accreditation are to be paid by the City.

A13. Fees paid directly to the Water Board (Under the ELAP program) shall be paid by the Design-Builder and reimbursed by the City.

Q14. **Topographic Survey**

Please confirm the DBT can rely upon the topographic survey provided in the CAD files of the bridging documents, or advise if the DBT needs to perform their own topographic survey for design of improvements.

A14. Design-Builder to perform their own Topographic survey.

Q15. **Existing Trellis Footings**

Architectural As-Built Drawing A-84 shows the existing Trellis pier footings to be approximately 11 to 12 feet deep. Please confirm the top 5' of the footing can be demoed and the remaining piece abandoned in place.

A15. It is up to the Design-Builder's discretion as the Structural Engineer of Record. Design-Builder is the Structural Engineer of Record (SEOR) and is responsible for meeting all required codes and regulations.

Q16. **Technical Specification**

The Bridging Document Supplemental Technical Specification Section 15125 "Large Diameter Metal-Seated Triple-Offset Butterfly Valves" requires the valve to be provided with either an electric motor-operated or electro-hydraulic actuator (see Section 2.04.H.1). However, Drawing M7 does not indicate any electromechanical operator.

A16. For bidding purposes, assume motorized.

Rania Amen, Director
Engineering & Capital Projects Department

Dated: *November 28, 2025*
San Diego, California

RA/MA/yk

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 7

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ No.: **K-25-2318-DB2-3-C**
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PROJECT TYPE: **BN, BT**

PROPOSALS DUE:

2:00 PM
DECEMBER 17, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

http://www.sandiego.gov/cip/bidopps/

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

Q1. Please confirm if ELAP evaluation/assessments and will be provided by the City or a consultant directly contracted to the City, or if this is the responsibility of the Design-Build Entity. (We acknowledge compliance with ELAP requirements is the Design-Build Entity's responsibility as it relates to the design and construction of the facility.) If the latter, we need more definition on scope:

1) Who will author the Laboratory Quality Manual - the City or Design-Build Entity?

2) Provide a list of the Fields of Accreditation (FOAs) the is City pursuing of the 637 noted in Q/A 90 of Addendum 5.

3) Who will be paying for Third-Party Assessments to perform the Laboratory's Proficiency Testing - the City or Design-Build Entity?

If it is inclear who will include this scope, please specify allowance value to be carried.

A1. 1) The City.

2) Please reference the following attachments:

a) California State Environmental Laboratory Accreditation Program Fields of Accreditation, Certificate No. 1609, pages 5 through 14 included in this Addendum.

b) Arizona Department of Health Service, AZ License: AZ00783, Alvarado Wastewater Chemistry Laboratory, pages 15 through 17 included in this Addendum.

c) Letter from State Water Board, Certificate No. 1058, dated Oct 14, 2025, pages 18 through 26 included in this Addendum.

3) The Design Builder will pay and will be reimbursed by the City.

C. ADDENDUM

1. To **ADDENDUM 3, Section B, BIDDER'S QUESITIONS, Q26.** and **A26.,** pages 10 and 11, **DELETE** in their entirety and **SUBSTUTUTE** with the following:

   Q26. **Laboratory Turnover**

   Please provide the timeframes required for the Owner turnover and certification and activation period of the individual labs as construction renovation proceeds.

   A26. The City estimates approximately 5 months cross-over where the old labs and their new counterparts have to be operating simultaneously during the ELAP certification process:

   1 month to set up new lab
   1 month to complete IDOCs (Initial Demonstration of Capability)
   1 month to complete PT (Proficiency Testing) study
   1-2 months for expedited assessment + report + application

   These durations are estimates only. Ultimately, the Design-Builder is responsible for the design and construction schedule, as well as the phasing/sequencing of the project, including laboratory activation.

2. To **ADDENDUM 5**, Section **B, BIDDER'S QUESITIONS, Q45.** and **A45.**, page 13, **DELETE** in their entirety and **SUBSTITUTE** with the following:

   Q45. Please confirm that the price entered on the Price Proposal Form should reflect only the bridging documents as issued, along with City-defined Additive Alternate A, and should not include voluntary alternates or options proposed by the Design-Builder.

   A45. The Design-Builder may incorporate alternates or changes from the bridging documents into their design and reflect them in the price proposal, as long as the design meets or exceeds the performance standards outlined in the RFP/bridging documents. Reference Attachment G, scoring and selection; the Design-Builder's will be scored accordingly.

Elif E. Cetin, Director
Engineering & Capital Projects Department

Dated: *December 4, 2025*
San Diego, California

EEC/MA/yk

Alvarado Wastewater Chemistry Lab
City of San Diego, Environmental Monitoring & Technical Services Div.
5530 Kiowa Drive
La Mesa, CA 91942-1331
Phone: 6196683214

Certificate Number: 1609
Expiration Date: 11/30/2026

Field of Accreditation: 108 - Inorganic Constituents in Non-Potable Water

108.007	001	Residue, Volatile	EPA 160.4
108.013	001	Calcium	EPA 200.7
108.013	002	Magnesium	EPA 200.7
108.013	003	Phosphorus,Total	EPA 200.7
108.013	004	Potassium	EPA 200.7
108.013	006	Sodium	EPA 200.7
108.017	001	Bromide	EPA 300.0
108.017	002	Chloride	EPA 300.0
108.017	003	Fluoride	EPA 300.0
108.017	004	Nitrate (as N)	EPA 300.0
108.017	006	Nitrite (as N)	EPA 300.0
108.017	007	Phosphate,Ortho (as P)	EPA 300.0
108.017	008	Sulfate (as SO4)	EPA 300.0
108.023	001	Cyanide, Total	EPA 335.4
108.053	002	Oil & Grease, Total Recoverable	EPA 1664 B
108.065	001	Hardness (Calculation)	SM 2340 B-2011
108.070	001	Residue, Total	SM 2540 B-2015
108.072	001	Residue, Filterable TDS	SM 2540 C-2015
108.074	001	Residue, Non-filterable TSS	SM 2540 D-2015
108.076	001	Residue, Volatile	SM 2540 E-2015
108.076	002	Residue, Fixed Filterable (FDS)	SM 2540 E-2015
108.080	001	Temperature	SM 2550 B-2010
108.115	001	Chloride	SM 4500-Chloride B-2011
108.128	001	Cyanide, Available	SM 4500-CN- G-2016
108.128	001	Cyanide, Available	SM 4500-CN- G-2016
108.139	001	Ammonia (as N)	SM 4500-NH3 C-2011
108.139	002	Kjeldahl Nitrogen,Total (as N)	SM 4500-NH3 C-2011
108.325	001	Chemical Oxygen Demand	Hach 8000

Field of Accreditation: 109 - Metals and Trace Elements in Non-Potable Water

109.623	001	Aluminum	EPA 200.7
109.623	002	Antimony	EPA 200.7
109.623	003	Arsenic	EPA 200.7
109.623	004	Barium	EPA 200.7

As of 3/17/2025 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

109.623	005	Beryllium	EPA 200.7
109.623	006	Boron	EPA 200.7
109.623	007	Cadmium	EPA 200.7
109.623	008	Chromium	EPA 200.7
109.623	009	Cobalt	EPA 200.7
109.623	010	Copper	EPA 200.7
109.623	011	Iron	EPA 200.7
109.623	012	Lead	EPA 200.7
109.623	013	Manganese	EPA 200.7
109.623	014	Molybdenum	EPA 200.7
109.623	015	Nickel	EPA 200.7
109.623	016	Selenium	EPA 200.7
109.623	017	Silver	EPA 200.7
109.623	018	Thallium	EPA 200.7
109.623	021	Vanadium	EPA 200.7
109.623	022	Zinc	EPA 200.7
109.625	001	Aluminum	EPA 200.8
109.625	002	Antimony	EPA 200.8
109.625	003	Arsenic	EPA 200.8
109.625	004	Barium	EPA 200.8
109.625	005	Beryllium	EPA 200.8
109.625	006	Boron	EPA 200.8
109.625	007	Cadmium	EPA 200.8
109.625	008	Chromium	EPA 200.8
109.625	009	Cobalt	EPA 200.8
109.625	010	Copper	EPA 200.8
109.625	012	Iron	EPA 200.8
109.625	013	Lead	EPA 200.8
109.625	014	Manganese	EPA 200.8
109.625	015	Molybdenum	EPA 200.8
109.625	016	Nickel	EPA 200.8
109.625	017	Selenium	EPA 200.8
109.625	018	Silver	EPA 200.8
109.625	019	Thallium	EPA 200.8
109.625	022	Vanadium	EPA 200.8
109.625	023	Zinc	EPA 200.8
109.639	001	Mercury	EPA 245.7
109.657	001	Mercury	EPA 1631 E

Field of Accreditation: 110 - Volatile Organic Constituents in Non-Potable Water

110.040	001	Acetone	EPA 624.1
110.040	003	Acrolein	EPA 624.1
110.040	004	Acrylonitrile	EPA 624.1

110.040	005	Benzene	EPA 624.1
110.040	006	Bromodichloromethane	EPA 624.1
110.040	007	Bromoform	EPA 624.1
110.040	008	Bromomethane (Methyl Bromide)	EPA 624.1
110.040	010	Carbon Tetrachloride	EPA 624.1
110.040	011	Chlorobenzene	EPA 624.1
110.040	012	Chloroethane	EPA 624.1
110.040	013	2-Chloroethyl vinyl Ether	EPA 624.1
110.040	014	Chloroform	EPA 624.1
110.040	015	Chloromethane (Methyl Chloride)	EPA 624.1
110.040	016	Dibromochloromethane (Chlorodibromomethane)	EPA 624.1
110.040	017	1,2-Dichlorobenzene	EPA 624.1
110.040	018	1,3-Dichlorobenzene	EPA 624.1
110.040	019	1,4-Dichlorobenzene	EPA 624.1
110.040	020	1,1-Dichloroethane	EPA 624.1
110.040	021	1,2-Dichloroethane (Ethylene Dichloride)	EPA 624.1
110.040	022	1,1-Dichloroethylene (1,1-Dichloroethene)	EPA 624.1
110.040	023	trans-1,2-Dichloroethylene (trans- 1,2 Dichloroethene	EPA 624.1
110.040	024	1,2-Dichloropropane	EPA 624.1
110.040	025	cis-1,3-Dichloropropylene (cis 1,3 Dichloropropene)	EPA 624.1
110.040	026	trans-1,3-Dichloropropylene (trans-1,3 Dichloroprope	EPA 624.1
110.040	029	Ethylbenzene	EPA 624.1
110.040	031	Methylene Chloride (Dichloromethane)	EPA 624.1
110.040	032	4-Methyl-2-pentanone (Methyl Isobutyl Ketone)	EPA 624.1
110.040	034	1,1,2,2-Tetrachloroethane	EPA 624.1
110.040	035	Tetrachloroethylene (Tetrachloroethene)	EPA 624.1
110.040	037	Toluene	EPA 624.1
110.040	038	1,1,1-Trichloroethane	EPA 624.1
110.040	039	1,1,2-Trichloroethane	EPA 624.1
110.040	040	Trichloroethylene (Trichloroethene)	EPA 624.1
110.040	041	Vinyl Chloride	EPA 624.1
110.040	043	o-Xylene	EPA 624.1
110.040	045	Trichlorofluoromethane	EPA 624.1
110.040	046	m+p-Xylene	EPA 624.1
110.040	047	2-Butanone (MEK)	EPA 624.1

Field of Accreditation: 111 - Semi-volatile Organic Constituents in Non-Potable Water

111.055	001	Aldrin	EPA 608.3
111.055	002	alpha-BHC	EPA 608.3
111.055	003	beta-BHC	EPA 608.3
111.055	004	delta-BHC	EPA 608.3
111.055	005	gamma-BHC (Lindane)	EPA 608.3
111.055	006	Chlordane	EPA 608.3

111.055	007	4,4'-DDD	EPA 608.3
111.055	008	4,4'-DDE	EPA 608.3
111.055	009	4,4'-DDT	EPA 608.3
111.055	010	Dieldrin	EPA 608.3
111.055	011	Endosulfan I	EPA 608.3
111.055	012	Endosulfan II	EPA 608.3
111.055	013	Endosulfan Sulfate	EPA 608.3
111.055	014	Endrin	EPA 608.3
111.055	015	Endrin Aldehyde	EPA 608.3
111.055	016	Heptachlor	EPA 608.3
111.055	017	Heptachlor Epoxide	EPA 608.3
111.055	019	PCB-1016 (Aroclor-1016)	EPA 608.3
111.055	020	PCB-1221 (Aroclor-1221)	EPA 608.3
111.055	021	PCB-1232 (Aroclor-1232)	EPA 608.3
111.055	022	PCB-1242 (Aroclor-1242)	EPA 608.3
111.055	023	PCB-1248 (Aroclor-1248)	EPA 608.3
111.055	024	PCB-1254 (Aroclor-1254)	EPA 608.3
111.055	025	PCB-1260 (Aroclor-1260)	EPA 608.3
111.055	046	Methoxychlor	EPA 608.3
111.055	048	Mirex	EPA 608.3
111.055	060	Toxaphene	EPA 608.3
111.160	001	Acenaphthene	EPA 625.1
111.160	002	Acenaphthylene	EPA 625.1
111.160	003	Anthracene	EPA 625.1
111.160	004	Benzidine	EPA 625.1
111.160	005	Benzo(a)anthracene	EPA 625.1
111.160	006	Benzo(a)pyrene	EPA 625.1
111.160	007	Benzo(b)fluoranthene	EPA 625.1
111.160	008	Benzo(g,h,i)perylene	EPA 625.1
111.160	009	Benzo(k)fluoranthene	EPA 625.1
111.160	010	Bis(2-chloroethoxy) Methane	EPA 625.1
111.160	011	Bis(2-chloroethyl) Ether	EPA 625.1
111.160	012	bis(2-Chloroisopropyl) ether (2,2'-Oxybis[1-chloroprop	EPA 625.1
111.160	013	Bis(2-ethylhexyl)phthalate (Di(2-ethylhexyl) phthalate)	EPA 625.1
111.160	014	4-Bromophenyl Phenyl Ether	EPA 625.1
111.160	015	Butyl Benzyl Phthalate	EPA 625.1
111.160	016	2-Chloronaphthalene	EPA 625.1
111.160	017	4-Chlorophenyl Phenyl Ether	EPA 625.1
111.160	018	Chrysene	EPA 625.1
111.160	019	Dibenz(a,h)anthracene	EPA 625.1
111.160	020	3,3'-Dichlorobenzidine	EPA 625.1
111.160	021	Diethyl Phthalate	EPA 625.1

111.160	022	Dimethyl Phthalate	EPA 625.1
111.160	023	Di-n-butyl Phthalate	EPA 625.1
111.160	024	2,4-Dinitrotoluene	EPA 625.1
111.160	025	2,6-Dinitrotoluene	EPA 625.1
111.160	026	Di-n-octyl Phthalate	EPA 625.1
111.160	027	Fluoranthene	EPA 625.1
111.160	028	Fluorene	EPA 625.1
111.160	029	Hexachlorobenzene	EPA 625.1
111.160	030	Hexachlorobutadiene	EPA 625.1
111.160	031	Hexachloroethane	EPA 625.1
111.160	032	Indeno(1,2,3-c,d)pyrene	EPA 625.1
111.160	033	Isophorone	EPA 625.1
111.160	034	Naphthalene	EPA 625.1
111.160	035	Nitrobenzene	EPA 625.1
111.160	036	N-nitroso-di-n-propylamine (NDPA)	EPA 625.1
111.160	037	Phenanthrene	EPA 625.1
111.160	038	Pyrene	EPA 625.1
111.160	039	1,2,4-Trichlorobenzene	EPA 625.1
111.160	040	4-Chloro-3-methylphenol	EPA 625.1
111.160	041	2-Chlorophenol	EPA 625.1
111.160	042	2,4-Dichlorophenol	EPA 625.1
111.160	043	2,4-Dimethylphenol	EPA 625.1
111.160	044	2,4-Dinitrophenol	EPA 625.1
111.160	045	2-Methyl-4,6-dinitrophenol	EPA 625.1
111.160	046	2-Nitrophenol	EPA 625.1
111.160	047	4-Nitrophenol	EPA 625.1
111.160	048	Pentachlorophenol	EPA 625.1
111.160	049	Phenol	EPA 625.1
111.160	050	2,4,6-Trichlorophenol	EPA 625.1
111.160	098	Hexachlorocyclopentadiene	EPA 625.1
111.160	108	N-nitrosodimethylamine (NDMA)	EPA 625.1
111.160	110	N-nitrosodiphenylamine	EPA 625.1
111.160	141	o-Cresol	EPA 625.1
111.160	143	1,2-Diphenylhydrazine	EPA 625.1
111.160	145	Pyridine	EPA 625.1
111.160	147	m+p-Cresol	EPA 625.1
111.160	148	2-Methylnaphthalene	EPA 625.1
111.160	149	1-Methylphenanthrene	EPA 625.1
111.160	150	Perylene	EPA 625.1
111.160	151	2,4,5-Trichlorophenol	EPA 625.1

Field of Accreditation: 114 - Inorganic Constituents in Hazardous Waste

114.315	002	Antimony	EPA 6010 B

114.315	003	Arsenic	EPA 6010 B
114.315	004	Barium	EPA 6010 B
114.315	005	Beryllium	EPA 6010 B
114.315	007	Cadmium	EPA 6010 B
114.315	009	Chromium	EPA 6010 B
114.315	010	Cobalt	EPA 6010 B
114.315	011	Copper	EPA 6010 B
114.315	013	Lead	EPA 6010 B
114.315	016	Molybdenum	EPA 6010 B
114.315	017	Nickel	EPA 6010 B
114.315	019	Selenium	EPA 6010 B
114.315	020	Silver	EPA 6010 B
114.315	023	Thallium	EPA 6010 B
114.315	026	Vanadium	EPA 6010 B
114.315	027	Zinc	EPA 6010 B
114.325	001	Aluminum	EPA 6010 D
114.325	002	Antimony	EPA 6010 D
114.325	003	Arsenic	EPA 6010 D
114.325	004	Barium	EPA 6010 D
114.325	005	Beryllium	EPA 6010 D
114.325	006	Boron	EPA 6010 D
114.325	007	Cadmium	EPA 6010 D
114.325	009	Chromium	EPA 6010 D
114.325	010	Cobalt	EPA 6010 D
114.325	011	Copper	EPA 6010 D
114.325	012	Iron	EPA 6010 D
114.325	013	Lead	EPA 6010 D
114.325	015	Manganese	EPA 6010 D
114.325	016	Molybdenum	EPA 6010 D
114.325	017	Nickel	EPA 6010 D
114.325	019	Selenium	EPA 6010 D
114.325	020	Silver	EPA 6010 D
114.325	023	Thallium	EPA 6010 D
114.325	024	Tin	EPA 6010 D
114.325	026	Vanadium	EPA 6010 D
114.325	027	Zinc	EPA 6010 D
114.535	001	Mercury	EPA 7471 A
114.555	001	Mercury	EPA 7473
114.725	001	Cyanide, Total	EPA 9014
114.735	001	Sulfides	EPA 9034

Field of Accreditation: 115 - Leaching/Extraction Tests and Physical Characteristics of Hazardous Waste

115.135	001	Corrosivity - pH Determination	EPA 9045 C

Field of Accreditation: 116 - Volatile Organic Compounds in Hazardous Waste

116.265	001	Benzene	EPA 8260 B
116.265	004	Bromodichloromethane	EPA 8260 B
116.265	005	Bromoform	EPA 8260 B
116.265	006	Bromomethane (Methyl Bromide)	EPA 8260 B
116.265	011	Carbon Tetrachloride	EPA 8260 B
116.265	012	Chlorobenzene	EPA 8260 B
116.265	013	Chlorodibromomethane (Dibromochloromethane)	EPA 8260 B
116.265	014	Chloroethane	EPA 8260 B
116.265	015	Chloroform	EPA 8260 B
116.265	016	Chloromethane (Methyl Chloride)	EPA 8260 B
116.265	020	trans-1,2-Dichloroethylene (trans- 1,2 Dichloroethene	EPA 8260 B
116.265	021	cis-1,3-Dichloropropylene (cis 1,3 Dichloropropene)	EPA 8260 B
116.265	022	trans-1,3-Dichloropropylene (trans-1,3 Dichloroprope	EPA 8260 B
116.265	023	Ethylbenzene	EPA 8260 B
116.265	026	Methylene Chloride (Dichloromethane)	EPA 8260 B
116.265	031	Tetrachloroethylene (Tetrachloroethene)	EPA 8260 B
116.265	032	Toluene	EPA 8260 B
116.265	033	Trichloroethylene (Trichloroethene)	EPA 8260 B
116.265	034	Trichlorofluoromethane	EPA 8260 B
116.265	035	Vinyl Chloride	EPA 8260 B
116.265	040	1,1-Dichloroethane	EPA 8260 B
116.265	041	1,1-Dichloroethylene (1,1-Dichloroethene)	EPA 8260 B
116.265	042	1,1,1-Trichloroethane	EPA 8260 B
116.265	044	1,1,2,2-Tetrachloroethane	EPA 8260 B
116.265	045	1,1,2-Trichloroethane	EPA 8260 B
116.265	046	1,2-Dichlorobenzene	EPA 8260 B
116.265	047	1,2-Dichloroethane (Ethylene Dichloride)	EPA 8260 B
116.265	050	1,2-Dichloropropane	EPA 8260 B
116.265	053	1,3-Dichlorobenzene	EPA 8260 B
116.265	054	1,4-Dichlorobenzene	EPA 8260 B
116.265	055	2-Chloroethyl vinyl Ether	EPA 8260 B

Field of Accreditation: 117 - Semi-volatile Organic Chemistry of Hazardous Waste

117.315	001	Aldrin	EPA 8081 A
117.315	002	alpha-BHC	EPA 8081 A
117.315	003	beta-BHC	EPA 8081 A
117.315	004	delta-BHC	EPA 8081 A
117.315	005	gamma-BHC (Lindane)	EPA 8081 A
117.315	006	Chlordane (total)	EPA 8081 A
117.315	008	4,4'-DDD	EPA 8081 A
117.315	009	4,4'-DDE	EPA 8081 A
117.315	010	4,4'-DDT	EPA 8081 A

117.315	011	Dieldrin	EPA 8081 A
117.315	012	Endosulfan I	EPA 8081 A
117.315	013	Endosulfan II	EPA 8081 A
117.315	014	Endosulfan Sulfate	EPA 8081 A
117.315	015	Endrin	EPA 8081 A
117.315	016	Endrin Aldehyde	EPA 8081 A
117.315	018	Heptachlor	EPA 8081 A
117.315	019	Heptachlor Epoxide	EPA 8081 A
117.315	020	Methoxychlor	EPA 8081 A
117.315	021	Toxaphene	EPA 8081 A
117.335	001	Aroclor 1016	EPA 8082
117.335	002	Aroclor 1221	EPA 8082
117.335	003	Aroclor 1232	EPA 8082
117.335	004	Aroclor 1242	EPA 8082
117.335	005	Aroclor 1248	EPA 8082
117.335	006	Aroclor 1254	EPA 8082
117.335	007	Aroclor 1260	EPA 8082
117.435	001	Acenaphthene	EPA 8270 C
117.435	002	Acenaphthylene	EPA 8270 C
117.435	004	Anthracene	EPA 8270 C
117.435	005	Benzidine	EPA 8270 C
117.435	007	Benzo(a)anthracene	EPA 8270 C
117.435	008	Benzo(b)fluoranthene	EPA 8270 C
117.435	009	Benzo(k)fluoranthene	EPA 8270 C
117.435	010	Benzo(g,h,i)perylene	EPA 8270 C
117.435	011	Benzo(a)pyrene	EPA 8270 C
117.435	013	Bis(2-chloroethoxy) Methane	EPA 8270 C
117.435	014	Bis(2-chloroethyl) Ether	EPA 8270 C
117.435	015	Bis(2-ethylhexyl)phthalate (Di(2-ethylhexyl) phthalate)	EPA 8270 C
117.435	016	Butyl Benzyl Phthalate	EPA 8270 C
117.435	017	Chrysene	EPA 8270 C
117.435	018	Dibenz(a,h)anthracene	EPA 8270 C
117.435	020	Di-n-butyl Phthalate	EPA 8270 C
117.435	021	Diethyl Phthalate	EPA 8270 C
117.435	022	Dimethyl Phthalate	EPA 8270 C
117.435	023	Di-n-octyl Phthalate	EPA 8270 C
117.435	024	Fluoranthene	EPA 8270 C
117.435	025	Fluorene	EPA 8270 C
117.435	026	Naphthalene	EPA 8270 C
117.435	027	Nitrobenzene	EPA 8270 C
117.435	029	Pentachlorophenol	EPA 8270 C
117.435	031	1,2-Dichlorobenzene	EPA 8270 C

117.435	032	1,3-Dichlorobenzene	EPA 8270 C
117.435	033	1,4-Dichlorobenzene	EPA 8270 C
117.435	034	2-Chloronaphthalene	EPA 8270 C
117.435	035	2-Chlorophenol	EPA 8270 C
117.435	036	2,4-Dichlorophenol	EPA 8270 C
117.435	037	2,4-Dimethylphenol	EPA 8270 C
117.435	038	2,4-Dinitrophenol	EPA 8270 C
117.435	039	2,4-Dinitrotoluene	EPA 8270 C
117.435	041	2,6-Dinitrotoluene	EPA 8270 C
117.435	043	2-Nitrophenol	EPA 8270 C
117.435	045	3,3'-Dichlorobenzidine	EPA 8270 C
117.435	047	4-Chloro-3-methylphenol	EPA 8270 C
117.435	048	4-Bromophenyl Phenyl Ether	EPA 8270 C
117.435	049	4-Chlorophenyl Phenyl Ether	EPA 8270 C
117.435	051	4-Nitrophenol	EPA 8270 C
117.435	088	N-nitrosodimethylamine (NDMA)	EPA 8270 C
117.435	089	N-nitrosodiphenylamine	EPA 8270 C
117.435	090	N-nitroso-di-n-propylamine (NDPA)	EPA 8270 C
117.435	091	Indeno(1,2,3-c,d)pyrene	EPA 8270 C
117.435	092	Isophorone	EPA 8270 C
117.435	093	2-Methylnaphthalene	EPA 8270 C
117.435	094	Phenanthrene	EPA 8270 C

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

Alvarado Wastewater Chemistry Lab

City of San Diego, Environmental Monitoring & Technical Services Div.

5530 Kiowa Drive

La Mesa, CA 91942-1331

Scope of the certificate is limited to the
"Fields of Accreditation"
which accompany this Certificate.

Continued accredited status depends on compliance with applicable laws and regulations, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1609**

Effective Date: **12/1/2024**

Expiration Date: **11/30/2026**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Program Manager
Environmental Laboratory Accreditation Program

ARIZONA
DEPARTMENT OF
HEALTH SERVICES

ENVIRONMENTAL LABORATORY LICENSE

Issued to:

Laboratory Director: **Oscar Miranda**

Owner/Representative: **Mrs.Violet Renick, Ph. D.**

Alvarado Wastewater Chemistry Laboratory
AZ0783

is in compliance with Environmental Laboratory's applicable standards for the State of Arizona and maintains on file a List of Parameters for which the laboratory is certified to perform analysis.

PERIOD OF LICENSURE FROM: 08/09/2025 TO: 08/08/2026

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

Mary Graham

Mary Graham, Chief
Office of Laboratory Licensure & Certification
Bureau of State Laboratory Services

Arizona Department Of Health Services

Office of Laboratory Licensure and Certification

250 N.17th Avenue, Phoenix, Arizona 85007-3246

SW

Parameter	EPA Method	Certified On
ANTIMONY	6010D	8/16/2024 12:00:00 AM
ARSENIC	6010D	8/16/2024 12:00:00 AM
BARIUM	6010D	8/16/2024 12:00:00 AM
BERYLLIUM	6010D	8/16/2024 12:00:00 AM
CADMIUM	6010D	8/16/2024 12:00:00 AM
CHROMIUM, TOTAL	6010D	8/16/2024 12:00:00 AM
COBALT	6010D	8/16/2024 12:00:00 AM
COPPER	6010D	8/16/2024 12:00:00 AM
LEAD	6010D	8/16/2024 12:00:00 AM
MERCURY	EPA 7473	9/27/2013 12:00:00 AM
MERCURY	EPA 7471B	6/8/2018 4:33:57 PM
MICROWAVE ASSISTED DIGESTIONS (PHOSPHORUS)	EPA 3051A	6/10/2024 2:57:59 PM
MOLYBDENUM	6010D	8/16/2024 12:00:00 AM
NICKEL	6010D	8/16/2024 12:00:00 AM
PHOSPHORUS	6010D	8/16/2024 12:00:00 AM
SELENIUM	6010D	8/16/2024 12:00:00 AM
SILVER	6010D	8/16/2024 12:00:00 AM
THALLIUM	6010D	8/16/2024 12:00:00 AM
VANADIUM	6010D	8/16/2024 12:00:00 AM
ZINC	6010D	8/16/2024 12:00:00 AM

Total Count: 20

WW

Parameter	EPA Method	Certified On
AMMONIA	SM 4500-NH3B (2011)	8/9/2013 12:00:00 AM
AMMONIA	SM 4500-NH3 C (2011)	8/9/2013 12:00:00 AM
KJELDAHL, TOTAL NITROGEN	4500 NH3B+NORG B (2011)	8/9/2013 12:00:00 AM
NITRATE (AS N)	EPA 300.0 (2.1)	10/1/2014 12:00:00 AM
NITRITE (AS N)	EPA 300.0 (2.1)	6/23/2020 2:46:44 PM

WW

Parameter	EPA Method	Certified On
TOTAL, FIXED AND VOLATILE SOLIDS IN SLUDGE	SM 2540G (2011)	11/13/2014 12:00:00 AM

Total Count: 6

Instrument

Instrument	Instrument Code	Quantity	Certified On
INDUCTIVELY COUPLED PLASMA SPECTROMETER	ICP	1	5/13/2022 9:54:50 AM
ION CHROMATOGRAPH	IC	1	6/4/2018 7:01:29 PM
ATOMIC ABSORPTION SPECTROPHOTOMETER	AA	1	6/4/2018 7:01:29 PM
MERCURY ANALYZER	MA	1	6/4/2018 7:01:29 PM
INDUCTIVELY COUPLED PLASMA SPECTROMETER	ICP	1	6/7/2023 7:36:15 PM
ION CHROMATOGRAPH	IC	1	6/7/2023 7:38:02 PM
INDUCTIVELY COUPLED PLASMA SPECTROMETER	ICP	1	6/10/2024 2:59:23 PM

Total Count: 7

Software

Software Code	Certified On
CHROMELEON (DIONEX) - IC	6/8/2018 4:33:57 PM
Millennium	6/8/2018 4:33:57 PM
Easy DOC	6/8/2018 4:33:57 PM
Qtegra	6/3/2022 10:38:29 AM
OTHER - ICP	6/10/2024 2:59:23 PM

Total Count: 5

October 14, 2025

Tiffany Blaszak
City of San Diego Water Quality Laboratory
5530 Kiowa Drive
La Mesa, CA 91942

Dear Tiffany Blaszak: Certificate No. 1058

Congratulations! This notice advises that the laboratory named above has been accredited as an environmental testing laboratory pursuant to the provisions of the California Health and Safety Code (HSC) Sections 100825-100920. The analyses for which this laboratory is accredited are shown on the enclosed "Fields of Accreditation" List.

The laboratory's accreditation begins on the date printed on the enclosed certificate. If you did not submit your application by the renewal deadline, there may be a lapse in your accreditation. You are responsible for ensuring no data is submitted for regulatory purposes during a period the laboratory is not accredited.

Be advised, the laboratory may have been denied accreditation for one or more analyses for which it applied due to failure to comply with regulatory requirements for application or accreditation. It is the laboratory's responsibility to review the enclosed documents and know which methods it has been accredited for. This accreditation is a final action of the State Water Resources Control Board subject to petition under HSC Section 116701 within 30 days. However, if you believe that an FOA has been left off of your accreditation in error, before you file a petition you may submit to ELAP within 30 days of this letter, an "Accreditation Inquiry Request Form" located at www.waterboards.ca.gov/elap identifying any mistakes or errors you believe occurred in your accreditation. ELAP will then review all timely submitted "Accreditation Inquiry Request Forms" and will make a final determination, which could then be petitioned to the State Water Resources Control Board. **Failure to submit an "Accreditation Inquiry Request Form" to ELAP within 30 days of this letter or to timely petition ELAP's final decision to the State Water Resources Control Board will prohibit you from obtaining any further review of your accreditation.** HSC Section 100890 lists the civil penalties for environmental laboratories that perform analyses for state regulatory purposes without a valid certificate.

Continued accreditation is contingent upon compliance with HSC Sections 100825-100920 and California Code of Regulations, Title 22, Division 4, Chapter 19, Certification of Environmental Laboratories. ELAP reserves the right to take enforcement action, including issuance of civil penalties, or supension and revocation of the laboratory's ELAP certificate, for failure to comply with all applicable regulations, statutes and orders.

Thank you,



Christine Sotelo, Chief
California Environmental Laboratory Accreditation Program (CA ELAP)

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

City of San Diego Water Quality Laboratory

Environmental Monitoring and Technical Services

5530 Kiowa Drive

La Mesa, CA 91942

Scope of the certificate is limited to the
"Fields of Accreditation"
which accompany this Certificate.

Continued accredited status depends on compliance with applicable laws and regulations, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1058**

Effective Date: **12/1/2025**

Expiration Date: **11/30/2027**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Program Manager
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Fields of Accreditation

City of San Diego Water Quality Laboratory
Environmental Monitoring and Technical Services
5530 Kiowa Drive
La Mesa, CA 91942
Phone: 6196683296

Certificate Number: 1058
Expiration Date: 11/30/2027

Field of Accreditation: 101 - Microbiology of Drinking Water

101.010	001	Heterotrophic Bacteria	SM 9215 B
101.020	001	Total Coliform P/A	SM 9221 B
101.020	002	Fecal Coliform P/A	SM 9221 B,E
101.020	004	Total Coliform (Enumeration)	SM 9221 B,C
101.020	005	Fecal Coliform (Enumeration)	SM 9221 B,E
101.040	001	Total Coliform P/A	SM 9222 B
101.040	005	Total Coliform (Enumeration)	SM 9222 B
101.040	006	Fecal Coliform (Enumeration)	SM 9222 D
101.050	001	Total Coliform P/A	SM 9223 B Colilert
101.050	002	E. coli P/A	SM 9223 B Colilert
101.050	003	Total Coliform (Enumeration)	SM 9223 B Colilert
101.050	004	E. coli (Enumeration)	SM 9223 B Colilert
101.050	005	Total Coliform P/A	SM 9223 B Colilert 18
101.050	006	E. coli P/A	SM 9223 B Colilert 18
101.050	007	Total Coliform (Enumeration)	SM 9223 B Colilert 18
101.050	008	E. coli (Enumeration)	SM 9223 B Colilert 18

Field of Accreditation: 102 - Inorganic Chemistry of Drinking Water

102.020	001	Turbidity	EPA 180.1
102.026	001	Calcium	EPA 200.7
102.026	002	Magnesium	EPA 200.7
102.026	003	Potassium	EPA 200.7
102.026	004	Silica	EPA 200.7
102.026	005	Sodium	EPA 200.7
102.030	001	Bromide	EPA 300.0
102.030	003	Chloride	EPA 300.0
102.030	005	Fluoride	EPA 300.0
102.030	006	Nitrate (as N)	EPA 300.0
102.030	008	Phosphate,Ortho (as P)	EPA 300.0
102.030	009	Sulfate (as SO4)	EPA 300.0
102.040	002	Chlorite	EPA 300.1
102.040	003	Chlorate	EPA 300.1
102.040	004	Bromate	EPA 300.1
102.060	001	Nitrate (as N) (Calculation)	EPA 353.2

As of 12/1/2025, this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

102.061	001	Nitrite (as N)	EPA 353.2
102.100	001	Alkalinity	SM 2320 B-1997
102.120	001	Hardness (Calculation)	SM 2340 B-1997
102.121	001	Hardness	SM 2340 C-1997
102.130	001	Specific Conductance	SM 2510 B-1997
102.140	001	Residue, Filterable TDS	SM 2540 C-1997
102.175	001	Chlorine, Free	SM 4500-Cl G-2000
102.175	002	Chlorine, Total Residual	SM 4500-Cl G-2000
102.203	001	Hydrogen Ion (pH)	SM 4500-H+ B-2000
102.244	001	Silica	SM 4500-SiO2 E-1997
102.260	001	Organic Carbon-Total (TOC)	SM 5310 B-2000
102.261	001	Dissolved Organic Carbon (DOC)	SM 5310 B-2000
102.280	001	UV254	SM 5910 B-2011

Field of Accreditation: 103 - Toxic Chemical Elements of Drinking Water

103.130	009	Iron	EPA 200.7
103.140	001	Aluminum	EPA 200.8
103.140	002	Antimony	EPA 200.8
103.140	003	Arsenic	EPA 200.8
103.140	004	Barium	EPA 200.8
103.140	005	Beryllium	EPA 200.8
103.140	006	Cadmium	EPA 200.8
103.140	007	Chromium	EPA 200.8
103.140	008	Copper	EPA 200.8
103.140	009	Lead	EPA 200.8
103.140	010	Manganese	EPA 200.8
103.140	011	Mercury	EPA 200.8
103.140	012	Nickel	EPA 200.8
103.140	013	Selenium	EPA 200.8
103.140	014	Silver	EPA 200.8
103.140	015	Thallium	EPA 200.8
103.140	016	Zinc	EPA 200.8
103.140	017	Boron	EPA 200.8
103.140	018	Vanadium	EPA 200.8

Field of Accreditation: 104 - Volatile Organic Chemistry of Drinking Water

104.030	001	1,2-Dibromoethane (EDB)	EPA 504.1
104.030	002	1,2-Dibromo-3-chloropropane (DBCP)	EPA 504.1
104.035	001	1,2,3-Trichloropropane (TCP)	SRL 524M-TCP
104.200	001	1,1,1,2-Tetrachloroethane	EPA 524.2
104.200	002	1,1,1-Trichloroethane	EPA 524.2
104.200	003	1,1,2,2-Tetrachloroethane	EPA 524.2
104.200	004	1,1,2-Trichloroethane	EPA 524.2
104.200	005	1,1-Dichloroethane	EPA 524.2

104.200	006	1,1-Dichloroethylene (1,1-Dichloroethene)	EPA 524.2
104.200	007	1,2,3-Trichlorobenzene	EPA 524.2
104.200	008	1,2,4-Trichlorobenzene	EPA 524.2
104.200	009	1,2,4-Trimethylbenzene	EPA 524.2
104.200	010	1,2-Dichlorobenzene	EPA 524.2
104.200	011	1,2-Dichloroethane (Ethylene Dichloride)	EPA 524.2
104.200	012	1,2-Dichloropropane	EPA 524.2
104.200	013	1,3,5-Trimethylbenzene	EPA 524.2
104.200	014	1,3-Dichlorobenzene	EPA 524.2
104.200	016	2-Chlorotoluene	EPA 524.2
104.200	017	4-Chlorotoluene	EPA 524.2
104.200	018	Benzene	EPA 524.2
104.200	020	Carbon Tetrachloride	EPA 524.2
104.200	022	cis-1,2-Dichloroethylene (cis 1,2 Dichloroethene)	EPA 524.2
104.200	023	cis-1,3-Dichloropropylene (cis 1,3 Dichloropropene)	EPA 524.2
104.200	024	Dichlorodifluoromethane	EPA 524.2
104.200	025	Dichloromethane (Methylene Chloride)	EPA 524.2
104.200	027	Ethyl tert-butyl Ether (ETBE)	EPA 524.2
104.200	028	Ethylbenzene	EPA 524.2
104.200	029	Isopropylbenzene	EPA 524.2
104.200	031	Methyl tert-butyl Ether (MTBE)	EPA 524.2
104.200	032	Naphthalene	EPA 524.2
104.200	033	n-Butylbenzene	EPA 524.2
104.200	034	N-propylbenzene	EPA 524.2
104.200	035	sec-Butylbenzene	EPA 524.2
104.200	036	Styrene	EPA 524.2
104.200	037	t-Butyl alcohol (2-Methyl-2-propanol)	EPA 524.2
104.200	038	tert-Amyl Methyl Ether (TAME)	EPA 524.2
104.200	039	tert-Butylbenzene	EPA 524.2
104.200	040	Tetrachloroethylene (Tetrachloroethene)	EPA 524.2
104.200	041	Toluene	EPA 524.2
104.200	042	trans-1,2-Dichloroethylene (trans- 1,2 Dichloroethene)	EPA 524.2
104.200	043	trans-1,3-Dichloropropylene (trans-1,3 Dichloropropene)	EPA 524.2
104.200	044	Trichloroethylene (Trichloroethene)	EPA 524.2
104.200	045	Trichlorofluoromethane	EPA 524.2
104.200	046	Trichlorotrifluoroethane	EPA 524.2
104.200	047	Vinyl Chloride	EPA 524.2
104.200	102	m+p-Xylene	EPA 524.2
104.200	103	o-Xylene	EPA 524.2
104.200	201	Bromodichloromethane	EPA 524.2
104.200	203	Chloroform	EPA 524.2
104.200	204	Dibromochloromethane (Chlorodibromomethane)	EPA 524.2

Field of Accreditation: 105 - Semi-volatile Organic Chemistry of Drinking Water			
105.010	004	Chlordane	EPA 505
105.010	007	Heptachlor	EPA 505
105.010	008	Heptachlor Epoxide	EPA 505
105.010	009	Hexachlorobenzene	EPA 505
105.010	010	Hexachlorocyclopentadiene	EPA 505
105.010	011	Lindane (HCH-gamma)	EPA 505
105.010	012	Methoxychlor	EPA 505
105.010	014	Toxaphene	EPA 505
105.090	001	Alachlor	EPA 525.2
105.090	003	Atrazine	EPA 525.2
105.090	004	Benzo(a)pyrene	EPA 525.2
105.090	008	Di(2-ethylhexyl) Adipate	EPA 525.2
105.090	016	Hexachlorobenzene	EPA 525.2
105.090	017	Hexachlorocyclopentadiene	EPA 525.2
105.090	018	Lindane (HCH-gamma)	EPA 525.2
105.090	022	Molinate	EPA 525.2
105.090	028	Thiobencarb	EPA 525.2
105.100	001	Aldicarb (Temik)	EPA 531.1
105.100	002	Aldicarb Sulfone	EPA 531.1
105.100	003	Aldicarb Sulfoxide	EPA 531.1
105.100	004	Carbaryl (Sevin)	EPA 531.1
105.100	005	Carbofuran (Furadan)	EPA 531.1
105.100	006	3-Hydroxycarbofuran	EPA 531.1
105.100	007	Methomyl (Lannate)	EPA 531.1
105.100	008	Oxamyl	EPA 531.1
105.120	001	Glyphosate	EPA 547
105.140	001	Endothall	EPA 548.1
105.200	001	Bromoacetic Acid	EPA 552.2
105.200	003	Chloroacetic Acid	EPA 552.2
105.200	004	Dalapon	EPA 552.2
105.200	005	Dibromoacetic Acid	EPA 552.2
105.200	006	Dichloroacetic Acid	EPA 552.2
105.200	007	Trichloroacetic Acid	EPA 552.2
105.210	004	Dinoseb	EPA 555
105.210	005	Pentachlorophenol	EPA 555
105.210	006	Picloram	EPA 555
105.210	007	2,4,5-TP (Silvex)	EPA 555
105.210	008	Bentazon	EPA 555
Field of Accreditation: 108 - Inorganic Constituents in Non-Potable Water			
108.009	001	Turbidity	EPA 180.1
108.013	001	Calcium	EPA 200.7

108.013	002	Magnesium	EPA 200.7
108.013	003	Phosphorus,Total	EPA 200.7
108.013	004	Potassium	EPA 200.7
108.013	005	Silica, Dissolved	EPA 200.7
108.013	006	Sodium	EPA 200.7
108.017	001	Bromide	EPA 300.0
108.017	002	Chloride	EPA 300.0
108.017	003	Fluoride	EPA 300.0
108.017	004	Nitrate (as N)	EPA 300.0
108.017	007	Phosphate,Ortho (as P)	EPA 300.0
108.017	008	Sulfate (as SO4)	EPA 300.0
108.033	001	Nitrate-Nitrite (as N)	EPA 353.2
108.033	002	Nitrite (as N)	EPA 353.2
108.063	001	Alkalinity	SM 2320 B-2011
108.067	001	Hardness	SM 2340 C-2011
108.069	001	Specific Conductance	SM 2510 B-2011
108.087	001	Calcium	SM 3500-Ca B-2011
108.114	001	Chlorine, Total Residual	SM 4500-Cl G-2011
108.114	002	Chlorine, Free	SM 4500-Cl G-2011
108.137	001	Hydrogen Ion (pH)	SM 4500-H+ B-2011
108.185	001	Silica, Dissolved	SM 4500-SiO2 E-2011

Field of Accreditation: 109 - Metals and Trace Elements in Non-Potable Water

109.623	011	Iron	EPA 200.7
109.623	013	Manganese	EPA 200.7
109.625	001	Aluminum	EPA 200.8
109.625	002	Antimony	EPA 200.8
109.625	003	Arsenic	EPA 200.8
109.625	004	Barium	EPA 200.8
109.625	005	Beryllium	EPA 200.8
109.625	007	Cadmium	EPA 200.8
109.625	008	Chromium	EPA 200.8
109.625	009	Cobalt	EPA 200.8
109.625	010	Copper	EPA 200.8
109.625	013	Lead	EPA 200.8
109.625	014	Manganese	EPA 200.8
109.625	015	Molybdenum	EPA 200.8
109.625	016	Nickel	EPA 200.8
109.625	017	Selenium	EPA 200.8
109.625	018	Silver	EPA 200.8
109.625	019	Thallium	EPA 200.8
109.625	022	Vanadium	EPA 200.8
109.625	023	Zinc	EPA 200.8

Field of Accreditation: 129 - Parasites in Potable Water

129.020	001	Cryptosporidium and Giardia	EPA 1623

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 8

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ No.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
DECEMBER 17, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

http://www.sandiego.gov/cip/bidopps/

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

Q1. **Site Fire Lane Width**

Answer #35 in Addendum #5 indicates that all roads that are a minimum 26-ft wide are part of the site fire access and refers Design-Builder to DSD for Fire Access requirements. As DSD has not been consulted on the improvements of this project during the bridging phase per Answer #58, it should be noted that the design shown in the bridging documents for the new parking lot and road improvements around the existing and new lab building do not meet the 26-ft width requirement for site fire lane. None of the existing roads within the campus around the facility assumed to be fire access roads are currently 26-ft wide.

a) Please confirm the Design-Builder is not responsible for upgrading existing site fire access roads within the campus to the 26-ft width requirement.

b) Please confirm the bridging document design for 24-ft roadway widths around the building is deficient.

c) Please confirm where the Design-Builder should assume the roadway design shall be widened to meet the 26-ft width requirement.

A1. Design-Builder to assume roadway widening to 26-ft width for fire access.

Q2. **Franchise Utility Clarification**

Per the response of Q1 in Addendum 6, the franchise utility scope should be priced as part of this project. Please confirm that the Design-Build Contractor is responsible for providing the new 4" underground conduit and all associated work needed. Also, please confirm that SDG&E will provide the new transformer and will pull the new 12KV cables.

A2. Design-Builder is responsible for providing new 4" underground conduit and all associated work. Design-Builder is responsible for coordinating with SDG&E to purchase and provide new transformers and 12KV cables.

Q3. **LOD 400**

Addendum #5, Q/A 66 states BIM LOD 400 is required at 90% and 100% documents. LOD 400 is for fabrication level modelling, for some scopes (reinforcing, steel, framing), this LOD and great cost associated may not be of benefit to the City of San Diego. We are requesting you reconsider the BIM LOD 400 blanket requirement.

A3. Design-Builder to disregard BIM LOD 400 for the entirety of the project. Design-Builder to provide City with BIM LOD 300.

Q4. **Contract Duration**

Addendum #5, answer #209 states that 920 working days is the total duration from award to completion of the project. Design on this project is 12 months, and ELAP certification durations for each phase (5months each) where both new and old labs must be in operation in excess of 15 months (reference addendum #3, answer #26). Design + ELAP certifications = 555 working days, which is equivalent to 60% of the total project duration where construction activates are not occurring. This leaves 365 working days for building the new building, and the phased renovations and moving.

The 920 working day duration is not reasonable from award to completion of the project given the constraints. However, if the intent of the 920 working days is to start at the conclusion of the 12-month trailer/design duration (start of expansion wing), the schedule is achievable. The 920 working days + 260 working days (trailer and design) yields a total project duration of 1180 working days.

Please confirm this is the intent. If not, please provide the basis for how 920 working days was established.

A4. Contract Period: delete 920 working days, replace with the new project contract duration, 1180 days.

Q5. The IT Telecommunications Specifications and IT security standards guidelines do not mention anything regarding cable tray being required. However, per as-builts from the existing building, it appears to have an existing cable tray. Please confirm if a cable tray will be required.

A5. Design-Builder to install Cable Tray.

Q6. Due to the phasing of the project, there will need to be different warranty start dates for each phase. Warranty dates won't be able to be tied to a single final completion date due to the phased occupancy of the project. Please confirm that individual substantial completion/ beneficial occupancy dates with a corresponding warranty start date will be implemented.

A6. Confirmed, individual substantial completion for different phases of the project will be acceptable. Reference WHITEBOOK Section 1-2, Terms and Definitions, #100 - Substantial Completion.

Q7. It may not be possible to provide a proposal within the City's estimated cost for the project of $144,500,000. Please confirm there is no upper limit on price for proposals to be deemed acceptable.

A7. Confirmed, there is no limit on price for proposals to be deemed acceptable.

Q8. Reference Addendum 5. A45 states "for bidding purposes, confirmed, price proposal form shall reflect bridging documents/RFP."

Reference Addendum 3. A26 states "The City estimates that there will need to be a 5-month cross-over where the old labs and their new counterparts have to be operating simultaneously during the ELAP certification process."

Reference sheet LQ.002. The bridging documents show 5 phases of construction for new permanent lab space as follows: Phase 1 (Inorganics), Phase 2 (Organics - Main Area), Phase 3A (Biology), Phase 3B (Sample Receiving) and Phase 3C (Organics - Separate Area). The phasing per the bridging documents will also require 9 department moves (2 separate moves between each new phase with 1 initial move of an admin staff to the temp trailer space).

If we follow the direction provided by these two RFIs, we will need to include 5 months cross-over time for each new lab space where the old

lab space remains operational. Five (5) months multiplied by five (5) new lab phases = 25 months where we cannot retrofit any of the existing lab space. The 920 working days not-to-exceed period of performance is about 44 months. After deducting out the 12 months required for the completion of the design and the trailer occupancy, this leaves 7 months to complete all construction. This is not possible. Additionally, the RFP states that if we submit a proposal with a schedule over 920 working days, our proposal will be deemed unacceptable.

If we follow the direction provided by these two RFIs, but assume an alternate phasing strategy would be acceptable, we could include three (3) phases in lieu of the five (5) phases. Five (5) months multiplied by three (3) new lab phases = 15 months where we cannot retrofit any of the existing lab space. The 920 working days not-to-exceed period of performance is about 44 months. After deducting out 12 months required for the completion of the design and the trailer occupancy, this leaves 17 months to complete all construction. It is still not possible to complete all 3 separate phases of construction in this duration.

Proposed Solution:

1) Please provide direction that the Design-Builder is not required to follow the phasing in the bridging documents. In order to do this, we will also need to be able to make modifications to the current bridging documents design and account for this in our price proposal.

2) Please provide direction that the Design-Builder is not required to hold 5 months of cross-over time for each new lab space during which the previous lab space must be operating simultaneously. We will only be able to carry 1-2 months of cross-over time between lab spaces to meet the 920 working days without making major modifications to the space size requirements, program and adjacencies shown in the bridging documents.

Note: If the above solutions are not acceptable, the period of performance will need to be extended and additional time will need to be provided to submit a complete proposal.

A8. 1) Confirmed, Design-Builder may propose their own phasing plan that meets or exceeds the performance requirements in the RFP.

2) Confirmed, the cross-over time provided by the City is an estimate only. Design-Builder is responsible for proposing and implementing their phasing plan and sequencing construction activities, including but not limited to the movement of City staff and equipment.

Q9. Reference Addendum 5. A45 states "for bidding purposes, confirmed, price proposal form shall reflect bridging documents/RFP." For the reasons as follows, please revise this response to state "for bidding purposes, price proposal shall reflect the space size requirements, program and adjacencies as shown in the bridging documents. The Design-Builder is not required to adhere strictly to the exact details and layout shown in the bridging documents."

1) The bridging documents provided have several deficiencies and if bidders are to price the bridging documents, the City would be at risk of evaluating bid prices that do not provide a complete and useful scope to the City. Examples of deficiencies include missing surface parking shading required by CBC and undersized stormwater system. If we price the bridging documents as is, it will open the City up to multiple change orders.

2) The RFP gave us direction to "4.1 Describe in detail the proposed design concept for this Project, include detailed descriptions, conceptual design drawings, schematics, etc." Over the past 3+ months, we have been working on developing and pricing our proposed design concept for this Project, with modifications to the bridging documents scheme. This includes enhancements and modifications that would benefit the City with a full and complete scope. Pricing the bridging documents as they stand will require us to change our entire approach to the project thus far, requiring additional resources and additional time to reprice the bridging documents. Please confirm pricing can be based on the proposer's design that is being included within the submission.

A9. 1) Reference Addendum 7, Design-Builder must meet or exceed the performance standards outlined in the RFP and all applicable state and local codes/regulations.

2) Confirmed, pricing shall be based on the Design-Builder's proposed design. The Design-Builder's technical proposal will be scored on their ability to meet, exceed, and/or enhance the overall design and performance standards outlined in the RFP/Bridging Documents. Reference Attachment G for Technical Proposal scoring criteria.

Q10. Reference Addendum 6. A13 states "Fees paid directly to the Water Board (Under the ELAP program) shall be paid by the Design-Builder and reimbursed by the City." Please confirm that these fees will be reimbursed via Change Order and/or through a City Allowance. Proposed Solution: Update the Bid Form to include a City Allowance for ELAP Fees.

A10. Confirmed, fees paid by the Design-Builder directly to the Water Board (ELAP) shall be reimbursed by the City via the "Utilities Fees" Allowance.

Q11. Reference Addendum 5. A200 indicates that we should include third party calibration/certification services for existing lab equipment. Please confirm the Design-Builder will not be held responsible for existing conditions of the existing lab equipment.

A11. Confirmed, Design-Builder will not be liable for the condition of the existing equipment.

Q12. Please confirm that if a change in law increases our cost after award, the City will issue a change order for equitable compensation.

A12. The City will issue a Change Order for excusable non-compensable days for delays caused by changes to county, state, or federal law. Reference WHITEBOOK Section 6-1.5.2.

Q13. The response to Q98 in Addendum 5 calls to exclude roller shades in the bid. However, window coverings for select rooms are indicated in the Finish Schedule (page A5.101), but the schedule does not specify the type of roller shade needed. Please confirm that roller shades are to be excluded entirely from the bid. If not, please clarify whether the window coverings per the schedule on A5.101 are to be manual or motorized window shades.

A13. For bidding purposes, Design-Builder to provide motorized roller shades. (See Section D, Item 2 of this Addendum.)

Q14. Please clarify the quantity of ELAP certified labs within the existing Alvarado Lab facility. Please confirm the projected quantity of ELAP certified labs in the future facility will be four (4) aligned with the primary departments: Organic, Inorganic, Biology and Satellite/ Process Labs.

A14. The City currently have two (2) California ELAP certifications and one (1) Arizona Department of Health Services certification that cover the main laboratories at the Alvarado lab. The analyses performed by the future Organic, Inorganic, and Biology labs will continue to be covered under the two (2) existing ELAP certifications. Design builder to work with the City to streamlining the two California ELAP certifications into one in the future.

Q15. Please confirm the City will be responsible for their own internal ELAP audits. These will overlap with the construction duration since they are required annually. The Design-Builder would only be responsible for the costs of the recertification of the new labs through ELAP.

A15. The City remains responsible for our own internal audits. The Design-Builder is responsible for the costs of the recertification of the new labs through ELAP.

C. REQUEST FOR PROPOSAL

1. To REQUEST FOR PROPOSAL, page 7, Section **8. CONTRACT PERIOD**, **DELETE** in its entirety and **SUBSTITUTE** with the following:

   8. CONTRACT PERIOD: The project, including the Plant Establishment Period, shall be completed within **1180 Working Days** from the Notice to Proceed (NTP).

D. ADDENDA

1. To **ADDENDUM 5**, Section **B. BIDDER's QUESTIONS**, page 21, "**A66.**", **DELETE** in its entirety and **SUBSTITUTE** with the following:

   A66. LOD 300 is required for 90% and 100% design.

2. To **ADDENDUM 5,** Section **B. BIDDER's QUESTIONS**, page 28, **"A98.", DELETE** in its entirety.

E. SUPPLEMENTARY SPECIAL PROVISIONS

1. To ATTACHMENT E, page 71, **SECTION 3 – CONTROL OF WORK,** Subsection **3-7.6.1, Use of Computer Aided Drafting and Design,** Item "**3.**", **DELETE** in its entirety and **SUBSTITUTE** the following:

    3. Design-Builder shall use Revit for the development of the plans and Building Information Model (BIM) model. Level of Development shall be LOD 300 or better. Design-Builder shall submit to the City the Revit files and 3D model (Navisworks file) at each stage of design (30%, 60%, 90%, 100%).

Elif E. Cetin, Director
Engineering & Capital Projects Department

Dated: *December 8, 2025*
San Diego, California

EEC/MA/yk/egz

City of San Diego

CITY CONTACT: Juan E. Espindola, Senior Contract Specialist, Email: JEEspindola@sandiego.gov
Phone No. (619) 533-4491

ADDENDUM 9

PROPOSAL DOCUMENTS

e - Bidding

FOR

ALVARADO LABORATORY IMPROVEMENTS AND ALVARADO LABORATORY IMPROVEMENTS TRAILER

RFQ No.:	**K-25-2318-DB2-3-C**
RFP NO.:	**K-26-2318-DB2-3-C**
SAP NO. (WBS/IO/CC):	**L-22000.1, L-22000.3**
CLIENT DEPARTMENT:	**2000**
COUNCIL DISTRICT:	**7**
PROJECT TYPE:	**BN, BT**

PROPOSALS DUE:

2:00 PM
DECEMBER 17, 2025

CITY OF SAN DIEGO'S ELECTRONIC BIDDING SITE, PLANETBIDS

http://www.sandiego.gov/cip/bidopps/

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the RFP are hereby made effective as though originally issued with the RFP. The Design-Builders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

Q1. Where do we list our planned percentage for the Good Faith Effort for the Equal Opportunity Contracting Plan (EOCP)? Please confirm this percentage can be provided in the technical proposal.

Addendum 3, page 5, A4. 1), states only known Design-Build Subcontractors need to be listed with our submission. Addendum 3, A4. 2) states SLBE and ELBE points will be awarded according to actual subcontract award amounts. At this stage of a Design-Build Project, many scope subcontract amounts are unknown. We are asking how we can communicate our Equal Employment and Contracting plan to achieve maximum possible points in our proposal submission. For example, if we are targeting 10% participation how do we communicate that to the City in our proposal to achieve 10 points.

A1. EOCP will verify the participation percentages based on the Subcontractor Listing submitted on the Form AA05 - Design-Build List of Subcontractors and will award the Subcontractor participation points accordingly.

Q2. Attachment C "Equal Opportunity Contracting Program (EOCP)" defines the participation requirements for SLBE and ELBE Subcontractors stating that only 1st tier SLBE-ELBE Subcontractors will be recognized as participants in the Contract. Attachment G "Evaluation and Selection Criteria" indicates DVBE participation also counting towards the maximum possible points. We did not find any requirements in Attachment C for DVBE subcontractors to be 1st tier Subcontractors. Since there are no specific requirements provided for the calculation of DVBE participation, please confirm DVBE participation can be counted at any tier of subcontractor or vendor as is common with other institution public procurements.

A2. Only 1st tier Subcontractors will be recognized as participants in the Contract towards receiving subcontract participation points for participation of certified SLBE, ELBE and DVBE firms as specified in Attachment G Section 6.2.1.

Q3. If a prime contract is written between the Design-Builder and a DVBE Subcontractor where the DVBE Subcontractor is providing a commercially useful function (i.e. project management, material procurement, material installation, etc.) with a portion of the work under their contract subcontracted out to non-DVBE sub-tier subcontractors and suppliers. Please confirm 100% of the DVBE contract value to the Design-Builder would still be counted toward the RFP scoring for "Equal Employment and Contracting Opportunity (25 Points Max)".

A3. Certified Subcontractors which are being utilized to receive credit towards meeting the mandatory goal or receive subcontract participation points must perform a commercially useful function. The Subcontractor is responsible for the execution of the Work and carrying out its responsibilities by actually performing, managing, and supervising the Work involved. A Subcontractor does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of meaningful and useful participation. Please see RFP Attachment C, Section B - SLBE-ELBE Subcontracting Requirements, subsection B-1 for more information.

Elif E. Cetin, Director
Engineering & Capital Projects Department

Dated: *December 9, 2025*
San Diego, California

EEC/MA/yk

ATTACHMENT J

PROJECT LABOR AGREEMENT

ORIGINAL

CITY OF SAN DIEGO

PROJECT LABOR AGREEMENT

FOR

CITY-PROCURED CAPITAL IMPROVEMENT PROJECTS

AND OTHER PROJECTS

DOCUMENT NO. 00- 21764

FILED FEB 13 2024

OFFICE OF THE CITY CLERK
SAN DIEGO, CALIFORNIA

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CITY OF SAN DIEGO

PROJECT LABOR AGREEMENT
FOR
CITY-PROCURED CAPITAL IMPROVEMENT PROJECTS
AND OTHER PROJECTS

This Project Labor Agreement ("PLA") is entered into by and between the City of San Diego ("City"), the San Diego County Building and Construction Trades Council, AFL-CIO ("Council"), and the signatory Craft Unions ("Unions").

ARTICLE 1
RECITALS

WHEREAS, this PLA will be beneficial to the efficient delivery of City-procured projects included in the City's adopted Capital Improvements Program budget and other projects specifically identified by the City that are of regional significance critical to the safety, economic sustainability, and quality of life of the citizens of San Diego; and

WHEREAS, the City is committed to creating programs that provide access to a skilled and trained workforce and address the needs of underserved groups who have historically experienced significant barriers to participating in employment within the construction industry. Through the construction of City-procured projects included in the City's adopted Capital Improvements Program budget, the City aims to create economically sustainable benefits to the region, derived from employment and training programs to help individuals that are historically marginalized. The City supports policies that create careers, advance equity, and assist vulnerable individuals located in underserved communities; and

WHEREAS, the City desires the completion of the Covered Projects in a professional, safe, efficient, and economical manner, without undue delay or work stoppage; and

WHEREAS, the successful completion of Covered Projects are of the utmost importance to the San Diego region; and

WHEREAS, the Parties have pledged their full commitment to work towards a mutually satisfactory completion of the Covered Projects; and

WHEREAS, large numbers of workers of various skills will be required in the performance of the construction work on the Covered Projects, including workers affiliated with and/or represented by the Unions; and

WHEREAS, it is recognized that on construction projects with multiple contractors and bargaining units on the job site at the same time over an extended period of time, the potential for work disruption is substantial without an overriding commitment to maintain continuity of work; and

WHEREAS, the Parties agree that by establishing and stabilizing wages, hours, and working conditions for the workers employed on the Covered Projects, a satisfactory, continuous, and harmonious relationship will exist among labor and management that will lead to the efficient and economical completion of Covered Projects; and

WHEREAS, in recognition of the special needs of the Covered Projects and to maintain a spirit of harmony, labor-management relations, peace, and stability during the term of this PLA, the Parties agree to establish effective and binding methods for the settlement of all misunderstandings, disputes and grievances without any strikes, slowdowns, work interruptions, or disruption of Covered Projects, and the Contractors agree not to engage in any lockout; and

WHEREAS, the City places high priority upon the development of comprehensive programs for the recruitment, training, and employment of Local Workers and Targeted Workers, and also recognizes the ability of local Apprenticeship Programs to provide meaningful and sustainable careers in the building and construction industry. The City, Contractors and Unions will encourage Local Workers and Targeted Workers to participate in Covered Projects through programs and procedures jointly developed to prepare and encourage such individuals for entrance into Apprenticeship Programs and formal employment on the Covered Projects through the referral programs sponsored and/or supported by the Parties to this PLA; and

WHEREAS, the Covered Projects will provide opportunities for Disadvantaged Businesses to participate as Contractors, subcontractors, or suppliers, and the Parties therefore agree that they will cooperate with all efforts of the City, the Project Labor Coordinator, Contractors and other organizations retained by the City for this purpose, to encourage and assist the participation of Disadvantaged Businesses in the Covered Projects. Specifically, Contractors and Unions understand that the City has established and quantified goals which place a strong emphasis on the utilization of Disadvantaged Businesses on Covered Projects. The City, Contractors and Unions shall participate in outreach programs and provide education and assistance to businesses not familiar with working on projects of this scope. Further, the Parties shall ensure that the provisions of this PLA do not inadvertently establish impediments to participation of such Disadvantaged Businesses, Local Workers and Targeted Workers; and

WHEREAS, it is further understood that the City shall administer the obligations under this PLA to ensure that the benefits of the PLA flow to all signatory Parties, Contractors, craft persons working under it, and residents of the San Diego region. The City may designate a Project Labor Coordinator, either from its own staff and/or a consultant acting on behalf of the City, to monitor compliance with the PLA. The Project Labor Coordinator, as the authorized representative of the City, will assist with the development and implementation of the programs referenced in this PLA, all of which are critical to fulfilling the intent and purposes of the Parties and this PLA.

NOW, THEREFORE, IT IS AGREED BETWEEN AND AMONG THE PARTIES AS FOLLOWS:

ARTICLE 2
DEFINITIONS

Capitalized terms utilized in this PLA which are not otherwise defined herein shall have the meanings ascribed to said terms below. All definitions include both singular and plural forms.

"Applicable Prevailing Wage Laws" means the prevailing wage laws, regulations, and determinations applicable to a Covered Project pursuant to the State of California Labor Code and/or the Davis-Bacon Act and related federal laws.

"Apprentice" means an apprentice properly registered in an Apprenticeship Program for the entire time they are employed on a Covered Project.

"Apprenticeship Program" means an apprenticeship program (i) approved by the State of California's Division of Apprenticeship Standards; (ii) registered with the U.S. Department of Labor; or (iii) registered with a State Apprenticeship Agency granted authority by the U.S. Department of Labor to register apprenticeship programs for federal purposes, pursuant to 29 CFR Part 29.

"Apprenticeship Readiness Program" means an apprenticeship readiness program authorized by North America's Building Trades Unions and the Council to teach the Multi-Craft Core Curriculum (MC3) and prepare Local Workers and Targeted Workers for entry into Apprenticeship Programs.

"City" means the City of San Diego.

"Contractor" means the Prime Contractor and any subcontractor of any tier awarded Covered Work. The term "Contractor" includes any individual, firm, partnership, corporation, owner operator, consultant or combination thereof, including joint ventures, performing Covered Work.

"Core Employee" is defined in Article 4, Section 4.6(a).

"Council" means the San Diego County Building & Construction Trades Council.

"Covered Contract" means a prime contract or subcontract awarded for performance of Covered Work.

"Covered Professional Services Agreement" means either (1) a project specific consultant agreement for an individual Covered Project that includes Covered Work or (2) the following specialized as-needed consultant agreements that include Covered Work: (a) as needed construction management services; (b) as-needed geotechnical engineering services; (c) as-needed land surveying, mapping, and digitizing services; and (d) as-needed material testing services.

"Covered Project" means either: (1) a City-procured construction project included in the City's adopted Capital Improvements Program budget that is advertised with a City-estimated construction contract value of: (a) at least $5 million in the first and second years of this PLA (July 1, 2024 to June 30, 2026); or (b) more than $1 million thereafter; or (2) a construction project that is not procured by the City, but which is enumerated on Attachment A and for which a bid is advertised during the term of this PLA. The City Council may, by resolution at its sole discretion, include other construction projects for coverage under the PLA or exclude a Covered Project from coverage under the PLA.

"Covered Work" means construction work on a Covered Project, except for work that is excluded under a specific exemption in this PLA. Covered Work also includes work identified as requiring payment of prevailing wages under the State of California general prevailing wage determination for Field Surveyor and/or Building/Construction Inspector and Field Soils and Material Tester in a Covered Professional Services Agreement. The scope of work includes: making precise measurements to determine relative position or as-built locations; providing stakes, markers, or similar information for location or construction in support of construction operations; field surveying services to support work performed under the direction of a Licensed Land Surveyor or Civil Engineer; field inspections and testing for reinforced concrete, soils, structural masonry, prestressed concrete, structural steel and welding, and other construction materials used in buildings, roads, and related projects. In the event work is referred to by such terms as "quality control" or "quality assurance," such work shall be included under the PLA if it satisfies the above criteria.

"Disadvantaged Business" means a business that is either: (1) a Disadvantaged Business Enterprise pursuant to 49 C.F.R §26.5 that has been certified by either the California Department of Transportation ("Caltrans") or a Caltrans-approved California certifying agency; (2) a Minority Business Enterprise or a Woman Business Enterprise certified by Caltrans, a Caltrans-approved certifying agency or the California Public Utilities Commission ("CPUC"); or (3) a Small Local Business Enterprises or Emerging Local Business Enterprises certified by the City of San Diego.

"Jobs Coordinator" means an independent third-party individual, entity or employee with whom the Prime Contractor enters into a contract or employs to assist the Contractor with achieving and exceeding the Local Worker and Targeted Worker goals set forth in Section 4.5 of this PLA. The City may elect to assign City staff to perform the duties of the "Jobs Coordinator."

"Local Worker" means an individual domiciled in San Diego County, CA or a Veteran residing anywhere. "Domiciled" has the meaning set forth in section 349(b) of the California Election Code, indicating a fixed address with intent of continued residency.

"Master Agreement" means the local master labor agreement of a Union.

"Parties" means the City, the Council, and Unions.

"Prime Contractor" means the contractor awarded a Covered Contract in privity directly with the City.

"Project Labor Coordinator" means the designee(s) of the City, either from its own staff and/or a consultant acting on behalf of the City, to monitor compliance with this PLA and assist with developing, implementing and administering the requirements, policies and programs referenced herein.

"Targeted Worker" means any individual qualifying for one or more of the following categories, at initial time of employment on the Covered Project in question:

(a) is a Veteran;

(b) is an Apprentice with less than fifteen percent of the work hours required for completion of the Apprenticeship Program;

(c) has no high school diploma or general education diploma (GED);

(d) is homeless or has been homeless within the last year;

(e) is a former foster youth;

(f) is a custodial single parent;

(g) is experiencing protracted unemployment (defined as receiving unemployment benefits for at least three months);

(h) is a current recipient of government cash or food assistance benefits;

(i) has a documented income at or below 100 percent of the Federal Poverty Level;

(j) has spent time in a jail, a youth correctional facility or a prison; or

(k) is a graduate of an Apprenticeship Readiness Program approved to use the Multi-Craft Core Curriculum (MC3).

"Union" means any labor organization signatory to this PLA.

"Veteran" means a veteran or the eligible spouse of a veteran of the United States armed forces, under Section 2(a) of the Jobs for Veterans Act (38 U.S.C. §4215(a)).

"Workforce Dispatch Request Form" means the project-specific form by which Contractors request workers from the Union hiring halls on Covered Projects, an example of which is attached as Attachment C-1.

ARTICLE 3
SCOPE OF THE PLA

Section 3.1 This PLA is limited to covering all onsite construction work on Covered Projects within the scope of each Covered Contract.

Section 3.2 Exclusions. Items specifically excluded from the scope of this PLA include the following:

(a) Work of non-manual employees, including but not limited to, superintendents, supervisors, staff engineers, quality control and quality assurance personnel (subject to definition of Covered Work), timekeepers, mail carriers, clerks, office workers, messengers, guards, safety personnel, emergency medical and first aid technicians, and other professional, engineering, administrative, supervisory, and management employees.

(b) Off-site manufacturing, fabrication, maintenance, hauling of equipment, machinery, or materials, and hauling of recyclable metals, such as copper, steel, and aluminum, that have been separated from other materials at the Covered Project jobsite prior to transportation and that are to be sold at fair market value to a bona fide purchaser as defined in Labor Code section 1720.3. However, any lay down or storage areas for equipment, materials, and manufacturing (*i.e.*, prefabrication) sites dedicated solely for the Covered Project, on-site fabrication, and the movement of materials or goods between locations on a Covered Project site are within the scope of the PLA. On-site fabrication work includes work done for the Covered Project in temporary yards or areas near the jobsite. On-site construction shall also include the site of any batch plant constructed solely to supply materials to the Covered Project. Hauling and delivery of materials used for paving, grading, and fill (which include ready-mixed concrete, soil, sand, gravel, rocks, and asphalt) onto a Covered Project jobsite are included under the PLA if the individual driver's work is integrated into the flow process of construction. Hauling of refuse from the Covered Project jobsite will also be covered by the terms and conditions of the PLA to the fullest extent allowed by law and by the prevailing wage determinations of the California Department of Industrial Relations.

(c) All employees of the City and Project Labor Coordinator.

(d) Employees of design teams (including, but not limited to, architects, engineers, and master planners), or any other consultants for the City (including, but not limited to, project managers, resident engineers, construction managers and their employees) and their sub-consultants,

and other employees of professional service organizations, not performing manual labor within the scope of this PLA.

(e) Any as-needed professional services agreement that does not meet the definition of Covered Professional Services Agreements, even if the agreement includes surveying and inspection work that requires payment of prevailing wages under the State of California general prevailing wage determination for Field Surveyor and/or Building/Construction Inspector and Field Soils and Material Tester.

(f) Any professional services agreement that was awarded prior to the effective date of the PLA. This exclusion also includes any subsequent amendment to a professional services agreement awarded prior to the effective date of the PLA that is necessary to complete a construction project.

(g) Any work performed on or near or leading to or into a site of work covered by this PLA and undertaken by state, county, City, private utilities or other governmental bodies, or their contractors (other than work within the scope of this PLA undertaken by contractors to the City).

(h) Work performed by employees of a manufacturer or vendor on the manufacturer's or vendor's equipment, if required by the warranty agreement in order to maintain the warranty or guarantee, and provided that the warranty agreement is the manufacturer's or vendor's usual and customary warranty agreement for such equipment and is consistent with industry practice. Any work to be excluded pursuant to this subsection shall be identified and discussed at the relevant pre-job conference. Upon request from the Council, the City shall review with the vendor whether installation or application may be performed pursuant to terms of the PLA without affecting the status of the warranty.

(i) Specialized or technical work requiring specialized training, unique skills, or a level of specific technical experience which employees represented by the Union do not possess. At least ten (10) working days' notice shall be given to the Council before any work is performed pursuant to this exemption.

(j) Laboratory testing work.

(k) Non-construction support services contracted by the City, Project Labor Coordinator, or Contractor in connection with Covered Projects.

(l) Work on emergency contracts awarded pursuant to San Diego Municipal Code (SDMC) sections 22.3108 or 22.3208.

(m) Work on a construction project that was not procured by the City except a project that is specifically enumerated as a Covered Project on Attachment A or is subsequently included and approved by the City Council by resolution at its discretion during the effective dates of this Agreement.

Section 3.3 Awarding of Contracts.

(a) The City has the absolute right to bid or award Covered Contracts regardless of delivery method to any Contractor notwithstanding the existence or non-existence of any agreements between such Contractor and any Union, provided only that such Contractor is willing, ready, and able to execute and comply with this PLA should such Contractor be awarded work covered by this PLA.

The solicitation of bids shall be based upon the same terms, conditions and scope of work requested of all potential bidders.

(b) It is agreed that all Contractors awarded Covered Work shall be required to accept and be bound by the terms and conditions of this PLA. Contractors shall evidence their acceptance of this PLA by executing a Letter of Assent as set forth in Attachment B hereto. The Prime Contractor must sign and submit the Letter of Assent as a condition of award prior to the execution of a Covered Contract. No Contractor shall commence Covered Projects without first providing a copy of the signed Letter of Assent to the Project Labor Coordinator.

(c) The City and all Contractors awarded Covered Work agree that, to the extent permitted by law and consistent with the economy and efficiency of construction and operation, they will use best efforts to purchase materials, equipment, and supplies that will not create labor strife. Under all circumstances, however, the City and Contractors shall retain the absolute right to select Contractors for the award of contracts and subcontracts on all Covered Projects.

Section 3.4 Coverage Exception. The Parties agree and understand that this PLA shall not apply to any Covered Project or portion thereof that would otherwise be covered by the PLA if a governmental agency or granting authority partially or fully funding such work determines that it will not fund the Covered Project if it is covered by this PLA. The City agrees that it will make a reasonable effort to establish the inclusion of this PLA with any governmental agency or granting authority funding a Covered Project.

Under no circumstance shall the City be required to forgo project funding due to potential application of this PLA. In such instance, the PLA and its terms shall not apply.

Section 3.5 Master Agreements.

(a) The provisions of this PLA, including the Master Agreements (which are the local Master Agreements of the signatory Unions having jurisdiction over the work on the Covered Project, as such may be changed from time to time consistent with Section 21.3, and which are incorporated herein by reference), shall apply to Covered Work, notwithstanding the provisions of any other local, area and/or national agreement that may conflict with or differ from the terms of this PLA. Where a subject covered by the provisions of this PLA is also covered by a Master Agreement, the provisions of this PLA shall prevail. Where a subject is covered by a provision of a Master Agreement and not covered by this PLA, the provisions of the Master Agreement shall apply. Any dispute as to the applicable source between this PLA and any Master Agreement shall be resolved under the procedures established in Article 10.

(b) This PLA, together with the referenced Master Agreements, constitutes a self-contained, stand-alone agreement and, by virtue of having become bound to this PLA, the Contractor will not be obligated to sign any other local, area, or national collective bargaining agreement as a condition of performing work within the scope of this PLA. Provided, however, that pursuant to Section 6.2, the Contractor may be required to sign a uniformly applied non-discriminatory Participation or Subscription Agreement at the request of the trustees or administrator of a trust fund established pursuant to Section 302 of the Labor Management Relations Act, and to which such Contractor may be bound to make contributions under this PLA, provided that such Participation or Subscription Agreement does not purport to bind the Contractor beyond the terms and conditions of this PLA for work on Covered Projects and/or expand its obligation to make contributions pursuant thereto. It shall be the responsibility of the Prime Contractor to have each of its Contractors of any tier sign the documents with the appropriate Union prior to the Contractor beginning work on Covered Projects.

Section 3.6 The Parties agree that this PLA will be made available to, and will fully apply to, any successful bidder for Covered Projects, without regard to whether that successful bidder performs work at other sites on either a Union or non-Union basis. This PLA shall not apply to any work of any Contractor other than that on Covered Projects specifically covered by this PLA.

Section 3.7 Binding Signatories Only. This PLA and Letter of Assent shall only be binding on Contractors in the performance of Covered Work, and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such Contractors.

Section 3.8 Other City Work. Nothing contained herein shall be interpreted to prohibit, restrict, or interfere with the performance of any other operation, work, or function not covered by this PLA, which may be performed by the City employees or contracted for by the City for its own account, on its property, or in and around a project site.

Section 3.9 Separate Liability. It is understood that the liability of the Contractor(s) and the liability of the separate Unions under this PLA shall be several and not joint. The Unions agree that this PLA does not have the effect of creating any joint employment status between or among the City or Project Labor Coordinator and/or any Contractor.

Section 3.10 Completed Covered Projects. As portions of Covered Projects are completed, this PLA shall have no further force or effect on such portions of projects, except where the Contractor is directed by the City or its representatives to engage in repairs, modification and/or check-out functions required by its contract(s) with the City.

Section 3.11 Except for all work performed under the NTL Articles of Agreement, the National Stack/Chimney Agreement, and the National Cooling Tower Agreement, all instrument calibrations work and loop checking shall be performed under the terms of the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, and the National Agreement of the International Union of Elevator Constructors, with the exception of Article 7 (Work Stoppages and Lockouts), Article 8 (Work Assignments and Jurisdictional Disputes) and Article 10 (Settlement of Grievances and Disputes) of this PLA, which shall apply to such work.

ARTICLE 4
UNION RECOGNITION AND EMPLOYMENT

Section 4.1 Recognition. The Contractor recognizes the Unions as the exclusive bargaining representative for the employees engaged in Covered Projects. Such recognition does not extend beyond the period when the employee is engaged in Covered Projects.

Section 4.2 Contractor Selection of Employees. The Contractor shall have the right to determine the competency of all employees, the number of employees required, the duties of such employees within their craft jurisdiction, and shall have the sole responsibility for selecting employees to be laid off, consistent with this Article.

The Contractor shall also have the right to reject any applicant referred by a Union for any lawful reason, subject to any reporting time requirements of the applicable Master Agreement; provided, however, that such right is exercised in good faith and not for the purpose of avoiding the Contractor's commitment to employ qualified workers through the procedures endorsed in this PLA.

Section 4.3 Referral Procedures.

(a) For Unions having a job referral system contained in a Master Agreement, the Contractor agrees to comply with such system, and such system shall be used exclusively by such Contractor, except as modified by this PLA. Such job referral system will be operated in a nondiscriminatory manner and in full compliance with federal, state, and local laws and regulations that require equal employment opportunities and non-discrimination. All of the foregoing hiring procedures, including related practices affecting apprenticeship, shall be operated so as to consider the goals of the City to encourage employment of Local Workers, Targeted Workers, and utilization of Disadvantaged Businesses on the Covered Projects, and to facilitate the ability of all Contractors to meet their employment needs.

(b) The local Unions will exert their best efforts to recruit and refer sufficient numbers of skilled craft workers to fulfill the labor requirements of the Contractor, including specific employment obligations to which the Contractor may be legally and/or contractually obligated; and to refer Apprentices as requested to develop a larger, skilled workforce. The Unions will work with the Project Labor Coordinator and others designated by the City to identify and refer competent craft persons as needed for Covered Work, and to identify individuals, particularly local residents, for entrance into Apprenticeship Programs, or participation in other identified programs and procedures to assist individuals, particularly Local Workers and Targeted Workers, in qualifying and becoming eligible for such Apprenticeship Readiness Programs and Apprenticeship Programs, all maintained to increase the available supply of skilled craft personnel for Covered Projects.

(c) The Union shall not knowingly refer an employee currently employed by a Contractor on Covered Projects to any other Contractor.

Section 4.4 Non-Discrimination in Referral, Employment, and Contracting. The Parties and Contractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, ethnicity, color, ancestry, religious creed, national origin, sexual orientation, physical disability, mental disability, medical condition, age, marital status, denial of family care leave, genetic information, gender,

gender identity, gender expression, military and veteran status, criminal records, past incarceration, previous status as a foster youth, political affiliation or membership in a labor organization in hiring and dispatching workers for the Covered Projects. The Parties and Contractors will ensure that the evaluation and treatment of their employees, members, and applicants for employment or membership are free from such discrimination, harassment, and retaliation. Further, it is recognized that the City has certain policies, programs, and goals for the utilization of Disadvantaged Businesses. The Parties and Contractors shall jointly endeavor to assure that these commitments are fully met, and that any provisions of this PLA that may appear to interfere with Disadvantaged Businesses successfully bidding for work on Covered Projects shall be carefully reviewed, and adjustments made as may be appropriate and agreed upon among the Parties, to ensure full compliance with the City's policies and commitment to its goals for the significant utilization of Disadvantaged Businesses as Contractors, vendors or suppliers on Covered Projects.

Section 4.5 Employment of Local Workers and Targeted Workers.

(a) In recognition of the City's mission to maximize employment opportunities for Local Workers and Targeted Workers, Unions and Contractors agree that Local Workers, as well as Targeted Workers, to the extent such status is known, shall be first referred for Covered Projects. The list of qualifying zip codes for Local Workers will be posted on the City's website, as indicated in the Workforce Dispatch Request Form.

(b) The Contractors and Unions agree to work together to achieve a goal of at least thirty percent (30%) of the total construction craft hours worked on each Covered Project being performed by Local Workers, if the Covered Project does not receive federal funding, or if local hiring requirements are pre-approved by federal funding sources. If the Covered Project receives federal funding and local hiring requirements have not been pre-approved by the federal funding source(s), the aforementioned goal will be based on the total construction craft hours worked performed by California residents and shall not consider the craft hours worked by residents of states other than California.

(c) The Contractors and Unions agree to increase participation of Targeted Workers on each Covered Project. Strategies and outcomes for increasing such participation will be reported annually by the Project Labor Coordinator with support and assistance from Contractors and Unions.

(d) Contractors shall attempt to satisfy the goals set forth in Section 4.5(b) by (i) assigning current craft employees who are Local Workers to perform Covered Work; (ii) if necessary, requesting referral of Local

Workers from Union hiring halls (using the Workforce Dispatch Request Form) and Apprenticeship Programs; and (iii) if the goals are not satisfied after following such steps, considering qualifying workers available from other sources, in compliance with Section 4.7. Contractors that follow these procedures in good faith and with concerted efforts to identify and retain Local Workers shall not be considered in non-compliance for failure to meet the goals set forth in Section 4.5(b).

(e) Covered Professional Services Agreements entered into by the City for covered surveying or inspection services, which are separate and apart from the Covered Contract for a Covered Project, are exempt from the foregoing Local Worker and Targeted Worker hiring goals.

(f) To facilitate the dispatch of Local Workers and Targeted Workers, as well as all Contractor requests for referral and dispatch of workers from the applicable Union referral system, all Contractors are required to utilize the Workforce Dispatch Request Form. When Local Workers and Targeted Workers are requested by a Contractor, the Unions will refer Local Workers, and Targeted Workers to the extent such status is known, regardless of their place in the Union hiring halls' list and normal referral procedures.

(g) The Project Labor Coordinator shall work with the Unions and Contractors in the administration, monitoring, and reporting of the foregoing Local Worker hiring goals.

Section 4.6 Core Employees. This Section only applies to Contractors who are not signatory to an applicable Master Agreement.

(a) Core Employees must meet the following eligibility requirements to qualify for employment on Covered Projects:

(1) A Core Employee must be a journeyperson and appear on the Contractor's active payroll for at least sixty (60) of the last one-hundred-twenty (120) working days prior to being designated as a Core Employee. The date a Core Employee is designated is the date the Core Employee list is submitted to the Project Labor Coordinator and Union prior to the Contractor commencing work; and

(2) A Core Employee must possess any license required by state or federal law for the Covered Projects to be performed.

(b) Core Employee Hiring Procedure for Disadvantaged Businesses. The Parties recognize the City's interest in promoting competition and inclusion of Disadvantaged Businesses, which may not be signatory to a current Master Agreement. In order to promote participation and attract Disadvantaged Businesses to work under this PLA, and subject to the limitations set forth below, each Contractor that is a Disadvantaged Business may first employ three (3) of its Core Employees per craft on each Covered Project prior to employing an employee through the appropriate Union hiring hall. The next (fourth) employee shall be hired from the appropriate Union hiring hall and thereafter, such Contractor may employ, as needed, two (2) additional Core Employees in an alternating manner with Union referrals, up to a total of five (5) Core Employees. Thereafter, all additional employees in the affected trade or craft shall be requested and referred from the appropriate Union hiring hall.

The foregoing Core Employee hiring procedure for Disadvantaged Businesses is subject to the following limitations:

(1) Disadvantaged Businesses are limited to utilizing the foregoing Core Employee hiring procedure on subcontracts with a value of $500,000 or less; and

(2) The total value of all subcontracts utilizing the foregoing Core Employee hiring procedure shall not exceed ten percent (10%) of the total value of any Covered Project; and

(3) Each Disadvantaged Business performing work as a subcontractor is limited to using this hiring procedure for one subcontract per Covered Project.

The City may at its sole discretion modify the above Core Employee limitations for Disadvantaged Businesses. Any modifications to the limitations for Disadvantaged Businesses will be reflected in the SDMC, including but not limited to Chapter 2, Article 2, Division 36, Small and Local Business Program Administration. If there is conflict, ambiguity, or other inconsistency between any provision in this PLA and the SDMC, the SDMC will control and take precedence.

In order to assist the Project Labor Coordinator in monitoring compliance with this Section, each Prime Contractor will be responsible for tracking, reporting and providing notice to the Project Labor Coordinator describing each Disadvantaged Business subcontract that qualifies for the foregoing hiring procedure prior to work commencing.

(c) Contractors who do not qualify for the hiring procedure for Disadvantaged Businesses set forth in Section 4.6(b), and who are not otherwise signatory to a current Master Agreement, may employ, as needed, first, a Core Employee, then an employee through a referral from the appropriate Union hiring hall, then a second Core Employee, then a second employee through the referral system, and so on until a maximum of three (3) Core Employees are employed per craft on each Covered Project. Thereafter, all additional employees in the affected trade or craft shall be requested and referred from the appropriate Union hiring hall in accordance with this Article. Contractors employing more than fifty (50) craft workers at the same time in a specific trade on a Covered Project may hire an additional two (2) Core Employees.

Section 4.6 only applies to Contractors who are not directly signatory to a current Master Agreement for the craft worker in its employ and is not intended to limit the transfer provisions of the Master Agreement of any trade. As part of this process, and in order to facilitate the contract administration procedures, as well as appropriate fringe benefit fund coverage, all Contractors shall require their Core Employees and any other persons employed other than through the referral process, to register with the appropriate Union hiring hall, if any, prior to their first day of employment working under the Covered Contract at a Covered Project site.

(d) Prior to each Contractor performing Covered Work, the Contractor shall provide a list of Core Employees using Attachment C-2, Contractor Core Workforce Form, to the Project Labor Coordinator and the Union having jurisdiction over the work. After submitting the Core Employee list prior to commencing work, Contractors shall not make any changes or substitutions to the Core Employee list for the duration of the Covered Project, except in cases where a Core Employee is injured or otherwise cannot work on the Covered Project due to factors beyond the Contractor's control. Failure to submit the Core Employee list prior to work commencing will prohibit the Contractor from using any Core Employees until 30 calendar days after the list is provided to the Project Labor Coordinator and Union having jurisdiction over the work.

(e) Upon request by any Party to this PLA, a Contractor hiring one or more Core Employees shall provide satisfactory proof (*i.e.*, payroll records, quarterly tax records, and such other documentation) evidencing Core Employees' qualifications as such to the Project Labor Coordinator and the Council.

(f) In addition to the core employee provisions set forth herein, all Contractors may avail themselves of any opportunity provided for in the applicable Master Agreements to call for specific employees by name.

(g) During any layoffs or reductions in workforce, Contractors shall layoff employees in an order and manner consistent with the Core Employee hiring procedures and maintain the required Core Employee-to-Union referral ratios required by this Section for the duration of each Covered Project.

Section 4.7 Time for Referral. If any Union's registration and referral system does not fulfill the requirements for specific classifications of covered employees (including Local Workers and Targeted Workers) requested by any Contractor within forty-eight (48) hours (excluding Saturdays, Sundays, and holidays), that Contractor may employ Core Employees without reference to the ratio requirements in Section 4.6 or use employment sources other than the Union registration and referral services, and may employ applicants from any other available source. The Contractor should promptly inform the Union of any applicants hired from other sources, and such applicants shall register with the appropriate hiring hall, if any.

Section 4.8 Lack of Referral Procedure. If a signatory local Union does not have a job referral system as set forth in Section 4.3 above, the Contractors shall give the Union equal opportunity to refer applicants in conformance with remaining provisions of this Article 4. The Contractors shall notify the Union of employees so hired, as set forth in Section 4.7.

Section 4.9 Union Membership. Employees are not required to become or remain Union members or pay Union dues or fees as a condition of performing Covered Work under this PLA. Nothing in this Section 4.9 is intended to supersede independent requirements of the applicable Master Agreements as to those Contractors otherwise signatory to such Master Agreements and as to the employees of those Contractors who are performing work on Covered Projects. Contractors otherwise signatory to such Master Agreements shall make and transmit all deductions for Union dues, fees, and assessments that have been authorized by employees in writing in accordance with the applicable Master Agreement.

Section 4.10 Foremen. The selection and number of craft foremen and/or general foremen shall be the responsibility of the Contractor, consistent with the Master Agreements. All foremen shall take orders exclusively from the designated Contractor representatives. Craft foremen shall be designated as working foreman at the request of the Contractors.

ARTICLE 5
UNION ACCESS AND STEWARDS

Section 5.1 Access to Project Sites. Authorized representatives of the Union shall have access to Covered Projects, provided that they do not interfere with the work of employees and further provided that such representatives fully comply with posted visitor, security, and safety rules.

Section 5.2 Stewards.

(a) Each signatory local Union shall have the right to dispatch a working journeyperson as a steward for each shift, and shall notify the Contractor in writing of the identity of the designated steward or stewards prior to the assumption of such person's duties as steward. Such designated steward or stewards shall not exercise any supervisory functions. There will be no non-working stewards. Stewards will receive the regular rate of pay for their respective crafts.

(b) In addition to his/her work as an employee, the steward should have the right to receive, but not to solicit, complaints or grievances and to discuss and assist in the adjustment of the same with the employee's appropriate supervisor. Each steward should be concerned only with the employees of the steward's Contractor and not with the employees of any other Contractor. The Contractor will not discriminate against the steward in the proper performance of his/her Union duties.

(c) When a Contractor has multiple, non-contiguous work locations at one site, the Contractor may request and the Union shall appoint such additional working stewards as the Contractor requests to provide independent coverage of one or more such locations. In such cases, a steward may not service more than one work location without the approval of the Contractor.

(d) The stewards shall not have the right to determine when overtime shall be worked or who shall work overtime.

Section 5.3 Steward Layoff/Discharge. The Contractor agrees to notify the appropriate Union twenty-four (24) hours before the layoff of a steward, except in the case of disciplinary discharge for just cause. If the steward is protected against such layoff by the provisions of the applicable Master Agreement, such provisions shall be recognized when the steward possesses the necessary qualifications to perform the remaining work. In any case in which the steward is discharged or disciplined for just cause, the appropriate Union will be notified immediately by the Contractor, and such discharge or discipline

shall not become final (subject to any later filed grievance) until twenty-four (24) hours after such notice has been given.

Section 5.4 Employees on Non–Covered Projects. On work where the personnel of the City or its contractors may be working in close proximity to the construction activities covered by this PLA on non-covered projects, the Union agrees that the Union representatives, stewards, and individual workers will not interfere with City personnel, or with personnel employed by any other employer not performing Covered Work.

ARTICLE 6
WAGES AND BENEFITS

Section 6.1 Wages. At a minimum, all employees covered by this PLA shall be classified in accordance with work performed and paid the hourly wage rates for those classifications in compliance with the Applicable Prevailing Wage Laws.

Section 6.2 Benefits.

(a) Subject to the exception set forth below for Disadvantaged Businesses, otherwise, for all employees performing Covered Work, Contractors shall pay, at a minimum, all employee fringe benefits and other required Contractor contributions to the established Union employee benefit funds in the amounts required by Applicable Prevailing Wage Laws. In addition, the Contractors and Unions agree that only such bona fide employee benefits that accrue to the direct benefit of the employees (such as pension and annuity, health and welfare, vacation, apprenticeship, and training funds) shall be included in this requirement and required to be paid by the Contractor for performance of Covered Work.

(b) Union Benefit Fund Contributions for Disadvantaged Businesses. Disadvantaged Businesses not otherwise signatory to a Master Agreement are exempt from the requirement of subsection (a) to pay fringe benefits and other required Contractor contributions on behalf of their Core Employees to the Union employee benefit funds, subject to the following exemption limitations:

(1) Disadvantaged Businesses are limited to utilizing the foregoing Core Employee exemption on subcontracts with a value of $500,000 or less; and

(2) The total value of all subcontracts utilizing this exemption shall not exceed ten percent (10%) of the total value of any Covered Project; and

(3) Each Disadvantaged Business performing work as a subcontractor is limited to using this exemption for one subcontract per Covered Project.

The City may at its sole discretion modify the above Union Benefit Fund Contribution limitations for Disadvantaged Businesses. Any modifications to the limitations for Disadvantaged Businesses will be reflected in the SDMC, including but not limited to Chapter 2, Article 2, Division 36, Small and Local Business Program Administration. If there is conflict, ambiguity, or other inconsistency between any provision in this PLA and the SDMC, the SDMC will control and take precedence.

Disadvantaged Businesses are required to pay all fringe benefits and other required Contractor contributions to the established Union employee benefit funds for all employees other than their Core Employees, and must comply with the Applicable Prevailing Wage Laws, including the payment of fringe benefits, for all employees performing Covered Work.

(c) Where benefits payments are required by subsection (a), the Contractor adopts and agrees to be bound by the written terms of the applicable, legally established, Union trust agreement(s) specifying the detailed basis how payments will be made into, and benefits paid out of, such trust funds for its employees. The Contractor authorizes the parties to such trust funds to appoint trustees and successors' trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor. The Contractor obligations to the applicable Union benefit fund(s) and trust agreement(s) are limited to work performed on a Covered Project. The applicable Union benefit funds and trust agreement(s) to each Contractor are determined by the pre-job conference and Union work assignment process described in Articles 8 and 16.

(d) Each Contractor is required to certify to the Project Labor Coordinator that it has paid all benefit contributions due and owing to the appropriate Union trust(s) and benefit funds prior to the receipt of its final payment and/or retention. Further, upon timely notification by a Union to the Project Labor Coordinator, the Project Labor Coordinator shall work with any Contractor who is delinquent in payments to assure that proper benefit contributions are made, to the extent of requesting the City and/or the Prime Contractor to withhold payments otherwise due such Contractor, until such contributions have been made or otherwise guaranteed.

(e) Notwithstanding any other provisions, this PLA is an agreement under Section 8(f) of the National Labor Relations Act (NLRA),

which covers work performed in the building and construction industry. In addition, the work performed under this PLA qualifies for the Construction Industry Exemption under the Employee Retirement and Income Security Act of 1974 ("ERISA"), as amended as well. If any Union Pension Trust Fund ("Fund") covered by the terms and conditions of this PLA does not qualify for the ERISA Construction Industry Exemption authorized by Section 4203 (B)(1)(i), as amended, 29 U.S.C. § 1383(b)(1)(i), or has not taken the necessary steps to amend the Fund documents to qualify for the Construction Industry Exemption as authorized by Section 4203(B)(1)(ii) of ERISA, as amended, 29 U.S.C. § 1383(b)(1)(B)(ii), and to recognize the work performed under this PLA to qualify for the Construction Industry Exemption, the Contractors signatory to this PLA will not be obligated to make pension fund contributions to that Fund. In such an event, the Contractor shall pay all required amounts otherwise allocated for payment toward the non- exempt Fund to the employees' wages or other bona fide retirement plan program pursuant to Applicable Prevailing Wage Laws.

Section 6.3 Wage Premiums. Wage premiums, including, but not limited to, pay based on height of work, shift premiums, hazard pay, scaffold pay, and special skills shall not be applicable to work under this PLA, except to the extent provided for in any Applicable Prevailing Wage Laws.

Section 6.4 Compliance with Prevailing Wage Laws. All complaints regarding possible violations of Applicable Prevailing Wage Laws may be referred to the City's Prevailing Wage Program for processing, investigation and resolution, and if not resolved within thirty (30) calendar days, may be referred by any Party to the State Labor Commissioner. To facilitate compliance with Applicable Prevailing Wage Laws, each Contractor agree to provide copies of certified payroll reports, redacted only to the extent required by law, to the Unions (or to any Labor Management Cooperation Committee in which a Union or its affiliate participates) within ten (10) days of their request.

ARTICLE 7
WORK STOPPAGE AND LOCKOUTS

Section 7.1 No Work Stoppages or Disruptive Activity. The Council and the Unions signatory hereto agree that neither they, nor their respective officers, or agents or representatives, shall incite or encourage, condone or participate in any strike, walk-out, slowdown, picketing, observation of picket lines, or other activity of any nature or kind whatsoever, for any cause or dispute whatsoever with respect to or in any way related to Covered Projects, or which interferes with or otherwise disrupts Covered Projects, or with respect to or related to the City or Contractors or subcontractors, including, but not limited to, economic strikes, unfair labor practice strikes, safety strikes, sympathy

strikes, and jurisdictional strikes, whether or not the underlying dispute is arbitrable. Any such actions by the Council, or Unions, or their members, agents, representatives, or the employees they represent shall constitute a material violation of this PLA. The Council and the Union shall take all steps necessary to obtain compliance with this Article.

Section 7.2 Employee Violations. The Contractor may discharge any employee violating Section 7.1 above, and any such employee will not be eligible for rehire for performance of Covered Work.

Section 7.3 Standing to Enforce. The City and any Contractor affected by an alleged violation of this Article shall have standing and the right to enforce the obligations established herein.

Section 7.4 Expiration of Master Agreements. If a Master Agreement between a Union-signatory Contractor and one or more of the Union(s) expires before the Contractor completes the performance of a Covered Contract for a Covered Project, and the Union or the Contractor gives notice of demand for a new or modified Master Agreement, the Unions agree that they will not strike the Contractor on any Covered Project, and the Union and the Contractor agree that the expired Master Agreement will continue in full force and effect for the Covered Projects until a new or modified Master Agreement is put in place between the Union and the Contractor. If the new or modified Master Agreement between the Union and the Contractor provides that any terms of the Master Agreement shall be retroactive, the Contractor agrees to comply, consistent with the terms of this PLA and the Applicable Prevailing Wage Laws, with any retroactive terms of the new or modified Master Agreement which are applicable to employees of said Contractor that are employed on a Covered Project within seven (7) days at no cost to the City. All employees shall continue to work and to perform all their obligations with respect to Covered Projects despite the expiration of any Master Agreement. Should a Contractor engaged in Covered Projects enter into an interim agreement with the Unions for work being performed elsewhere after the expiration, and before the renewal of a local collective bargaining agreement forming the basis for a Master Agreement, such interim agreement shall be utilized by that Contractor for Covered Projects, subject to the provisions of Section 21.3.

Section 7.5 No Lock Outs. Contractors shall not cause, incite, encourage, condone or participate in any lock-out of employees with respect to Covered Projects during the term of this PLA. The term "lock-out" refers only to a Contractor's exclusion of employees in order to secure collective bargaining advantage, and does not refer to the discharge, termination, or layoff of employees by the Contractor for any reason in the exercise of rights pursuant to any provision of this PLA, or any other agreement, nor does "lock-out" include the City's decision to stop, suspend, or discontinue any Covered Projects or any portion thereof for any reason.

Section 7.6 Best Efforts to End Violations.

(a) If a Contractor or the City contends that there is any violation of this Article, it shall, at least twenty-four (24) hours prior to invoking the procedures of Section 7.7, provide written notification to the Council of the involved Union(s) and to the Project Labor Coordinator, setting forth the facts which the Contractor contends violates this Article. The Council and the leadership of the involved Union(s) will immediately instruct, order, and use their best efforts to cause the cessation of any violation of the Article.

(b) If the Union contends that any Contractor has violated this Article, it will notify the Contractor and the Project Labor Coordinator, setting forth the facts which the Union contends violate this Article, at least twenty-four (24) hours prior to invoking the procedures of Section 7.7. The Project Labor Coordinator shall promptly order the involved Contractor(s) to cease any violation of the Article.

Section 7.7 Expedited Enforcement Procedure. Any Party, including the City, which is an intended beneficiary of this Article, and affected Contractors, may institute the following procedures, in lieu of or in addition to any other action at law or equity, when a breach of this Article is alleged.

(a) The party, including any affected Contractor, invoking this procedure shall notify Robert Hirsch, who has been selected by the Parties, and whom the Parties agree shall be the permanent arbitrator under this procedure, or John Kagel, as the alternate arbitrator under this procedure. If the permanent arbitrator is unavailable at any time, the alternate will be contacted. If neither is available, then a selection shall be made from the list of arbitrators as set forth in Article 10. Notice to the arbitrator shall be by the most expeditious means available, with notices to the Contractor or Union alleged to be in violation, and to the Project Labor Coordinator and Council. For purposes of this Article, written notice may be given by email, facsimile, hand delivery, or overnight mail and will be deemed effective upon receipt.

(b) Upon receipt of said notice, the arbitrator named above or their alternate shall sit and hold a hearing within seventy-two (72) hours if it is contended that the violation still exists, but not sooner than twenty-four (24) hours after notice has been dispatched to the Council of the involved Union(s) and/or Contractor as required by Section 7.6, above.

(c) The arbitrator shall notify the disputing parties of the place and time chosen for this hearing. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion,

shall not exceed twenty- four (24) hours unless otherwise agreed upon by all disputing parties. A failure of any of the disputing parties to attend said hearings shall not delay the hearing of evidence or the issuance of any award by the arbitrator.

(d) The sole issue at the hearing shall be whether or not a violation of this Article has in fact occurred. The arbitrator shall have no authority to consider any matter in justification, explanation, or mitigation of such violation or to award damages, (except for damages as set forth in Section 7.8 below) which issue is reserved for court proceedings, if any. The award shall be issued in writing within three (3) hours after the close of the hearing and may be issued without an opinion. If any party desires a written opinion, one shall be issued within fifteen (15) days, but its issuance shall not delay compliance with, or enforcement of, the award. The arbitrator may order cessation of the violation of the Article and other appropriate relief, and such award shall be served on all disputing parties by hand or registered mail upon issuance.

(e) Such award shall be final and binding on all disputing parties and may be enforced by any court of competent jurisdiction upon the filing of this PLA and all other relevant documents referred to herein above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other party. In any judicial proceeding to obtain a temporary order enforcing the arbitrator's award as issued under Section 7.7(d) of this Article, all disputing parties waive the right to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any party's right to participate in a hearing for a final order of enforcement. The court's order or orders enforcing the arbitrator's award shall be sent to all disputing parties.

(f) Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure or which interfere with compliance hereto are hereby waived by the Parties and Contractors to whom they accrue.

(g) The fees and expenses of the arbitrator shall be equally divided between the disputing parties.

Section 7.8 Liquidated Damages.

(a) If the arbitrator determines in accordance with Section 7.7 above that a work stoppage or other disruption to a Covered Project has occurred, the respondent Union(s) shall, within eight (8) hours of receipt of the Award, direct all the employees they represent on the Covered Project to immediately return to work. If the craft(s) involved do not return to work by the beginning of the next regularly scheduled shift following

such eight (8) hour period after receipt of the arbitrator's Award, and the respondent Union(s) have not complied with their obligations to immediately instruct, order, and use their best efforts to cause a cessation of the violation and return the employees they represent to work, then the non- complying Union(s) shall each pay a sum as liquidated damages to the City, and each will pay an additional sum per shift, as set forth in (c), below, for each shift thereafter on which the craft(s) has not returned to work.

(b) If the arbitrator determines in accordance with Section 7.7 above that a lock-out has occurred, the respondent Contractor shall, within eight (8) hours after receipt of the award, return all the affected employees to work on the Covered Project, or otherwise correct the violations found by the arbitrator. If the respondent Contractor does not take such action by the beginning of the next regular scheduled shift following the eight (8) hour period, each non-complying respondent Contractor shall pay or give as liquidated damages, to the affected Union (to be apportioned among the affected employees and the benefit funds to which contributions are made on their behalf, as designated by the arbitrator) an amount equal to the total hourly wages and benefits lost for all affected employees of the Contractor on Covered Projects. In addition, the Contractor shall pay an additional sum per shift to the City, as set forth in (c), below, for each shift thereafter in which compliance by the respondent Contractor has not been completed.

(c) The Parties agree that project delays caused by violations of this Article will cause the City to sustain damages. They agree that it would be impractical or extremely difficult to fix the amount of such damages. Therefore, the Parties agree that, in the event of a breach of this Article, the disputing party in breach shall pay to the City the sum of not less than $10,000.00 and no more than $20,000.00 per shift, as determined by the arbitrator, from the time the arbitrator determines that a delay has occurred until the arbitrator determines that the Covered Project is no longer disrupted. The payment, when made, shall constitute a damages remedy of the City for the delay specified, but shall not prevent the City from seeking injunctive or other monetary relief, including termination of this PLA. Payment of these sums as liquidated damages is not intended as a forfeiture or penalty within the meaning of California Civil Code sections 3275 or 3369, but instead, is intended to constitute liquidated damages to the City pursuant to section 1671 of the California Civil Code.

Section 7.9 Payroll and Benefit Delinquencies. Notwithstanding other provisions of this PLA, it shall not be a violation of this PLA for any Union to withhold the services of its members from a Contractor who fails to timely pay its weekly payroll in accordance with the applicable Master Agreement, or fails to make

timely payments to the applicable Union benefit funds. This Section 7.9 does not inhibit or affect responsibilities of the Council and the Union under Section 7.1 to refrain from picketing or other disruption of Covered Projects.

Prior to withholding its members' services for the Contractor's failure to meet its weekly payroll, the Union shall give at least five (5) calendar days written notice of such failure to pay by certified mail, and by facsimile or email transmission to the involved Contractor, Prime Contractor and Project Labor Coordinator. The Prime Contractor, together with the involved Contractor and affected Union, shall meet within five (5) working days after the written notice of such failure to pay was sent to attempt to resolve the payroll delinquency. If the payroll delinquency remains unresolved, then the affected Union may withhold the services of its members from the involved Contractor. Upon the payment of all monies due and then owing for wages, the Union shall direct its members to immediately return to work and the Contractor shall return all such members back to work.

Prior to withholding its members' services for the Contractor's failure to make timely payments to the applicable Union benefit funds, the Union shall give at least thirty (30) days written notice of such failure to pay by certified mail, and by facsimile or email transmission to the involved Contractor, the Prime Contractor and Project Labor Coordinator. The Prime Contractor, together with the involved Contractor and affected Union, shall meet within five (5) working days after the written notice of such failure to pay was sent to attempt to resolve the delinquency. If the delinquency remains unresolved, then the affected Union may withhold the services of its members from the involved Contractor. Upon payment by the delinquent Contractor of all monies due and then owing for employee benefit contributions, the Union shall direct its members to immediately return to work and the Contractor shall return all such members back to work.

Nothing in this section should be construed to prevent the Union having jurisdiction over the involved work from submitting a grievance under the procedures of Article 10 for any alleged or actual violations of Article 6 or referring any alleged or actual prevailing wage violation to the Project Labor Coordinator and the City labor compliance program for review and enforcement, in accordance with Section 6.4.

The Prime Contractor shall have the right to replace any delinquent Contractor in accordance with the terms and conditions of their prime contract with the City, and applicable law.

ARTICLE 8
WORK ASSIGNMENTS AND JURISDICTIONAL DISPUTES

Section 8.1 No Jobsite Disruption. There will be no strikes, work stoppages, picketing, sympathy strikes, slowdowns, or other interferences with the work because of jurisdictional disputes between Unions. The assignment of work will be solely the responsibility of the Contractor performing the work involved; and such work assignments will be in accordance with the Plan for Settlement of Jurisdictional Disputes in the Construction Industry (the "Plan") or any successor Plan.

Section 8.2 All jurisdictional disputes on a Covered Project shall be settled and adjusted according to the present Plan established by the Building and Construction Trades Department or any other plan or method of procedure that may be adopted by the Building and Construction Trades Department. Decisions rendered shall be final and binding and conclusive on the Contractors and Unions with regard to Covered Work.

All jurisdictional disputes shall be resolved without the occurrence of any of the activities prohibited in Article 7 (Work Stoppages and Lockouts), and the Contractor's assignment shall be adhered to until the dispute is resolved. Individuals violating this section shall be subject to immediate discharge.

Section 8.2.1 If a dispute arising under this Article involves the Southwest Regional Council of Carpenters or any of its subordinate bodies, an arbitrator shall be chosen by the procedures specified in Article V, Section 5, of the Plan from a list composed of Thomas Pagan, Robert Hirsch, and John Kagel, and the arbitrator's hearing on the dispute shall be held at the offices of the Council within fourteen (14) days of the selection of the arbitrator. All other procedures shall be as specified in the Plan.

Section 8.3 Failure to Comply. If any Union or Contractor fails to immediately and fully comply with the final decision rendered by the Plan, affected Union(s) or Contractor(s) may seek legal redress for such conduct, including, but not limited to, injunctive relief and/or damages.

Section 8.4 Pre-job Conference. It is required that a pre-job conference be held not later than ten (10) calendar days prior to the start of work by each Contractor for the Covered Project in accordance with the procedure described in Article 16.

ARTICLE 9
MANAGEMENT RIGHTS

Section 9.1 Contractor and City Rights. The Contractors and the City have the sole and exclusive right and authority to oversee and manage construction operations on Covered Projects without any limitations unless expressly limited by a specific

provision of this PLA. In addition to the following and other rights of the Contractors enumerated in this PLA, the Contractors expressly reserve their management rights and all the rights conferred upon them by law. The Contractor's rights include, but are not limited to, the right to:

(a) Plan, direct, and control operations of all work; and

(b) Hire, promote, transfer, and layoff their own employees, respectively, as deemed appropriate to satisfy work and/or skill requirements; and

(c) Promulgate and require all employees to observe reasonable job rules and security and safety regulations; and

(d) Discharge, suspend, or discipline their own employees for just cause; and

(e) Utilize, in accordance with the City's approval, any work methods, procedures, or techniques, and select, use, and install any types or kinds of materials, apparatus, or equipment, regardless of source of manufacture or construction; and

(f) Assign and schedule work at their discretion; and

(g) Assign overtime, determine when it will be worked and the number and identity of employees engaged in such work, subject to such provisions in the applicable Master Agreement(s) requiring such assignments be equalized or otherwise made in a nondiscriminatory manner.

Section 9.2 Specific City Rights. In addition to the following and other rights of the City enumerated in this PLA, the City expressly reserves its management rights and all the rights conferred on it by law and contract. The City's rights (and those of the Project Labor Coordinator on its behalf) include, but are not limited to the right to:

(a) Inspect any construction site or facility to ensure that the Contractor follows the applicable safety and other work requirements; and

(b) At its sole option, terminate, delay, and/or suspend any and all portions of the Covered Projects at any time; prohibit some or all work on certain days or during certain hours of the day to accommodate the ongoing operations of the City and/or to mitigate the effect of ongoing Covered Projects on businesses and residents in the neighborhood of the Covered Project sites; and/or require any other operational or schedule changes it deems necessary, in its sole

judgment, to meet Covered Project deadlines and remain a good neighbor to those in the area of the Covered Projects. (In order to permit the Contractors and Unions to make appropriate scheduling plans, the City will provide the Prime Contractor and affected Unions with reasonable notice of any changes it requires pursuant to this section); and

(c) Approve any work methods, procedures, and techniques used by Contractors whether or not these methods, procedures, or techniques are part of industry practices or customs; and

(d) Investigate and process complaints or disagreements, through the Project Labor Coordinator.

Section 9.3 Use of Materials. There should be no limitations or restrictions by the Union upon a Contractor's choice of materials or design, nor, regardless of source or location, upon the full use and utilization of equipment, machinery, packaging, precast, prefabricated, prefinished, or preassembled materials, tools, or other labor-saving devices, subject to the application of the California Public Contract and Labor Codes. Generally, the onsite installation or application of such items shall be performed by the craft having jurisdiction over such work.

Section 9.4 Special Equipment, Warranties and Guaranties.

(a) It is recognized that certain equipment of a highly technical and specialized nature may be installed at Covered Project sites. The nature of the equipment, together with the requirements for manufacturer's warranties, may dictate that it be prefabricated, pre-piped, and/or pre-wired and that it be installed under the supervision and direction of the City and/or manufacturer's personnel or certified specialist contractor. The Unions agree that such equipment is to be installed without incident and without violation of this PLA.

(b) The Parties recognize that the Contractor will initiate from time to time the use of new technology, equipment, machinery, tools, and other labor-savings devices and methods of performing Covered Projects. The Unions agree that they will not restrict the implementation of such devices or work methods. The Unions will accept and will not refuse to handle, install, or work with any standardized and/or catalogue parts, assemblies, accessories, prefabricated items, preassembled items, partially assembled items, or materials whatever their source of manufacture or construction.

(c) If any disagreement between the Contractor and the Union concerning the methods of implementation or installation of any equipment, device, or item, or method of work arises, or whether a

particular part or pre-assembled item is a standardized or catalog part or item, the work will proceed as directed by the Contractor, and the Contractor and Union shall immediately consult over the matter. If the disagreement is not resolved, the affected Union(s) shall have the right to proceed through the procedures set forth in Article 10.

ARTICLE 10
SETTLEMENT OF GRIEVANCES AND DISPUTES

Section 10.1 Cooperation and Harmony on Site.

(a) This PLA is intended to establish and foster continued close cooperation between management and labor. The Council shall assign a representative to the Covered Project for the purpose of assisting the local Unions, and working with the Project Labor Coordinator, together with the Contractors, to complete construction of the Covered Projects economically, efficiently, continuously, and without any interruption, delays, or work stoppages.

(b) The City, the Contractors, Unions, and employees collectively and individually, realize the importance of maintaining continuous and uninterrupted performance of Covered Projects, and agree to resolve disputes in accordance with the grievance provisions set forth in this Article or, as appropriate, those of Article 7 or 8.

(c) The Project Labor Coordinator shall observe the processing of grievances under this Article and Articles 7 and 8, including the scheduling and arrangements of facilities for meetings, selection of the arbitrator from the agreed-upon panel to hear the case, and any other administrative matters necessary to facilitate the timely resolution of any dispute; provided, however, it is the responsibility of the grievance parties to ensure the time limits and deadlines are met.

Section 10.2 Processing Grievances. Any questions, complaints or alleged violations of this PLA, which includes questions, complaints or alleged violations of any applicable provisions of the Master Agreements, but not alleged violations of Articles 7 or 8, shall be considered a grievance and subject to resolution under the following procedures.

Step 1.

(a) Employee Grievances. When any employee subject to the provisions of this PLA feels aggrieved by an alleged violation of this PLA, the employee shall, through his local Union business representative or job steward, within ten (10) working days after the occurrence of the violation, give notice to the work site representative of the involved

Contractor stating the provision(s) alleged to have been violated, the details of the alleged violation and the remedy sought to resolve the matter. A grievance shall be considered null and void if notice of the grievance is not given within the ten (10) day period. A business representative of the local Union or the job steward and the work site representative of the involved Contractor shall meet and endeavor to adjust the matter within ten (10) working days after timely notice has been given. If they fail to resolve the matter within the prescribed period, the grieving party may, within ten (10) working days thereafter, pursue Step 2 of this grievance procedure provided the grievance is reduced to writing, setting forth the relevant information, including a short description thereof, the date on which the alleged violation occurred, and the provision(s) of the applicable agreement alleged to have been violated. Grievances and disputes settled at Step 1 shall be non- precedential except as to the grievance parties.

(b) Union, Contractor, or City Grievances. Should a Union, a Contractor, or the City (each a "complaining party") allege a violation of this PLA by a Party or a Contractor, and, if after conferring within ten (10) working days after the complaining party knew or should have known of the facts or occurrence giving rise to the dispute, a settlement is not reached within five (5) working days, the dispute shall be reduced to writing and processed to Step 2 in the same manner as outlined in Step 1(a) above for the processing of an employee complaint.

Step 2.

A representative of the complaining party, and a representative of any responding party to the grievance ("responding party"), shall meet within seven working days of the referral of the dispute to this second step to attempt to arrive at a satisfactory settlement thereof. The City may participate as an interested Party in any dispute brought under this Article. If the complaining party and responding parties fail to reach an agreement to the satisfaction of the complaining party, the dispute may be submitted in writing in accordance with the provisions of Step 3 within seven (7) working days after the initial meeting at Step 2.

Step 3.

(a) If the grievance is submitted but not resolved under Step 2, the complaining party may request in writing to the Project Labor Coordinator (with copy[ies] to the other party[ies] to the grievance) within seven (7) working days after the initial Step 2 meeting, that the grievance be submitted to an arbitrator selected from the agreed-upon list below, on a rotational basis in the order listed. Those arbitrators are: (1) Barry Winograd; (2) Najeeb Khoury; (3) Andrea Dooley; (4) Robert Hirsch; and (5) John Kagel. In the event any of

these arbitrators retire or become permanently unavailable, the City and the Council shall jointly select a replacement arbitrator for the list. Any arbitrator not available to conduct the arbitration within 120 calendar days of the referral of the grievance to arbitration will be considered unavailable, and the Project Labor Coordinator shall move to the next arbitrator. The decision of the arbitrator shall be final and binding on all parties to the grievance, and the fee and expenses of such arbitrations shall be borne equally by the parties to the grievance. In cases for which the arbitrator finds a violation of this PLA, the arbitrator may order cessation of the violation and other appropriate relief, and such award shall be served on all parties to the grievance and the City. This grievance process and arbitration proceedings do not impede the ability of the City to advance any available dispute resolution processes and remedies under its prime contracts for violations thereof.

(b) Failure of the complaining party to adhere to the time limits established herein shall render the grievance null and void. The time limits established herein may be extended only by written consent of the parties to the grievance involved at the particular step where the extension is agreed upon. The arbitrator shall have the authority to make decisions only on issues presented and shall not have the authority to change, amend, add to, or detract from any of the provisions of this PLA.

Section 10.3 Limit on Use of Procedures. Procedures contained in this Article shall not be applicable to any alleged violation of Article 7 or 8, with a single exception that any employee discharged for violation of Section 7.2 may resort to the procedures of this Article to determine only if they were, in fact, engaged in that violation.

Section 10.4 Notice. The Project Labor Coordinator shall be notified by the involved Union(s) and Contractor(s) of all actions at Steps 2 and 3, and further, the Project Labor Coordinator or other City representative shall, upon its own request, be permitted to participate fully in all proceedings at such steps.

ARTICLE 11
COMPLIANCE

Section 11.1 Compliance with All Laws. The Council and all Unions, Contractors, and their employees shall comply with all applicable federal and state laws, ordinances, and regulations including, but not limited to, those relating to safety and health, employment, and applications for employment. All employees shall comply with the safety regulations established by the City, the Project Labor Coordinator, and the Contractor. Employees must promptly report any injuries or accidents to a supervisor.

ARTICLE 12
SAFETY AND PROTECTION OF PERSON AND PROPERTY

Section 12.1 Safety.

(a) It shall be the responsibility of each Contractor to ensure safe working conditions and employee compliance with all applicable safety laws and regulations and any safety rules contained herein or established by the City and the Contractor. It is understood that employees have an individual obligation to use diligent care to perform their work in a safe manner and to protect themselves and the property of the Contractor and the City.

(b) All Parties, Contractors and Contractor employees shall be bound by the safety, security, and visitor rules established by the Contractor, the Project Labor Coordinator, and the City. These rules will be published and posted. An employee's failure to satisfy his/her obligations under this Section will subject him/her to discipline, up to and including discharge.

Section 12.2 Drug and Alcohol Testing Policy. The Parties and Contractors shall adopt the Drug and Alcohol Testing Policy attached hereto as Attachment D and City Council Policy 100-17 Drug-Free Worplace/City Contractors attached hereto as Attachment E, which are the exclusive Drug and Alcohol Testing Policies for Covered Projects.

Section 12.3 Inspection. The inspection of shipments of equipment, machinery, and construction materials of every kind shall be performed at the discretion of the Contractor by individuals of its choice.

ARTICLE 13
TRAVEL AND SUBSISTENCE

Section 13.1 Travel expenses, travel time, subsistence allowances and/or zone rates, and parking reimbursements shall not be applicable to work under this PLA, except to the extent provided for in Applicable Prevailing Wage Laws. Parking for employees covered by this PLA shall be provided by the Contractor(s) according to the provision of the applicable Master Agreement(s).

ARTICLE 14
APPRENTICES

Section 14.1 Importance of Training. The Parties and Contractors recognize the need to maintain continuing support of the programs designed to develop adequate numbers of competent workers in the construction industry, the obligation to capitalize on the availability of the local work force in the area served by the City, and the opportunities to provide continuing work on Covered Projects for Local Workers and Targeted Workers. To these ends, and consistent with any laws or regulations, the Parties and Contractors will facilitate, encourage, and assist Local Workers and Targeted Workers in enrolling in and progressing through Apprenticeship Programs and/or Apprenticeship Readiness Programs in the construction industry that lead to participation in Apprenticeship Programs. The City, the Project Labor Coordinator, other City consultants, the Contractors, and the Council and Unions, will work cooperatively to identify, or establish and maintain, effective programs and procedures for persons interested in entering the construction industry and which will help prepare them for the entry into Apprenticeship Programs.

Section 14.2 Use of Apprentices.

(a) The Unions and Contractors agree to cooperate in referring and employing Apprentices up to the maximum percentage allowed by the State Labor Code or applicable federal law, and the standards of each Apprenticeship Program. The minimum ratios for Apprentice to journeyperson hours worked shall be in compliance, at a minimum, with the applicable provisions of the State Labor Code relating to utilization of Apprentices. The City, unless otherwise required by law, shall encourage such utilization, and, both as to Apprentices and the overall supply of experienced workers, the Project Labor Coordinator will work with the Council, Apprenticeship Programs, and Contractors to assure appropriate and maximum utilization of Apprentices and the continuing availability of both Apprentices and journeypersons.

(b) The Parties and Contractors will comply with all applicable laws and regulations in the request for dispatch and employment of Apprentices.

(c) The Parties and Contractors agree that Apprentices will not be dispatched to Contractors working under this PLA unless there is a journeyperson or other Contractor employee working on the Covered Project where the Apprentice is to be employed who is qualified to assist and oversee the Apprentice's progress through the program in which they are participating. Apprentices must be supervised and utilized in accordance with all applicable Federal and State laws.

ARTICLE 15
LEGAL ACTION

Section 15.1 Legal Action. The City, Council and Unions recognize the substantial legal costs (including all attorney's fees and associated disbursements) that might accrue with regard to any legal challenge over the adoption by the City of this PLA, and related to claims directly challenging the legality of this PLA, or a particular section or language that has been adopted herein. In the event of a legal challenge, the Council, on behalf of itself and affiliated Unions, agrees to seek to intervene in the legal action and actively participate in the litigation or other action to defend the legality of this PLA, or a particular section or language herein. The failure of the Council to seek to intervene in the legal action and actively participate to defend the legality of this PLA will constitute a material breach of this PLA. In the event the Council is denied leave to intervene in the legal action, the Council shall have its counsel coordinate with the City's counsel, at the Council's own expense, regarding how the Council can best support the City's legal position.

ARTICLE 16
PRE-JOB CONFERENCE

Section 16.1 Each Contractor is required to conduct a pre-job conference with the Unions not later than ten (10) calendar days prior to commencing work. The purpose of the conference will be to, among other things, convey craft manpower needs, the schedule of work for the Covered Project, the Covered Project's rules, and propose preliminary Union work assignments.

Section 16.2 The Project Labor Coordinator may work with the Prime Contractor and Council to facilitate the scheduling of all pre-job conferences, but ensuring each Contractor conducts a pre-job conference in accordance with this PLA is the responsibility of the Prime Contractor. The Contractors shall make the relevant plans and specifications available to the Unions prior to each pre-job conference.

Section 16.3 All preliminary Union work assignments shall be disclosed by each Contractor at the pre-job conference. Should there be Covered Work that was not previously assigned at a pre-job conference, or additional Covered Work be added to the scope of the Covered Project, the Contractor(s) performing such work will conduct a separate pre-job conference.

Section 16.4 Any Union in disagreement with a proposed preliminary assignment shall notify the affected Contractor of its position in writing, with a copy sent to the Project Labor Coordinator, within five (5) calendar days after the pre-job conference occurred. Within five (5) calendar days after the period allowed for Union notices of disagreement with the Contractor's proposed assignments, but prior to the commencement of any work, the Contractor shall make final

assignments in writing with copies sent to the Project Labor Coordinator and Council.

Section 16.5 A Contractor's failure to conduct a pre-job conference in accordance with this PLA is considered a breach of contract, and any affected Union may pursue a grievance under Article 10 of this PLA to seek a remedy for such a violation. Provided, however, if the Contractor has conducted a pre-job conference in accordance with this PLA, that Contractor is not required to participate in any additional pre-job conferences or mark-up meetings related to the original scope(s) of work assigned at the pre-job conference.

Section 16.6 The Project Labor Coordinator shall attend each pre-job conference. At each pre-job conference, the Project Labor Coordinator shall address the programs, goals and outcomes related to Local Worker and Targeted Worker employment, as well as the progress of implementing a work opportunities program.

ARTICLE 17
LABOR/MANAGEMENT COLLABORATION

Section 17.1 Labor/Management Collaboration Meetings. The Parties will conduct periodic labor/management cooperation meetings, which will be chaired jointly by a designee of the City and a designee of the Council. The co-chairs shall determine the frequency and scheduling of the meetings with the assistance of the Project Labor Coordinator. The purpose of the meetings shall be to promote harmonious and stable labor management relations, ensure effective and constructive communication between labor and management Parties, advance the proficiency of work in the industry, and to evaluate and ensure an adequate supply of skilled labor for all Covered Projects. The Project Labor Coordinator shall prepare reports detailing the outcomes of the Local Worker, Targeted Worker, and Apprentice utilization goals on each Covered Project, and the implementation and progress of a work opportunities program. All Parties will be invited to attend the labor/management cooperation meetings. Substantive grievances or disputes shall not be reviewed or discussed by this Committee, but shall be processed pursuant to the provisions of the appropriate Article.

ARTICLE 18
SAVINGS AND SEPARABILITY

Section 18.1 Savings Clause. It is not the intention of any Party to violate any laws governing the subject matter of this PLA. In the event any provision of this PLA is finally held or determined to be illegal or void as being in contravention of any applicable law or regulation, the remainder of the PLA shall remain in full force and effect unless the part or parts so found to be

void are wholly inseparable from the remaining portions of this PLA. If and when any provision(s) of this PLA is finally held or determined to be illegal or void by a court of competent jurisdiction, the Parties will promptly enter into negotiations concerning the substantive effect of such decision for the purposes of achieving conformity with the requirements of any applicable laws and the intent of the Parties hereto. If the legality of this PLA is challenged and any form of injunctive relief is granted by any court suspending temporarily or permanently the implementation of this PLA, then all Covered Projects that would otherwise be covered by this PLA should be continued to be bid and constructed without application of this PLA, so that there is no delay or interference with the ongoing planning, bidding, and construction of any Covered Projects.

Section 18.2 Effect of Injunctions or Other Court Orders. The Parties recognize the right of the City to withdraw, at its absolute discretion, the utilization of the PLA as part of any bid specification should a court of competent jurisdiction issue any order, or any applicable statute that could result, temporarily or permanently, in delay of the bidding, awarding, and/or construction on the project, or jeopardize project funding.

ARTICLE 19
WAIVER

Section 19.1 Waiver. A waiver of or a failure to assert any provisions of this PLA by any or all of the Parties hereto shall not constitute a waiver of such provision for the future. Any such waiver shall not constitute a modification of the PLA or change in the terms and conditions of the PLA and shall not relieve, excuse or release any of the Parties or Contractors from any of their rights, duties, or obligations hereunder.

ARTICLE 20
AMENDMENTS

Section 20.1 Amendments. The provisions of this PLA can be renegotiated, supplemented, rescinded, or otherwise altered only by mutual agreement in writing, hereafter signed by the City and the Council.

ARTICLE 21
EFFECTIVENESS OF THE PLA

Section 21.1 Term and Application.

(a) Term of Years. This PLA shall become effective July 1, 2024, if executed by the City, Council, and Unions, and approved by the City Attorney in accordance with San Diego Charter Section 40. Any Union that fails to sign the PLA prior to approval by the City Attorney

shall not be a party to the PLA or covered by the terms of the Agreement. The PLA shall continue in full force and effect for a term of seven (7) years after the effective date.

(b) Application to Covered Projects. The PLA will apply only to Covered Contracts for Covered Projects for which the bid advertisement date for the Covered Contract is between July 1, 2024 and seven (7) years from the effective date of the PLA, and it will continue in effect with regard to each Covered Project until all Covered Work under a Covered Contract is completed and accepted by the City, under procedures described in Section 21.2 below. The PLA shall be included in all Covered Contracts or Covered Professional Services Agreements under which Covered Work may be performed.

(c) Extension. Either the City or the Council may provide written notice to the other not less than nine (9) months prior to the expiration of the PLA of its interest in extending the term of the PLA. Failure to provide such notice nine (9) months prior shall not preclude either the City or the Council from negotiating to extend the term of the PLA, but may impact the ability of the City Council to approve an extension prior to this PLA's expiration. Subject to adoption by the City Council and execution by the Council, the terms and conditions set forth under the PLA may not exceed five (5) years, unless approved by City ordinance. Absent mutual agreement on the extension as described above, the PLA shall expire.

Section 21.2 Turnover and Final Acceptance of Completed Work.

(a) Construction of any phase, portion, section, or segment of Covered Projects shall be deemed complete when such phase, portion, section or segment has been turned over to the City by the Prime Contractor and the City has accepted such phase, portion, section, or segment. As areas and systems of the Covered Project are inspected and construction-tested and/or approved and accepted by the City or third parties on behalf of the City, the PLA shall have no further force or effect on such items or areas, except when the Contractor is directed by the City to engage in repairs or modifications required by its Covered Contract(s) with the City.

(b) Notice of each final acceptance received by the Contractor will be provided to the Council with the description of what portion, segment, etc. has been accepted. Final acceptance may be subject to a "punch" list, and in such case, the PLA will continue to apply to each such item on the list until it is completed to the satisfaction of the City and Notice of Acceptance is given by the City or its representative to the Prime Contractor.

Section 21.3 Continuation of Master Agreements. A Master Agreement shall continue in full force and effect with regard to Covered Work as set forth in Section 3.5, until the Master Agreement is modified by parties thereto.

In such case, Contractors and Unions agree to recognize and implement all applicable changes on their effective dates as set forth in the modified Master Agreement, except as otherwise provided by this PLA; provided, however, that any such provisions negotiated in said Master Agreements will not apply to work covered by this PLA if such provisions are less favorable to the Contractor performing Covered Work than those uniformly required of Contractors for construction work normally covered by those agreements; nor shall any provision be recognized or applied if it may be construed to apply exclusively or predominantly to work covered by this PLA. Any disagreement between any Party and Contractor over application of a modified term of a Master Agreement shall be resolved under the procedures established in Article 10.

Section 21.4 Final Termination. Final termination of all obligations, rights, and liabilities, and disagreements shall occur upon receipt by the Council of a Notice from the City saying that no work remains within the scope of the PLA.

ARTICLE 22
WORK OPPORTUNITIES PROGRAM

Section 22.1 The magnitude, duration, and complexity of the Covered Projects will require large numbers of skilled craft personnel and create significant economic opportunities for Local Workers and Targeted Workers. It is therefore the understanding and intention of the Parties to use the opportunities provided by the extensive amount of work to collaborate and implement programs and procedures, which may include, for example, North America's Building Trades Unions Multi-Craft Core Curriculum (MC3) Apprenticeship Readiness Programs, to prepare persons, especially Local Workers and Targeted Workers, for entrance into Apprenticeship Programs to begin or continue their construction careers on Covered Projects and future projects. With assistance from the Project Labor Coordinator, the Contractors, the Unions and their affiliated regional and national organizations will work jointly to promptly develop and implement procedures for the identification of craft needs, the scheduling of work to facilitate the utilization of available craft workers, and the securing of services of craft workers in sufficient numbers to meet the high demands of the Covered Projects to be undertaken.

Section 22.2 The Parties support the development of increased numbers of skilled construction workers who are Local Workers and Targeted Workers to meet the labor needs of Covered Projects. Towards that end, the Parties, together with the Project Labor Coordinator, agree to develop and implement a work

opportunities program for Local Workers and Targeted Workers to maximize construction career opportunities and create a construction career pipeline to becoming employed on Covered Projects. In furtherance of the foregoing, the Council and Unions specifically agree to work with the Project Labor Coordinator to:

(a) Collaborate with existing or newly created MC3 apprenticeship readiness programs in San Diego County to offer opportunities for Local Workers and Targeted Workers, including students, to enroll in free short-term construction apprenticeship readiness training to prepare them to enter into Apprenticeship Programs and become employed by a Contractor on Covered Projects. The Project Labor Coordinator, with the assistance of the Parties, will assist with the recruitment, career placement, and tracking of such Local Workers and Targeted Workers who graduate from these apprenticeship readiness programs; and

(b) The Parties will cooperate and collaborate with the Project Labor Coordinator to conduct outreach to and include Local Workers and Targeted Workers from traditionally underrepresented segments of the local population in the construction craft workforce for Covered Projects; and

(c) The Project Labor Coordinator, with input from the Council, shall produce detailed annual reports to measure and report the outcomes of the policies, requirements, and programs established in this PLA, including the achievement of Local Worker employment participation on Covered Projects; and

(d) The Unions will partner with the Contractors and Project Labor Coordinator to conduct outreach and recruitment activities by establishing or continuing to maintain existing centers, programs, and events to facilitate the entry of Local Workers and Targeted Workers into the building and construction trades. These programs shall serve as a resource for preliminary orientation, assessment of construction aptitude, referral to MC3 apprenticeship readiness programs or Apprenticeship Programs, referral to hiring halls, and provide tailored orientation and mentoring for women; and

(e) The Unions shall assist Local Workers with contacting the Apprenticeship Programs for the crafts and trades they are interested in. The Unions shall assist Local Workers who are seeking employment on the Covered Project and provide opportunities for Union membership by assessing their work experience and giving them credit for provable past experience in their relevant craft or trade, including experience gained working for non-Union Contractors. The Unions shall put on their rolls qualified bona fide Local Workers for employment on the Covered Project.

(f) Jobs Coordinator. Each Contractor shall utilize the Jobs Coordinator retained by the Prime Contractor to assist with achieving and exceeding the Local Worker goals set forth in Section 4.5 of this PLA. In addition, each Contractor shall utilize the Jobs Coordinator to assist the Contractor in fulfilling its work opportunities program and "Helmets to Hardhats" goals described herein.

The City may elect to develop and implement a Jobs Coordinator program with input from the Council that will include a pre-qualification process, selection guidelines and accountability measures to ensure the Jobs Coordinators are qualified and capable of performing the Jobs Coordinator function in accordance with the intent of the PLA. Alternatively, the City may direct the Prime Contractor to develop and implement such a program. Regardless of which entity develops and implement the program, the City shall have the right to remove Jobs Coordinators from the pre-qualification list, in which case such individuals or entities shall not be eligible for further selection by Prime Contractors.

Section 22.3 Joint Subcommittee on Work Opportunities. To carry out the intent and purpose of the work opportunities program, a joint subcommittee under the PLA shall be established, jointly chaired by a designee of the City and a designee of the Council, to oversee the effective development and implementation of the programs and policies described herein, and to work with representatives of each Union's Apprenticeship Program and representatives of the MC3 Apprenticeship Readiness Programs to maximize employment opportunities for Local Workers and Targeted Workers who reflect the diversity of the communities surrounding each Covered Project, and who may not be previously qualified for the construction career opportunities created by the Covered Projects. The joint subcommittee will meet at least quarterly to promptly facilitate its purposes in an expeditious manner as soon as this PLA becomes effective. All Unions and Prime Contractors working on active Covered Projects may be invited to attend the joint subcommittee meetings, and the joint chairs, at their discretion, may invite other community partners to attend the committee meetings. The Project Labor Coordinator will assist with the scheduling and facilitation of the joint subcommittee meetings.

ARTICLE 23
HELMETS TO HARDHATS

Section 23.1 Veterans Entry into Building and Construction Trades. The Parties recognize a desire to facilitate the entry into the building and construction trades of Veterans who are interested in careers in the building and construction industry. The Contractors and Unions agree to utilize the

services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment, and construction aptitude, referral to Apprenticeship Programs or hiring halls, counseling and mentoring, support network, employment opportunities, and other needs as identified by the Parties.

Section 23.2 Integrated Database. The Unions and Contractors agree to coordinate with the Center to create and maintain an integrated database of Veterans interested in working on a Covered Project and of apprenticeship and employment opportunities for a Covered Project. The Project Labor Coordinator may assist the Contractors and Unions with scheduling opportunities for outreach, recruitment, interviews, assessment and commencing with an Apprenticeship Program's application and entrance process. The Contractors and Unions agree to engage and participate in such opportunities.

In witness whereof, the Parties have caused this Project Labor Agreement for the City to be executed as of the date and year stated below.

CITY OF SAN DIEGO

By: _____

Name: Todd Gloria

Title: Mayor

Dated: July 1, 2024

APPROVED AS TO FORM

MARA W. ELLIOTT, CITY ATTORNEY

By: Christina L Rae for Bonny Hsu

Name: Christina L. Rae

Title: Deputy City Attorney

Dated: July 1, 2024

O-21764

SAN DIEGO BUILDING AND CONSTRUCTION TRADES COUNCIL

By: Carol Kim
70D82C690EED49C...

Name: Carol Kim

Title: Business Manager

Dated: June 25, 2024

SIGNATORY UNIONS
(See Attached)

SIGNATORY UNIONS

By: DocuSigned by: Michael Patterson
Allied Workers Local 5

By: DocuSigned by: Luis Miramontes
Boilermakers Local 92

By: DocuSigned by: Chris Brisson
Bricklayers & Allied Crafts Local 4

By: DocuSigned by: Jack Alvarado
Cement Masons Local 500 / Area 744

By: DocuSigned by:
Electrical Workers Local 569

By: DocuSigned by:
Elevator Constructors Local 18

By: DocuSigned by: Ernesto Toscano
Painters & Allied Trades District Council 36

By: DocuSigned by: Beau Coleman
Iron Workers Local 229

By:
Laborers Local 89

By: DocuSigned by: Christian Betancourt
Plasterers Local 200

By: DocuSigned by: Jose Sanchez
Plaster Tenders Local 1414

By:
Operating Engineers Local 12

By: DocuSigned by: Steve Beringer
Plumbers & Pipefitters Local 230

By:
Operating Engineers Local 12

By: DocuSigned by: Paul Colmenero
Roofers & Waterproofers Local 45

By:
Operating Engineers Local 12

By: DocuSigned by:
Laborers Local 1184

By: DocuSigned by: Dave Gauthier
Sheet Metal Workers' Local 206

By: DocuSigned by: Ed Learn
Laborers Local 345

By: DocuSigned by: Jose Estrada
Teamsters Local 166

By: DocuSigned by: Ricardo Perez
UA Local 345

By: DocuSigned by: SERGIO RASCON
Laborers Local 300

By: DocuSigned by: Todd Barry on behalf of B.M. Robert Cooper
Road Sprinkler Fitters Local 669

By: DocuSigned by: Jr Jon Preciado
Southern California District Council of Laborers

By: DocuSigned by: Doug Hick
Southwest Regional Council of Carpenters

By DocuSigned by: Victor Torres
Teamsters Local 481

SIGNATORY UNIONS

By: DocuSigned by: Michael Patterson
Allied Workers Local 5

By: DocuSigned by: Luis Miramontes
Boilermakers Local 92

By: DocuSigned by: Chris Brisson
Bricklayers & Allied Crafts Local 4

By: DocuSigned by: Jack Alvarado
Cement Masons Local 500 / Area 744

By: DocuSigned by:
Electrical Workers Local 569

By:
Elevator Constructors Local 18

By:
Painters & Allied Trades District Council 36

By: DocuSigned by: Beau Coleman
Iron Workers Local 229

By: Valentine R. Macedo
Laborers Local 89

By: DocuSigned by: Christian Betancourt
Plasterers Local 200

By: DocuSigned by: Jose Sanchez
Plaster Tenders Local 1414

By:
Operating Engineers Local 12

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UA Local 345

By: DocuSigned by: SERGIO RASCON
Laborers Local 300

By: DocuSigned by: Todd Barry on behalf of B.M. Robert Cooper
Road Sprinkler Fitters Local 669

By: DocuSigned by: Jon Preciado Jr
Southern California District Council of Laborers

By:
Southwest Regional Council of Carpenters

By DocuSigned by: Victor Torres
Teamsters Local 481

SIGNATORY UNIONS

By: _____
Allied Workers Local 5

By: _____
Boilermakers Local 92

By: _____
Bricklayer & Allied Crafts Local 4

By: _____
Cement Masons Local 500 / Area 744

By: _____
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By: _____
Sheet Metal Workers' Local 206

By: _____
Laborers Local 345

By: _____
Teamsters Local 166

By: _____
UA Local 345

By: _____
Laborers Local 300

By: _____
Road Sprinkler Fitters Local 669

By: _____
Southern California District Council of Laborers

By: _____
Southwest Regional Council of Carpenters

By: _____
Teamsters Local 481

ATTACHMENT A – CONSTRUCTION PROJECTS NOT PROCURED BY THE CITY

The following construction projects that are not procured by the City shall be considered Covered Projects for the purposes of this Agreement if the bid advertisement for these projects occurs during the effective dates pursuant to Section 21.1:

1. Phase III - Convention Center Expansion;
2. Phase I - Ocean Beach Pier Replacement;
3. New City Administration Building;
4. San Diego Fire Training Facility; and
5. Resource Recovery Facility at the Miramar Landfill

* In the event that the parties to the Project Labor Agreement for Construction of Pure Water Program Phase I Projects (Pure Water PLA), dated June 16, 2020, amend that agreement such that the terms of this PLA cover and apply to Pure Water Phase II projects, the terms and conditions under this PLA shall apply so long as a bid for the covered project or project work has not yet been advertised.

The City Council may elect to, by resolution, add other construction projects, not otherwise covered by this PLA, for coverage as Covered Projects.

ATTACHMENT B – LETTER OF ASSENT

To be signed by all Contractors awarded work covered by the Project Labor Agreement prior to commencing work.

[CONTRACTOR'S LETTERHEAD]

DATE

Project Labor Coordinator
Address
Address
Address

Attention: _____

Re: City of San Diego Project Labor Agreement

To Whom It May Concern:

This is to confirm **[Name of Company]** agrees to be bound by the City of San Diego's Project Labor Agreement ("PLA"), as such Agreement may from time to time be amended by the Parties or interpreted pursuant to its terms. Such obligation to be bound by the PLA shall extend to all work covered by the PLA undertaken by this Company on the Covered Project pursuant to **[Insert City Contract No._____and Name of Covered Project]**, and this Company shall require all of its subcontractors of whatever tier to be similarly bound for all work within the scope of the PLA by signing and furnishing to you an identical Letter of Assent prior to their commencement of work.

Sincerely,

[Name of Construction Company]

By:
[Name and Title of Authorized Executive]

[Copies of this Letter must be submitted to the Project Labor Coordinator and to the Council consistent with Article 3, Section 3.3(b)]

ATTACHMENT C-1 – WORKFORCE DISPATCH REQUEST FORM

City of San Diego Project Labor Agreement

The City of San Diego Project Labor Agreement ("PLA") establishes a goal of at least thirty percent (30%) of the total craft hours on each Covered Project being performed by Local Workers. The City PLA also establishes a goal of at least ten percent (10%) of the total craft hours on each Covered Project being performed by Targeted Workers. The Unions and Contractors agree that Local Workers shall be first referred for Covered Projects when requested through use of this Workforce Dispatch Request Form.

CONTRACTOR USE ONLY

Please complete and fax/email this form to the applicable union to request craft workers that fulfill the hiring requirements for this project. After faxing/emailing your request, please call the local union to verify receipt and substantiate their capacity to furnish workers as specified below. Please print and retain copies of your fax or email transmission for your records.

TO:	Local Union and #	
	Email/Fax	
	Phone	
CC:	Project Labor Coordinator	
	Email/Fax	
FROM:	Contractor	
	Issued by	
	Email/Fax	
	Phone	

UNION CRAFT WORKER REQUEST:

Craft Classification	Journeyman or Apprentice	Local Worker and/or Veteran	No. of Workers
	☐ JM ☐APP	*	
	☐ JM ☐APP	*	
	☐ JM ☐APP	*	
	☐ JM ☐APP	*	
	☐ JM ☐APP	*	
		Total Number of Workers Requested:	

In accordance with the PLA, Article 4, Union Recognition and Employment, we are requesting the union:

* Please provide priority referral of Local Workers, based on zip code residence as described on the following page, or veteran status.

WORKER REPORTING INSTRUCTIONS:

Reporting Date:		**Reporting Time:**	
Reporting To:		**On Site Phone:**	
Project Name:			
Project Location:			
Special Instructions:			

UNION USE ONLY

Please complete the "Union Use Only" section and fax or email both pages to the requesting Contractor and Project Labor Coordinator.

Date Dispatch Received:	
Dispatch Received by:	
Date Worker(s) Dispatched:	

Name:	JM or App	Veteran	Local Worker? *	Zip Code
	☐ JM ☒ APP	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ JM ☐ APP	☐ Yes ☐ No	☐ Yes ☒ No	
	☐ JM ☐ APP	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ JM ☐ APP	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ JM ☐ APP	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ JM ☐ APP	☐ Yes ☐ No	☐ Yes ☐ No	

* PLEASE NOTE: By marking the "No" box for either the "Veteran", "Local Worker", and "Targeted Worker" categories you are certifying, on behalf of the Union, that the Union has exhausted all reasonable efforts to locate and dispatch such Veteran, Local Worker, or Targeted Worker.
** Please indicate number of the Targeted Worker category (a through k, as shown below). You may indicate multiple categories per worker.

A **Local Worker** is an individual who resides in a Disadvantaged Area or a Veteran residing anywhere. Below is a list of the Disadvantaged Area zip codes within the San Diego area.

91901	91902	91905	91906	91910	91911	91913	91914	91915	91916	91917
91910	91932	91934	91935	91941	91942	91945	91948	91950	91962	91963
91941	91978	91980	92003	92004	92007	92008	92009	92010	92011	92014
92004	92020	92021	92024	92025	92026	92027	92028	92029	92036	92037
92025	92054	92055	92056	92057	92058	92059	92060	92061	92064	92065
92057	92067	92069	92070	92071	92075	92078	92081	92082	92083	92084
92071	92091	92093	92096	92101	92102	92103	92104	92105	92106	92107
92101	92109	92110	92111	92113	92114	92115	92116	92117	92118	92119
92113	92121	92122	92123	92124	92126	92127	92128	92129	92130	92131
92124	92135	92136	92139	92140	92145	92154	92155	92161	92173	92182
92140	92536	92672								

ATTACHMENT C-2 – CONTRACTOR CORE WORKFORCE FORM

City of San Diego Project Labor Agreement

The City of San Diego's Project Labor Agreement Article 4, Section 4.6 requires Contractors who are not directly signatory to an applicable Master Agreement to provide a list of Core Employees to the Project Labor Coordinator and applicable Union, prior to performing Covered Work. After submitting the Core Employee list prior to commencing work, Contractors shall not make any changes or substitutions to the Core Employee list for the duration of the Covered Project except in cases where a Core Employee is injured or otherwise cannot work on the Covered Project due to factors beyond the Contractor's control. Failure to submit the Core Employee list prior to work commencing will prohibit the Contractor from using any Core Employees for 30 calendar days after the list is provided to the Project Labor Coordinator and applicable Union.

CONTRACTOR INFORMATION			
Covered Project Name:			
Contractor/Firm Name:			
Submitted by:		**Date Submitted:**	
Email:		**Phone:**	

In accordance with the City of San Diego's Project Labor Agreement, Article 4, Section 4.6 (f), a Core Employee must meet all of the following requirements:

a. Be either a journeyperson or Apprentice;
b. Be on Contractor's active payroll for at least sixty (60) of the last one-hundred-twenty (120) working days prior to being designated as a Core Employee; and
c. Possess any license required by state or federal law for the Covered Projects to be performed.

Please see Article 4.6 of the Project Labor Agreement for additional information regarding use of Core Employees, including limits and order of referrals.

CRAFT / TRADE	EMPLOYEE NAME	LAST 4 SSN	HIRE DATE	DATE LAST EMPLOYED

Please use additional sheets as necessary.

ATTACHMENT D – DRUG AND ALCOHOL TESTING POLICY

The Parties recognize the problems that drug and alcohol abuse have created in the construction industry and the need to develop drug and alcohol abuse prevention programs. Accordingly, the Parties agree that in order to enhance the safety of the workplace and to maintain a drug and alcohol-free work environment, individual Contractors shall require applicants or employees to undergo drug and alcohol testing in accordance with this PLA and this policy, Attachment D – Drug and Alcohol Testing Policy, hereafter "PLA Drug Policy" and City Council Policy No. 100-17, "Drug-Free Workplace/City Contractors," Attachment E. To the extent there is any conflict between the terms set forth in the PLA Drug Policy and in the City Council Policy No. 100-17, the terms set forth in City Council Policy No. 100-17 shall prevail and apply.

1. It is understood that the use, possession, transfer, or sale of illegal drugs, narcotics, or other unlawful substances, as well as being under the influence of alcohol and the possession of or consuming alcohol is absolutely prohibited while employees are on the Contractor's job premises or while working on any jobsite in connection with work performed under the PLA.

2. No Contractor may implement a drug and alcohol testing program that does not conform in all respects to the provisions of this Policy.

3. No Contractor may implement drug and alcohol testing at any jobsite unless written notice is given to the Union setting forth the location of the jobsite, a description of the project under construction, and the name and telephone number of the Prime Contractor's project manager. Said notice shall be provided at the pre-job conferences for each Covered Project. Failure to give such notice shall make any drug and alcohol testing engaged in by the Contractor a violation of the Agreement and subject to the Article 10 grievance procedure.

4. A Contractor who elects to implement drug and alcohol testing pursuant to this Policy shall require all craft employees on the Covered Project to be tested. With respect to individuals who become employed on the Covered Project subsequent to the proper implementation of a valid drug and alcohol testing program, such test shall be administered upon the commencement of employment on the project, whether by referral from a Union Dispatch Office, transfer from another project, or another method. Individuals who were employed on the project prior to proper implementation of a valid drug and alcohol testing program may only be subjected to testing for the reasons set forth in paragraphs 5(g)(l) through 5(g)(3) and paragraphs 6(a) through 6(e) of this Policy. Refusal to undergo such testing shall be considered sufficient grounds to deny employment on the project.

5. The following procedure shall apply to all drug and alcohol testing:

    a. The Contractor may request urine samples only. The applicant or employee shall not be observed when the urine specimen is given. An applicant or employee, at his or her sole option, shall, upon request, receive a blood test in lieu of a urine test. No employee of the Contractor shall draw blood from a bargaining unit employee, touch or handle urine specimens, or in any way become involved in the chain of custody of urine or blood specimens. A Union Business Representative, subject to the approval of the individual applicant or employee, shall be permitted to accompany the applicant or employee to the collection facility to observe the collection, bottling, and sealing of the specimen.

b. A Contractor may request an applicant or employee promptly, within four (4) hours of the Contractor's request, perform an alcohol breathalyzer test at a certified laboratory only, and cutoff levels shall be those mandated by applicable state or federal law.

c. The testing shall be done by a laboratory approved by the Substance Abuse & Mental Health Services Administration (SAMHSA), which is chosen by the Contractor and the Union.

d. An initial test shall be performed using the Enzyme Multiplied Immunoassay Technique (EMIT). In the event a question or positive result arises from the initial test, a confirmation test must be utilized before action can be taken against the applicant or employee. The confirmation test will be by Gas Chromatography/Mass Spectrometry (GC/MS). Cutoff levels for both the initial test and confirmation test will be those established by SAMHSA and this Policy. Should these SAMHSA levels be changed during the course of the PLA or new testing procedures are approved, then these new regulations will be deemed as part of this existing PLA. Confirmed positive samples will be retained by the testing laboratory in secured long-term frozen storage for a minimum of one (1) year. Handling and transportation of each sample must be documented through strict chain-of-custody procedures.

e. In the event of a confirmed positive test result, the applicant or employee may request, within forty-eight (48) hours, a sample of his/her specimen from the testing laboratory for purposes of a second test to be performed at a second laboratory, designated by the Union and approved by SAMHSA. The retest must be performed within ten (10) days of the request. Chain of custody for this sample shall be maintained by the Contractor between the original testing laboratory and the Union's designated laboratory. Retesting shall be performed at the applicant's or employee's expense. In the event of conflicting test results, the Contractor may require a third test, at the Contractor's expense.

f. If, as a result of the above testing procedure, it is determined that an applicant or employee has tested positive, this shall be considered sufficient grounds to deny the applicant or employee his/her employment on the project.

g. No individual who tests negative for drugs and alcohol pursuant to the above procedure and becomes employed on the project shall again be subjected to drug and alcohol testing with the following exceptions:

   1) Employees who are involved in industrial accidents resulting in damage to plant, property, or equipment or injury to him/her or others may be tested for drugs or alcohol pursuant to the procedures stated hereinabove.

   2) The Contractor may test employees following thirty (30) days' advance written notice to the employee(s) to be tested and to the applicable Union. Notice to the applicable Union shall be sent by certified mail to the affected Union with a copy to the Project Labor Coordinator. Such testing shall be pursuant to the procedures stated hereinabove.

   3) The Contractor may test an employee where the Contractor has reasonable cause to believe that the employee is impaired from performing his/her job. Reasonable cause shall be defined as being aberrant or unusual behavior, the type of which is a recognized and accepted symptom of impairment (e.g., slurred speech, unusual lack of muscular coordination). Such behavior must be actually observed by at least two (2) persons, one (1) of whom shall be a supervisor who has been trained to recognize the symptoms of drug and alcohol abuse or impairment and the other of whom shall be the Job Steward. If the Job Steward is unavailable

or there is no Job Steward on the Covered Project, the other person shall be a member of the applicable Union's bargaining unit. Testing shall be pursuant to the procedures stated hereinabove. Employees who are tested pursuant to the exceptions set forth in this paragraph and who test positive will be removed from the Contractor's payroll.

h. Applicants or employees who do not test positive shall be paid for all time lost while undergoing drug and alcohol testing. Payment shall be at the applicable wage and benefit rates set forth in the applicable Union's Master Labor Agreement. Applicants who have been dispatched from the Union and who are not put to work pending the results of a test will be paid waiting time until such time as they are put to work. It is understood that an applicant must pass the test as a condition of employment. Applicants who are put to work pending the results of a test will be considered probationary employees.

6. The Contractors will be allowed to conduct periodic jobsite drug and alcohol testing on the Project under the following conditions:

   a. The entire jobsite must be tested, including any employee or subcontractor's employee who worked on that project three (3) working days before or after the date of the test;

   b. Jobsite testing cannot commence sooner than fifteen (15) days after start of the work on the project;

   c. Prior to start of periodic testing, a Business Representative will be allowed to conduct an educational period on company time to explain periodic jobsite testing program to affected employees;

   d. Testing shall be conducted by an SAMHSA-certified laboratory, pursuant to the provisions set forth in paragraph 5 hereinabove.

   e. Only two (2) periodic tests may be performed in a twelve (12)-month period.

7. It is understood that the unsafe use of prescribed medication, or where the use of prescribed medication impairs the employee's ability to perform work, is a basis for the Contractor to remove the employee from the jobsite.

8. Any grievance or dispute that may arise out of the application of this Policy shall be subject to the grievance and arbitration procedures set forth in the PLA.

9. The establishment or operation of this Policy shall not curtail any right of any employee found in any law, rule, or regulation. Should any part of this Policy be found unlawful by a court of competent jurisdiction or a public agency having jurisdiction over the Parties, the remaining portions of the Agreement shall be unaffected, and the Parties shall enter negotiations to replace the affected provision.

10. Present employees, if tested positive, shall have the prerogative for rehabilitation program at the employee's expense. When such program has been successfully completed, the Contractor shall not discriminate in any way against the employee. If work for which the employee is qualified exists, he/she may be reinstated.

11. The Contractor agrees that results of urine and blood tests performed hereunder will be considered medical records held confidential to the extent permitted or required by law. Such records shall not be released to any persons or entities other than designated Contractor representatives and the applicable Union. Such release to the applicable Union shall only be allowed upon the signing of a written release by the employee, and the information contained therein shall not be used to discourage the employment of the individual applicant or employee on any subsequent occasion.

12. Employees who seek voluntary assistance for substance abuse may not be disciplined for seeking such assistance. Requests from employees for such assistance shall remain confidential and shall not be revealed to other employees or management personnel without the employee's consent. Employees enrolled in substance abuse programs will be subject to all Contractor rules, regulations, and job performance standards with the understanding that an employee enrolled in such a program is receiving treatment for an illness.

13. The Contractor shall indemnify and hold the Union harmless against any and all claims, demands, suits, or liabilities that may arise out of the application of this Policy.

14. This Policy shall constitute the only Policy in effect between the Parties concerning drug and alcohol abuse, prevention, and testing. Any modifications thereto must be accomplished pursuant to collective bargaining negotiations between the Parties.

SPECIMEN REPORTING CRITERIA

Initial Test Analyte	Initial Test Cutoff [1]	Confirmatory Test Analyte	Confirmatory Test Cutoff Concentration
Marijuana metabolites (THCA)[2]	50 ng/ml [3]	THCA	15 ng/ml
Cocaine metabolite (Benzoylecgonine)	150 ng/ml 3	Benzoylecgonine	100 ng/ml
Codeine/ Morphine	2000 ng/ml	Codeine Morphine	2000 ng/ml 2000 ng/ml
Hydrocodone/ Hydromorphone	300 ng/ml	Hydrocodone Hydromorphone	100 ng/ml 100 ng/ml
Alcohol	0.02%	Ethanol	0.02%
Oxycodone/ Oxymorphone	100 ng/ml	Oxycodone Oxymorphone	100 ng/ml 100 ng/ml
6-Acetylmorphine	10 ng/ml	6-Acetylmorphine	10 ng/ml
Phencyclidine	25 ng/ml	Phencyclidine	25 ng/ml
Amphetamine/ Methamphetamine	500 ng/ml	Amphetamine Methamphetamine	250 ng/ml 250 ng/ml
MDMA[4]/MDA[5]	500 ng/ml	MDMA MDA	250 ng/ml 250 ng/ml
Initial Test Analyte	Initial Test Cutoff	Confirmatory Test Analyte	Confirmatory Test Cutoff Concentration
Barbiturates	300 ng/ml	Barbiturates	200 ng/ml
Benzodiazepines	300 ng/ml	Benzodiazepines	300 ng/ml
Methadone[6]	300 ng/ml	Methadone	100 ng/ml
Methaqualone	300 ng/ml	Methaqualone	300 ng/ml
Propoxyphene	300 ng/ml	Propoxyphene	100 ng/ml

[1] For grouped analytes (i.e., two or more analytes that are in the same drug class and have the same initial test cutoff):
Immunoassay: The test must be calibrated with one analyte from the group identified as the target analyte. The cross-reactivity of the immunoassay to the other analyte(s) within the group must be 80 percent or greater; if not, separate immunoassays must be used for the analytes within the group.
Alternate technology: Either one analyte or all analytes from the group must be used for calibration, depending on the technology. At least one analyte within the group must have a concentration equal to or greater than the initial test cutoff or, alternatively, the sum of the analytes present (i.e., equal to or greater than the laboratory's validated limit of quantification) must be equal to or greater than the initial test cutoff.

[2] An immunoassay must be calibrated with the target analyte, 9-tetrahydrocannabinoJ-9- carboxylic acid (THCA).

[3] **Alternate technology (THCA and benzoylecgonine):** The confirmatory test cutoff must be used for an alternate technology initial test that is specific for the target analyte (i.e., 15 ng/ml for THCA, 100 ng/ ml for benzoylecgonine).

[4] Methylenedioxymethamphetamine (MDMA)

[5] Methylenedioxyamphetamine (MDA)

[6] Employees with a prescription for methadone who are using the medication as prescribed, and are not impaired and can safely perform their work, will not be considered to have violated this Policy.

MEMORANDUM OF UNDERSTANDING REGARDING "QUICK" DRUG SCREENING TESTS PURSUANT TO ATTACHMENT D – DRUG AND ALCOHOL TESTING POLICY

It is hereby agreed between the Parties hereto that a Contractor who has otherwise properly implemented drug and alcohol testing, as set forth in the Policy, shall have the right to offer an applicant or employee a "quick" drug screening test. This "quick" screen test shall consist either of the "ICUP" urine screen or similar test or an oral screen test. The applicant or employee shall have the absolute right to select either of the two "quick" screen tests, or to reject both and request a full drug test.

An applicant or employee who selects one of the "quick" screen tests, and who passes the test, shall be put to work immediately. An applicant or employee who fails the "quick" screen test, or who rejects the "quick" screen tests, shall be tested pursuant to the procedures set forth in the Policy. The sample used for the "quick" screen test shall be discarded immediately upon conclusion of the test. An applicant or employee shall not be deprived of any rights granted to them by the Policy as a result of any occurrence related to the "quick" screen test.

ATTACHMENT E – CITY COUNCIL POLICY NO. 100-17

"DRUG-FREE WORKPLACE/CITY CONTRACTORS"

CITY OF SAN DIEGO, CALIFORNIA

COUNCIL POLICY

CURRENT

SUBJECT:	DRUG-FREE WORKPLACE/CITY CONTRACTORS
POLICY NO.:	100-17
EFFECTIVE DATE:	May 20, 1991

BACKGROUND:

The issue of substance abuse, the misuse of both legal and illegal drugs, has been identified as a major problem. It is well documented that substance abuse in the workplace can negatively impact employee performance, worker safety and the safety of the general public.

PURPOSE:

It is the intent of the City Council that the City of San Diego take a leadership role in addressing the issue of drug abuse in the workplace. It is the purpose of this policy to establish the requirement that all City construction contractors, consultants, grantees and providers of non-professional services agree to comply with this Drug-Free Workplace Policy.

POLICY:

Section 1. Definitions

A. "Drug-free workplace" means a site for the performance of work done in connection with a contract let by City of San Diego for the construction, maintenance, or repair of any facility or public work by an entity at which employees of the entity are prohibited from engaging in the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance in accordance with the requirements of this section.

B. "Employee" means the employee of a contractor directly engaged in the performance of work pursuant to a contract as described in Section 2.

C. "Controlled substance" means a controlled substance in schedules I through V of Section 202 of the Controlled Substance Act (21 U.S.C. Sec. 812).

D. "Contractor" means the department, division, or other unit of a person or organization responsible to the contractor for the performance of a portion of the work under the contract.

Section 2. City Contractor Requirements

A. Every person or organization awarded a contract or grant by the City of San Diego for the provision of services shall certify to the City that it will provide a drug-free workplace by doing all of the following:

(1) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation,

possession, or use of a controlled substance is prohibited in the person's organization's workplace and specifying the actions that will be taken against employees for violations of the prohibition.

(2) Establishing a drug-free awareness program to inform employees about all of the following:

(a) The dangers of drug abuse in the workplace.
(b) The person's or organization's policy of maintaining a drug-free workplace.
(c) Any available drug counseling, rehabilitation, and employee assistance programs.
(d) The penalties that may be imposed upon employees for drug abuse violations.

(3) Posting the statement required by subdivision (1) in a prominent place at contractors main office. For projects large enough to necessitate a construction trailer at the job site, the required signage would also be posted at the job site.

B. Contractors shall include in each subcontract agreement language which indicates the subcontractor's agreement to abide by the provisions of subdivisions (1) through (3) inclusive of Section 2A. Contractors and subcontractors shall be individually responsible for their own drug-free workplace programs.

HISTORY:

Adopted by Resolution R-277952 05/20/1991

APPENDIX A –

MEMORANDUM OF UNDERSTANDING #1

STARTUP AND COMMISSIONING

The Parties and Contractors agree that work covered by this PLA on Covered Projects includes all onsite physical craft work that is part of startup and commissioning, including, but not limited to, system flushes and testing, loop checks, rework and modifications, and functional and operational testing up to and including the final running test. It is understood that the City's personnel and/or its representatives, together with the manufacturer's and/or vendor's representatives, and/or project operating personnel may supervise and direct the startup, commissioning, rework, and modification activity, and that the onsite physical craft work is typically performed as part of a joint effort with these representatives and personnel. A manufacturer or its representatives may perform industry standard startup and commissioning work to satisfy its guarantee or warranty on a piece of equipment, and such work will be exempt from the PLA to the extent the work is excluded by Section 3.2(g) and/or Section 3.2(h).

PERFORMANCE BOND, LABOR AND MATERIALMEN'S BOND

FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

Hensel Phelps Construction Co., a corporation, as principal, and Travelers Casualty and Surety Company, a corporation authorized to do business in the State of California, as Surety, hereby obligate themselves, their successors and assigns, jointly and severally, to The City of San Diego a municipal corporation in the sum of One Hundred Fifty-One Million Nine Hundred Sixty-Six Thousand Fifteen Dollars and Zero Cents ($151,966,015.00) for the faithful performance of the annexed contract, and in the sum of One Hundred Fifty-One Million Nine Hundred Sixty-Six Thousand Fifteen Dollars and Zero Cents ($151,966,015.00) for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract with the City of San Diego, California, then the obligation herein with respect to a faithful performance shall be void; otherwise it shall remain in full force.

If the Principal shall promptly pay all persons, firms and corporations furnishing materials for or performing labor in the execution of this contract, and shall pay all amounts due under the California Unemployment Insurance Act then the obligation herein with respect to laborers and materialmen shall be void; otherwise it shall remain in full force.

The obligation herein with respect to laborers and materialmen shall inure to the benefit of all persons, firms and corporations entitled to file claims under the provisions of Article 2. Claimants, (iii) public works of improvement commencing with Civil Code Section 9100 of the Civil Code of the State of California.

Changes in the terms of the annexed contract or specifications accompanying same or referred to therein shall not affect the Surety's obligation on this bond, and the Surety hereby waives notice of same.

The Surety shall pay reasonable attorney's fees should suit be brought to enforce the provisions of this bond.

The Surety expressly agrees that the City of San Diego may reject any contractor or subcontractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Principal.

The Surety shall not utilize the Principal in completing the improvements and work specified in the Agreement in the event the City terminates the Principal for default.

PERFORMANCE BOND, LABOR AND MATERIALMEN'S BOND

CONTRACTOR
Hensel Phelps Construction Co.

By: _____

Print Name: Damian J. Buessing, Vice President

Date: February 4, 2026

HENSEL PHELPS CONSTRUCTION CO. COMPANY SEAL DELAWARE

SURETY
Travelers Casualty and Surety Company

By: _____

CASUALTY AND SURETY COMPANY HARTFORD CONN TRAVELERS

Print Name: Kelly T. Urwiller
Attorney-In-Fact

Date: February 4, 2026

2710 Gateway Oaks Drive, Suite 150N,
Sacramento, CA 95833-3505
Local Address of Surety

888-690-2882
Local Phone Number of Surety

$1,010,574.00
Premium

108362843
Bond Number

THE CITY OF SAN DIEGO

By: _____
Chief Performance & Logistics Officer

Print Name: Bethany Bezak
~~Deputy Chief Operating Officer~~

Date: 6/8/26

APPROVED AS TO FORM
Heather Ferbert, City Attorney

By: _____

Print Name: _____
Deputy City Attorney
FOR: DANA FAIRCLOTH

Date: 6/11/26

State of Colorado)
County of Weld) ss.

On this 4th day of February, 2026, before me, Nadezda Chappell, Notary Public, personally appeared **Kelly T. Urwiller,** who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to in the foregoing instrument as the Attorney-in-Fact of the Travelers Casualty and Surety Company, a corporation organized and existing under the laws of the State of Connecticut, and having its principal office or place of business at Hartford, Connecticut, and acknowledged to me that the seal affixed to the foregoing instrument is the corporate seal of the corporation, that said instrument was executed in behalf of the corporation, and that said instrument was executed in behalf of the corporation by authority of its Board of Directors and of its By-laws, and that said Attorney-in-Fact acknowledged said instrument to be the free act and deed of the corporation.

I certify under PENALTY OF PERJURY under the laws of the State of Colorado that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

NCchappell

Nadezda Chappell

NADEZDA CHAPPELL
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20184033305
MY COMMISSION EXPIRES 08/21/2026

Notary Public: Weld County, Colorado
My commission expires: August 21, 2026

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT **CIVIL CODE § 1189**

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of Orange)

On 2/5/26 before me, Audrey Krol Billingsley - Notary,
Date *Here Insert Name and Title of the Officer*

personally appeared Damian Buessing
Name(s) of Signer(s)

,

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

AUDREY KROL BILLINGSLEY
Notary Public - California
Orange County
Commission # 2543308
My Comm. Expires Jan 15, 2030

Signature Audrey Krol Billingsley
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document
Title or Type of Document: Alvarado Lab P&P Bond & Cert. of Ins.
Document Date: _____ Number of Pages: _____
Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: _____	Signer's Name: _____
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☐ Individual ☐ Attorney in Fact	☐ Individual ☐ Attorney in Fact
☐ Trustee ☐ Guardian or Conservator	☐ Trustee ☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____

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TRAVELERS

Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **Kelly T Urwiller** of **GREELEY**, **Colorado**, their true and lawful Attorney(s)-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this **21st** day of **April, 2021**.

State of Connecticut

City of Hartford ss.

By: _____
Robert L. Raney, Senior Vice President

On this the **21st** day of **April, 2021**, before me personally appeared **Robert L. Raney**, who acknowledged himself to be the Senior Vice President of each of the Companies, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of said Companies by himself as a duly authorized officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2026**

_____
Anna P. Nowik, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of each of the Companies, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes**, the undersigned, Assistant Secretary of each of the Companies, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this 4th day of February, 2026.

_____
Kevin E. Hughes, Assistant Secretary

To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney(s)-in-Fact and the details of the bond to which this Power of Attorney is attached.

ELECTRONICALLY SUBMITTED FORMS

FAILURE TO FULLY COMPLETE AND SUBMIT ANY OF THE FOLLOWING FORMS WILL DEEM YOUR PROPOSAL NON-RESPONSIVE.

PLANETBIDS WILL NOT ALLOW FOR PROPOSAL SUBMISSIONS WITHOUT THE ATTACHMENT OF THESE FORMS

The following forms are to be completed by the proposer and submitted (uploaded) electronically with the bid in PlanetBids.

A. **CONTRACTOR'S CERTIFICATION OF PENDING ACTIONS**

B. **MANDATORY DISCLOSURE OF BUSINESS INTERESTS FORM**

C. **DEBARMENT AND SUSPENSION CERTIFICATION FOR PRIME CONTRACTOR**

D. **DEBARMENT AND SUSPENSION CERTIFICATION FOR SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS**

E. **DESIGN-BUILD PROPOSAL**

F. **DESIGN-BUILDER'S GENERAL INFORMATION**

G. **EXCEL PRICE PROPOSAL SHEET**

CONTRACTOR'S CERTIFICATION OF PENDING ACTIONS

As part of its bid or proposal (Non-Price Proposal in the case of Design-Build contracts), the Bidder shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against the Bidder in a legal or administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

CHECK ONE BOX ONLY.

☐ The undersigned certifies that within the past 10 years the Bidder has NOT been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers.

☑ The undersigned certifies that within the past 10 years the Bidder has been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers. A description of the status or resolution of that complaint, including any remedial action taken and the applicable dates is as follows:

DATE OF CLAIM	LOCATION	DESCRIPTION OF CLAIM	LITIGATION (Y/N)	STATUS	RESOLUTION/REMEDIAL ACTION TAKEN
Please see the following pages.					

Contractor Name: Hensel Phelps

Certified By Damian Buessing Title Regional Vice President

Name

Signature Date 12/17/2025

USE ADDITIONAL FORMS AS NECESSARY

Question	As part of its bid or proposal (Non-Price Proposal in the case of Design-Build Contracts), the Bidder shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against the Bidder in a legal or administrative procedding alleging that Bidder discriminated its employees, subcontractors, vendors or suppliers, and a description of the status or resolution of that compliant, including any remedial action taken
Response	See Cases Below
Case	**Description**
	In January, 2025, Steven Faggella, a prospective employee that was not hired by Hensel Phelps filed a Charge of Discrimination. Mr. Faggella alleged he was not hired for a position due to his age. Hensel Phelps denies his allegations and states the only reason he was not hired was because another candidate was more qualified. In March, at mediation, parties settled under confidential terms.
	In May 23, 2024, former employee Marilyn Del Rosario filed a Charge of Discrimination alleging she was harassed due to her request to use family care and medical leave. She also alleges discrimination against her due to her disability and termination of her employment as an act of retaliation. Hensel Phelps denies her allegations and states they attempted to find reasonable accommodations for Ms. Del Rosario but were ultimately unable to accommodate the job specific restrictions placed upon her by her doctor. This case in ongoing and will continue to be monitored.
	In May 2024, former employee Fernando Gallardo filed a Charge of Discrimination alleging he was the subjected to harassment, retaliation, discipline and terminated based on his disability, marital status, national origin, religion, and sexual orientation. Hensel Phelps disputes his allegations. This case is ongoing and will continue to be monitored.
	In June 2024, former employee Jeffery Mueller filed a Charge of Discrimination alleging he was constructively discharged due to his disability. He further claims he was harassed on several occasions while on the job site. He states he was also discriminated against due to his sex. Hensel Phelps denies his allegations and states he chose to resign. This case is in the early stages and will be monitored.
	In March 2024, former employee Ashley Davila filed a Charge of Discrimination alleging she was terminated due to her disability. She alleged Hensel Phelps did not provide her her requested reasonable accommodation. Hensel Phelps disputes her allegations. In May 2024, at mediation, parties settled under confidential terms.
	In September 2023, former employee Brandon Mabuti filed a Charge of Discrimination alleging he was terminated due to his medical disability. He stated Hensel Phelps did not provide him with his reasonable accommodations and was then terminated in retaliation for making requests. Hensel Phelps disputes his allegations and reason for termination. During a January 2024 mediation, parties settled under confidential terms.

Case	Description
	In March 2023, former employee Kristan Barnard filed a Charge of Discrimination alleging she was terminated due to retaliation and due to her disability. She stated Hensel Phelps did not provide enough reasonable accommodations. Hensel Phelps disputes all of Ms. Barnard's allegations. In September 2023, at mediation, parties settled under confidential terms.
	In March of 2023, former employee Mark Schrader filed a Charge of Discrimination alleging he was terminated due to his medical disability. Mr. Schrader further alleged Hensel Phelps agreed to rehire him when more work became available but that the company never contacted him months later. Hensel Phelps denies Mr. Schrader's disability was the reason for his termination and that it was in fact due to project scheduling delays and lack of available work. Furthermore, no promise of future work was ever made to Mr. Schrader. This case is ongoing and will continue to be monitored.
	In December 2022, former employee Daniel Ducote filed a Charge of Discrimination based upon race. Hensel Phelps responded and denied Mr. Ducote's allegations. After an initial investigation the EEOS made no determinations and dismissed the charges.
	In February 2023, former employee Jeffrey Scott filed a Charge of Discrimination with the EEOC. The EEOC did not provide Hensel Phelps with a copy of the Charge so the nature of the claim is unknown. Instead, the EEOC issued Mr. Scott a Notice of Right to Sue without making any determination of the merits. Mr. Scott's time to sue under the Notice expired without any further action on his part.
	In August 2022, former employee Phillip MacKendree filed a Charge of Discrimination, alleging that he was laid off due to his age. Hensel Phelps disputes Mr. MacKendree's allegations and the parties reached a confidential settlement agreement during an October 2022 mediation.
	In July 2022, former employee Eugene Agyili filed a Charge of Discrimination alleging that his employment was terminated due to his age. Mr. Agyili requested immediate issuance of a Notice of Right to Sue. This case settled during negotiations and parties reached a confidential settlement agreement.
	In May 2022, former employee Tamara Hawes filed a complaint with the California Department of Fair Employment and Housing alleging that both Hensel Phelps and her Carpenter's Union retaliated against her for reporting acts of harassment on the jobsite. In fact, Hensel Phelps completed a thorough investigation of Ms. Hawes' report of harassment and took appropriate measures in response. The parties attended mediation in September 2022 but were unable to reach a settlement. Parties mediated again in May 2023 and arrived at a confidential settlement agreement.
	In May 2022, Hensel Phelps was notified of a Charge of Discrimination filed by former employee Benedict Ogbodiegwu. Mr. Ogbodiegwu's allegations, however, failed to make out an actionable claim of discrimination. Hensel Phelps responded and in June 2022 the EEOC dismissed the charge because it was filed too late and Mr. Ogbodiegwu's deadline for filing a lawsuit passed on September 13, 2022.

Case	Description
	In December 2021, former employee Joesha McDaughtery filed a complaint in LA County Superior Court alleging that Hensel Phelps retaliated against her for reporting severe acts of harassment perpetrated by her foreman on the jobsite. In fact, Hensel Phelps completed a thorough investigation of Ms. McDaughtery's report of harassment and took immediate measures in response. The matter had been delayed by Plaintiff's filing of a companion class action suit alleging failure to comply with California wage and hour requirements. In January 2023, parties reached a confidential settlement agreement.
	In May of 2020, former employee Kurt Fisher filed a Charge of Discrimination based on his association to a person with a disability. This matter was settled under confidential settlement terms in February of 2021.
	In May of 2020, an employee (Carlos Lechuga) of a subcontractor to Hensel Phelps filed a Charge of Discrimination alleging that his employer had discriminated against him for his refusal to violate safety rules on the project. Hensel Phelps was incorrectly listed as Mr. Lechuga's employer on the Charge. The EEOC investigated the matter and dismissed the Charge after determine that no violations had occurred.
	In April of 2020, a former employee named Justin Beck filed a Charge of Discrimination alleging that he had been reverse discriminated against based on his race. This matter was settled under confidential settlement terms in September of 2020.
	In February of 2020, former employee FawnLea Sheffield filed a Charge of Discrimination claiming she was the victim of discrimination based on multiple protected categories. Hensel Phelps investigated the claims and defended itself against the charges. The charges were later dismissed.
	In October of 2019, a former employee named Colin Gardner filed a Charge of Discrimination claiming he was discriminated against because of his race and sexual orientation. This matter was settled under confidential settlement terms in January 2020.
	In September of 2017, Mohammed Luqman filed a Charge of Discrimination. Hensel Phelps undertook a thorough investigation of the allegations in the Charge and found no evidence to support the claims. Accordingly, Hensel Phelps submitted a response refuting the allegations. The matter was referred to alternative dispute resolution where the parties settled the dispute under confidential terms in June 2018.
	In May, 2017, Reginald Hart filed a Charge of Discrimination claiming that his employment with Hensel Phelps was terminated because of his race. In fact, Mr. Hart had been served a criminal trespass warrant by the Owner of the project, preventing him from entering the jobsite and foreclosing the possibility of further employment with Hensel Phelps. The EEOC made no effort to prosecute Mr. Hart's claim and closed its file in this matter before Hensel Phelps responded or otherwise appeared.

Case	Description
	In April, 2017, Ronaldon Evans filed a Charge of Discrimination alleging that his employment was terminated due to a physical disability. Hensel Phelps' position was that Mr. Evans was terminated for failing to show up or contact work for two straight days. The parties attended mediation in May 2017 and reached a full settlement. The EEOC closed its file in this matter in June 2017.
	In January 2017, Erick Sandoval filed a Charge with the EEOC alleging racial discrimination. Hensel Phelps filed its Position Statement in February 2017, disputing Mr. Sandoval's claims and providing exculpatory evidence to support their position. Since the filing of Hensel Phelps' Position Statement, no further communications had been received from the EEOC or Mr. Sandoval, and no subsequent actions had been taken to further prosecute Mr. Sandoval's Charge.
	In September 2016, a job applicant named Yamin Acosta filed a Charge of Discrimination alleging that he was not hired as a formwork carpenter with Hensel Phelps because of a physical disability. Hensel Phelps evaluated Mr. Acosta's disability and took the position that his disability prevented him from performing the essential functions of the formwork carpenter position. His condition posed a danger to himself and others and it was not possible to make reasonable accommodations to avoid the safety risks. The Arizona Attorney General did not find evidence of discrimination and closed its file in this matter in August 2017

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
TO BE COMPLETED BY BIDDER
FAILURE TO COMPLETE AND SUBMIT AT TIME OF BID SHALL RENDER BID NON-RESPONSIVE

Names of the Principal individual owner(s)

As part of its bid or proposal (Non-Price Proposal in the case of Design-Build contracts), the Bidder shall provide to the City a list of Names of the Principal Individual owner(s) for their subcontractor/supplier/manufacturers.

Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier,** and/or **manufacturer**:

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Don Posson, SmithGroup (MEP),	VP, Corporate Director of Engineering
Armen Topakian SmithGroup (MEP)	Principal, Mechanical Engineer
Tony Panossian, SmithGroup (MEP)	Principal, Electrical Engineer

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Rachel Eckley, SmithGroup (FLS)	Fire Life Safety Engineer

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Armen Megerdoomian,WPM (Parking)	Principal - Parking Consulting
Ryan Anderson,WPM (Structural)	Principal - Structural Engineer

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Sarah Curran, PSOMAS (Civil)	Vice President, Principal

Contractor Name: Hensel Phelps Construction Co.

Certified By Damian Buessing Title Regional Vice President

Name



Date 12/17/2025

Signature

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
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Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier,** and/or **manufacturer**:

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Kyle Fiddelke, OJB (Landscape)	Partner

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Phil Trinh, A.O. Reed & Co.(Mech/Plumbing)	Vice President, Pre-Construction

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Channey Doud, Dynalectric (Electrical)	President/CEO

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Sarah Curran, PSOMAS (Civil)	Vice President, Principal

Contractor Name: Hensel Phelps Construction Co.

Certified By: Damian Buessing (Name) Title: Regional Vice President



(Signature) Date: 12/17/2025

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION
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Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier,** and/or **manufacturer**:

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Cory Murphy, ELEN Consulting (Sec/IT)	Principal & Chief Operations Officer
Anton Nathanson, ELEN Consulting (Sec/IT)	Principal & Chief Executive Officer

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Dan Math, UES (Geotech)	Area Director

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Hal Amick, Colin Gordon (Acoustic Design)	Vice President

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Gene Hale, G&C Equipment Corporation	Owner/President

Contractor Name: Hensel Phelps Construction Co.

Certified By: Damian Buessing (Name) Title: Regional Vice President



(Signature) Date: 12/17/2025

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
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Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier,** and/or **manufacturer**:

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Stefanee Kershner, ISEC, Incorporated	Regional Manager

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Michael D Williamson, PC Iron Inc, dba	President
Pacific Coast Iron	

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Neil Hamovitch, Soundproof San Diego Inc.	President

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Leo Nava, Nava Landscapes Inc.	President

Contractor Name: Hensel Phelps Construction Co.

Certified By: Damian Buessing (Name) Title: Regional Vice President



(Signature) Date: 12/17/2025

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION
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Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier,** and/or **manufacturer**:

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Boris Uralets, San Diego Sheet Metal Inc.	CFO
Alex Chertkov, San Diego Sheet Metal Inc.	Managing Partner

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
James Perez, Perez Construction Group, Inc.	President/CEO

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Alicia Vasquez, Frank and Son Paving, Inc.	President

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Tyler Wegerle, Saffa Contracting Co.	President

Contractor Name: Hensel Phelps Construction Co.

Certified By: Damian Buessing — Title: Regional Vice President

Name



Signature

Date: 12/17/2025

USE ADDITIONAL FORMS AS NECESSARY*

DEBARMENT AND SUSPENSION CERTIFICATION
SUBCONTRACTORS, SUPPLIERS AND MANUFACTURERS
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Please indicate if principal owner is serving in the capacity of **subcontractor**, **supplier,** and/or **manufacturer**:

☑ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE
Jill McCarty, A-1 Fire Protection	President

☐ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE

☐ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE

☐ SUBCONTRACTOR ☐ SUPPLIER ☐ MANUFACTURER

NAME	TITLE

Contractor Name: Hensel Phelps Construction Co.

Certified By Damian Buessing Title Regional Vice President

Name



Date 12/17/2025

Signature

USE ADDITIONAL FORMS AS NECESSARY*

PROPOSAL

DESIGN-BUILDER'S GENERAL INFORMATION

To the City of San Diego:

Pursuant to the "Request for Proposal", specifications, and requirements on file with the City Clerk, and subject to all provisions of the Charter and Ordinances of the City of San Diego and applicable laws and regulations of the United States and the State of California, the undersigned hereby proposes to furnish to the City of San Diego, complete at the prices stated herein, the items or services hereinafter mentioned. The undersigned further warrants that this proposal is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the proposal is genuine and not collusive or sham; that the proposer has not directly or indirectly induced or solicited any other proposer to put in a false or sham proposal, and has not directly or indirectly colluded, conspired, connived, or agreed with any proposer or anyone else to put in a sham proposal, or that anyone shall refrain from proposing; that the proposer has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the proposal price of the proposer or any other proposer, or to fix any overhead, profit, or cost element of the proposal price, or of that of any other proposer, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the proposal are true; and, further, that the proposer has not, directly or indirectly, submitted his or her proposal price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, proposal depository, or to any member or agent thereof to effectuate a collusive or sham proposal. The undersigned proposer(s) further warrants that proposer(s) has thoroughly examined and understands the entire Contract Documents (plans and specifications) and the Proposal Documents therefore, and that by submitting said Proposal Documents as its proposal, proposer(s) acknowledges and is bound by the entire Contract Documents, including any addenda issued thereto, as such Contract Documents incorporated by reference in the Proposal Documents.

IF A SOLE OWNER OR SOLE CONTRACTOR SIGN HERE:

(1) Name under which business is conducted _____

(2) Signature (Given and surname) of proprietor _____

(3) Place of Business (Street & Number) _____

(4) City and State _____ Zip Code _____

(5) Telephone No. _____ Facsimile No. _____

(6) Email Address _____

IF A PARTNERSHIP, SIGN HERE:

(1) Name under which business is conducted Hensel Phelps Construction Co.

(2) Name of each member of partnership, indicate character of each partner, general or special (limited):

Hensel Phelps Parent 1

Hensel Phelps Parent 2

(3) Signature (Note: Signature must be made by a general partner)



Full Name and Character of partner

Damian Buessing, Regional Vice President

(4) Place of Business (Street & Number) 9404 Genesee Ave, Suite 140

(5) City and State La Jolla, CA Zip Code 92037

(6) Telephone No. 619.717.8650 Facsimile No. N/A

(7) Email Address dbuessing@henselphelps.com

IF A CORPORATION, SIGN HERE:

(1) Name under which business is conducted _____

(2) Signature, with official title of officer authorized to sign for the corporation:

_____

(Signature)

_____

(Printed Name)

_____

(Title of Officer)

(Impress Corporate Seal Here)

(3) Incorporated under the laws of the State of _____

(4) Place of Business (Street & Number) _____

(5) City and State _____ Zip Code _____

(6) Telephone No. _____ Facsimile No. _____

(7) Email Address _____

THE FOLLOWING SECTIONS MUST BE FILLED IN BY ALL PROPOSERS:

In accordance with the "**Request for Proposal**", the proposer holds a California State Contractor's license for the following classification(s) to perform the work described in these specifications:

LICENSE CLASSIFICATION A, B

LICENSE NO. 1020262 EXPIRES 11/30/2026

DEPARTMENT OF INDUSTRIAL RELATIONS (DIR) REGISTRATION NUMBER: 1000045854

This license classification must also be shown on the front of the proposal envelope. Failure to show license classification on the proposal envelope may cause return of the proposal unopened.

TAX IDENTIFICATION NUMBER (TIN): 84-0876644

E-Mail Address: dbuessing@henselphelps.com

THIS PROPOSAL MUST BE NOTARIZED BELOW:

I certify, under penalty of perjury, that the representations made herein regarding my State Contractor's license number, classification and expiration date are true and correct.

Signature _____ Title Regional Vice President

SUBSCRIBED AND SWORN TO BEFORE ME, THIS _____ DAY OF _____.

Notary Public in and for the County of Orange, State of CA

(NOTARIAL SEAL)

See Attached Notary Form

CALIFORNIA JURAT WITH AFFIANT STATEMENT **GOVERNMENT CODE § 8202**

☐ See Attached Document (Notary to cross out lines 1–6 below)
☐ See Statement Below (Lines 1–6 to be completed only by document signer[s], *not* Notary)

Signature of Document Signer No. 1

Signature of Document Signer No. 2 (if any)

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California
County of Orange

Subscribed and sworn to (or affirmed) before me on this 5 (*Date*) day of Dec (*Month*), 2025 (*Year*)
by
(1) Damian Buessing
(and (2) _____),
Name(s) of Signer(s)

proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

AUDREY KROL BILLINGSLEY
Notary Public - California
Orange County
Commission # 2388895
My Comm. Expires Jan 15, 2026

Signature Audrey K Billingsley
Signature of Notary Public

Seal
Place Notary Seal Above

OPTIONAL

Though this section is optional, completing this information can deter alteration of the document or fraudulent reattachment of this form to an unintended document.

Description of Attached Document

Title or Type of Document: Request for Proposal Document Date: _____

Number of Pages: _____ Signer(s) Other Than Named Above: _____

©2014 National Notary Association • www.NationalNotary.org • 1-800-US NOTARY (1-800-876-6827) Item #5910

Mandatory Disclosure of Business Interests Form

BIDDER/PROPOSER INFORMATION

Legal Name		DBA	
Hensel Phelps Construction Co			
Street Address	**City**	**State**	**Zip**
9404 Genesee Ave, Suite 140		La Jolla, CA	92037
Contact Person, Title		**Phone**	**Fax**

Provide the name, identity, and precise nature of the interest* of all persons who are directly or indirectly involved** in this proposed transaction (SDMC § 21.0103).

* The precise nature of the interest includes:
- the percentage ownership interest in a party to the transaction,
- the percentage ownership interest in any firm, corporation, or partnership that will receive funds from the transaction,
- the value of any financial interest in the transaction,
- any contingent interest in the transaction and the value of such interest should the contingency be satisfied, and
- any philanthropic, scientific, artistic, or property interest in the transaction.

** Directly or indirectly involved means pursuing the transaction by:

- communicating or negotiating with City officers or employees,
- submitting or preparing applications, bids, proposals or other documents for purposes of contracting with the City, or
- directing or supervising the actions of persons engaged in the above activity.

Name	Title/Position
Damian Buessing	Regional Vice President
City and State of Residence	**Employer (if different than Bidder/Proposer)**
Silverado, CA	
Interest in the transaction	
Regional Vice President, Member of Partnership	

Name	Title/Position
City and State of Residence	**Employer (if different than Bidder/Proposer)**
Interest in the transaction	

*** Use Additional Pages if Necessary ***

Under penalty of perjury under the laws of the State of California, I certify that I am responsible for the completeness and accuracy of the responses contained herein, and that all information provided is true, full and complete to the best of my knowledge and belief. I agree to provide written notice to the Mayor or Designee within five (5) business days if, at any time, I learn that any portion of this Mandatory Disclosure of Business Interests Form requires an updated response. Failure to timely provide the Mayor or Designee with written notice is grounds for Contract termination.

Damian Buessing, Regional Vice President _____ 12/17/2025

Print Name, Title | Signature | Date

Failure to sign and submit this form with the bid/proposal shall make the bid/proposal non-responsive. In the case of an informal solicitation, the contract will not be awarded unless a signed and completed Mandatory Disclosure of Business Interests Form is submitted.

DEBARMENT AND SUSPENSION CERTIFICATION

PRIME CONTRACTOR

FAILURE TO COMPLETE AND SUBMIT AT TIME OF BID SHALL RENDER BID NON-RESPONSIVE

EFFECT OF DEBARMENT OR SUSPENSION
To promote integrity in the City's contracting processes and to protect the public interest, the City shall only enter into contracts with responsible- bidders and contractors. In accordance with San Diego Municipal Code §22.0814 (a): *Bidders* and *contractors* who have been *debarred* or *suspended* are excluded from submitting bids, submitting responses to requests for proposal or qualifications, receiving *contract* awards, executing *contracts*, participating as a *subcontractor*, employee, agent or representative of another *person* contracting with the City.

As part of its bid or proposal (Non-Price Proposal in the case of Design-Build contracts), the Bidder shall provide to the City a list of Names of the Principal Individual owner(s).

The names of all persons interested in the foregoing proposal as Principals are as follows:

NAME	TITLE
Damian Buessing	Hensel Phelps Construction Co.
Sandro Bressi	SmithGroup

IMPORTANT NOTICE: If Bidder or other interested person is a corporation, state secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Bidder or other interested person is an individual, state first and last names in full.

The Bidder, under penalty of perjury, certifies that, except as noted below, he/she or any person associated therewith in the capacity of owner, partner, director, officer, manager:

- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal, State or local agency;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal, State or local agency within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

N/A

Exceptions will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

Contractor Name: Hensel Phelps Construction Co.

Certified By: Damian Buessing (Name) Title: Regional Vice President

(Signature) Date: 12/17/2025

NOTE: Providing false information may result in criminal prosecution or administrative sanctions.

HENSEL PHELPS
Plan. Build. Manage.

SMITHGROUP

City of San Diego

ALVARADO LABORATORY IMPROVEMENTS

Request for Proposals (RFP)
RFP No. K-26-2318-DB2-3-C

December 17, 2025



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SUEZ Water Technologies & Solutions Laboratory

Aerial View of Main Entry and Landscape



Cover Letter

HENSEL PHELPS
Plan. Build. Manage.
SMITHGROUP

9404 Genesee Ave, Suite 140
La Jolla, CA 92037
619.717.8650

December 17, 2025

Juan E. Espindola, Sr. Contract Specialist
City of San Diego
via the City of San Diego's electronic bidding (eBidding) site

RE: Response to Request for Proposals for Design-Build Services for the Alvarado Laboratory Improvements, Alvarado Laboratory Improvements Trailer, RFP # K-25-2318-DB2-3-C

Dear Juan:

Hensel Phelps is proud to propose for the Alvarado Laboratory Improvements & Trailer project, bringing decades of San Diego experience and specialized expertise in mission-critical facilities and diagnostic testing laboratories. Our strong local partnerships and proven ability to deliver complex, high-performance projects position us to meet your goals with precision. Grounded in transparency, partnership, and excellence, we've earned a reputation for delivering on schedule and within budget, without compromising quality, communication, or client collaboration. Trust is earned through consistent performance, and we're ready to demonstrate that throughout every phase of this project with you. Together with SmithGroup, our long-standing design-build partner, we offer a fully integrated team with unmatched laboratory design and construction experience. This collaboration ensures seamless delivery, combining our strategic phasing, containment protocols, and stakeholder coordination with SmithGroup's innovative, sustainable design solutions—resulting in uninterrupted operations and energy performance tailored to the unique demands of your project.

The Hensel Phelps + SmithGroup team has demonstrated a history of delivering world-class projects with 178 projects completed and valued at over $5 billion in Southern California. Our Design-Build team have also delivered over 80 projects utilizing a collaborative delivery model worth over $4 billion in San Diego. This partnership has resulted in dozens of Design-Build awards and several best-in-class projects completed. Hensel Phelps, renowned for its construction excellence, and SmithGroup, a leader in architectural and engineering design, have consistently demonstrated the ability to work seamlessly as a team, providing successful and rewarding project experience for project stakeholders and everyone involved. This synergy ensures not only the timely completion of the project but also adherence to the highest standards of quality and innovation. Our combined experience makes us the ideal team for delivering a cutting-edge Water Quality Laboratory.

The Hensel Phelps + SmithGroup team brings the following key differentiators:

- Local Team, Unsurpassed Expertise. We have assembled the best and brightest San Diego architects, engineers, and builders in the industry committed for the entirety of the project's duration, from preconstruction and design phases, through construction, commissioning, and move in. Our local Design-Build team has recently constructed two innovative laboratory buildings here in SoCal, and in the process of building our third in San Diego; the $150M Life Sciences Building for San Diego State University. We are industry leaders in laboratory environments design with expertise and integrated disciplines to support a holistic and sustainable design approach and solution.
- Our experience delivering diagnostic testing laboratories, specifically water testing facilities, including ELAP certified projects, and working with public health institutions nationwide, will bring you a level of understanding and proficiency that will certainly set this team apart. Our design team has the expertise to deliver spaces with streamlined processes and technologies to support your needs well into the future.

- We are nationally recognized leaders specific to the design of sustainable laboratory environments, with nearly 20 million square feet of LEED-qualified projects completed or underway. We are integral to the International Institute for Sustainable Laboratories (I2SL) Smart Labs Toolkit to benchmark international standards and best practices. As a founding member of the USGBC, sustainability is integrated into our DNA, and we aspire to be exemplary stewards of the planet in all that we do.
- Focused, Committed Team. Each team member has a reputation and a proven track record of meeting commitments for their clients from start to completion. Our team of tenured staff is personally committed to this project, and our firms share that commitment.
- Trusted Partners. We deliver EXCELLENCE in all we do for clients by establishing transparency and trust in a collaborative environment. Repeat business represents the vast majority of our project portfolio, and we are confident that if the City of San Diego allows us to design and build this project, our performance will result in a long and successful relationship.
- Hensel Phelps + SmithGroup have a proven history of successful collaborations, particularly on laboratory projects that are ground up construction, complex renovations of existing facilities, and tenant improvements within existing structures. Leveraging this strong partnership, we are set to deliver a state-of-the-art Water Quality Lab for the City of San Diego. Our firms bring a wealth of experience, having previously completed numerous laboratories and other technically complex projects together.
- We are also deeply invested in community impact. On previous San Diego projects, we have consistently exceeded Project Labor Agreement goals, achieving 35% local hiring and partnering with over 50 SLBE/ELBE firms. Our workforce development programs have trained more than 200 local residents, creating lasting economic value and strengthening the region's skilled labor pipeline.

We are excited for this chance to offer solutions to your complex project and to create a strong and enduring relationship with the city. We look forward to collaborating with you and safely delivering a project experience that is both collaborative and successful. We welcome the opportunity to further discuss how Hensel Phelps + SmithGroup can help bring your vision for the Alvarado Laboratory Improvements project to life. Hensel Phelps + SmithGroup acknowledges the receipt of Addenda 1-9.

Sincerely,

Damian Buessing
Regional Vice President | HENSEL PHELPS

Sandro Bressi
Principal-in-Charge | SMITHGROUP

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Aerial View from the South



Company Information



DC Water Headquarters

Company Information

Legal name and address of company

Hensel Phelps Construction Co.
18850 Von Karman Ave
Irvine, CA 92612

Legal form of company (partnership, corporation, joint venture, etc.)

General Partnership

Year of establishment of entity

1937

If company is subsidiary of a parent company, identify the parent company

Hensel Phelps Parent 1 Inc.
Hensel Phelps Parent 2 Inc.

Address of main office

18850 Von Karman Ave
Irvine, CA 92612

Address of San Diego satellite office if applicable

9404 Genesee Avenue, Suite 140
La Jolla, CA 92037

Contact information for firm

Damian Buessing
Regional Vice President
dbuessing@henselphelps.com
949.584.7026

Number of employees in San Diego County

234

Applicable License(s):

City of San Diego Business License Number, including expiration date

Certificate Number: B2017001743
Expiration Date: 2/28/2026

State Contractor's License Number, including expiration date and all classifications

License Number: 1020262
Expiration Date: 11/30/2026
Classifications: B, A

Professional Engineering/Architect License Number, including expiration date

Reference SmithGroup Architect of Record.

Main Entry and Outdoor Gathering Space

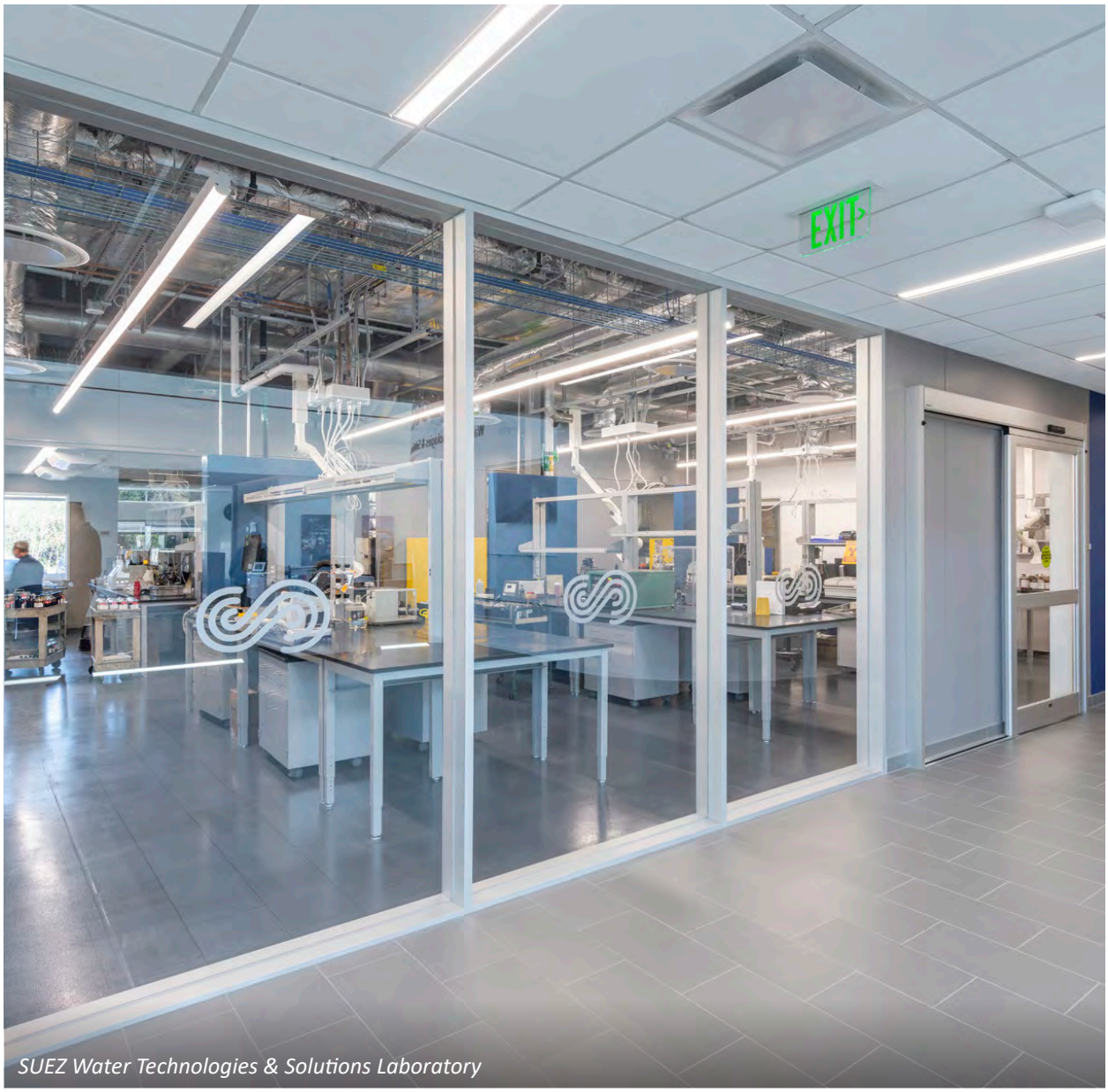


1. Proposer Exceptions to this RFP

1. Proposer Exceptions to this RFP

1.1. If the Proposer takes exception to any portion of the contract terms, the Proposer must identify and explain to the City in writing the basis for the exception. The Proposer must submit any claimed exception a minimum of 10 calendar days prior to the due date for submission of Proposals. Exceptions taken after the submission period for this RFP may be cause for rejection of the Proposal as being nonresponsive.

We acknowledge the City's requirement regarding exceptions to contract terms and confirm that we do not take any exceptions. We accept the contract terms as stated in the RFP and will comply fully with the submission requirements.



SUEZ Water Technologies & Solutions Laboratory



North Landscape and Walkway to the Main Entry

2. Summary of Proposal

2. Summary of Proposal

2.1. Each Proposer must submit a one to two page summary of its Proposal.

The Alvarado Water Quality Laboratory is a once-in-a-generation investment in how the City safeguards its drinking water. For over a century, this facility has delivered uninterrupted service to the public, and **our team's role is to ensure this legacy continues while elevating the laboratory to a world-class standard**. Our approach is built around the realities of your operation; how your staff work, how samples move, how certifications occur, and where disruption cannot happen.

OUR DESIGN APPROACH

Throughout this procurement process, we have focused on identifying design solutions that **STREAMLINE** operations, **IMPROVE** functionality, and **INSPIRE** a high-performing workplace, all while maintaining critical operations during construction. Our best-value design approach prioritizes operational continuity, safety, and long-term stewardship of City resources.

Rather than offering isolated design ideas, our **best-value approach evaluated every enhancement against the specific outcomes that matter to YOU**. This disciplined, criteria-based approach ensures that each proposed modification strengthens the project and process.

The matrix below summarizes how each of our proposed enhancements directly connects to the nine value priorities established for this project—demonstrating a clear, intentional link between design decisions and measurable benefit to the City.

			ADDED VALUE									
		PROPOSED ENHANCEMENTS	IMPROVE SCHEDULE	REDUCE COST	MAINTENANCE & OPERATION	PERFORMANCE	SAFETY	EFFICIENCY	FLEXIBILITY	WELLNESS	SUSTAINABILITY	PAGES TO FIND DETAILED INFO
BUILDING ADDITION & RENOVATION	1	Optimize Inorganics Lab		♦♦♦		♦	♦♦	♦♦♦	♦	♦♦		90,91
	2	Implement Shear Walls	♦	♦♦♦			♦	♦♦	♦			90,92
	3	Implement Flat Plate Structure	♦	♦♦	♦♦		♦	♦	♦		♦	93
	4	Optimize Office Spaces		♦		♦		♦♦	♦	♦		93,94
	5	Increase Daylight to Open Labs		♦		♦				♦♦	♦♦	93,95
	6	Minimize West/SW Exposure		♦♦		♦♦				♦	♦♦	93,97
	7	Optimize Solar Shading		♦♦		♦					♦	93,97
	8	Reduce Pile Footings	♦	♦♦			♦					98
	9	Reduced Floor to Floor	♦	♦♦♦			♦	♦♦			♦	98
	10	Cafe Repositioning	♦					♦	♦♦	♦♦		104-110
	11	Landscape Enhancement			♦	♦				♦♦	♦♦	65-69
	12	Chilled Water System	♦	♦	♦	♦♦		♦			♦♦	111,112
	13	VAV Air Handling	♦	♦	♦	♦		♦	♦♦		♦	111,112
	14	Chilled Beam Enhancement	♦		♦	♦♦		♦			♦♦	111,112

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BENEFITS OF OUR DESIGN-BUILD PROCESS

Experience: This team has unparalleled experience in delivering highly complex laboratory environments through the Design-Build deliver model with projects completed together here in Southern California that includes the Caltech Chen Neuroscience Research Building, the UC Riverside Multidisciplinary Research Building, the DGS Valencia Temporary Laboratory Buildout, and under construction is the San Diego State University Life Sciences Building.

Expertise: This team includes key members who are recognized industry thought leaders, innovating laboratory design execution to the highest levels with nationally recognized and award-winning projects completed across California and well beyond.

Delivering Certainty: In the end, this team has a proven track record of delivering design-build projects on time, on budget, and at the highest quality level possible.

Maintaining Operational Excellence: We have a proven approach to planning and sequencing work in active, highly sensitive environments, driven by direct engagement with end users, clear communication pathways, and collaborative decision-making that protects ongoing operations while construction moves forward. Our team listens, responds, and adjusts in real time, ensuring continuity, safety, and confidence throughout delivery.

COMPREHENSIVE CONSTRUCTION PLAN

Our construction plan is built around uninterrupted laboratory operations. By reshaping the phasing, we:

- Reduce internal moves,
- Limit operational overlap, and
- Maintain clean separation between inorganics and organics workflows.

This framework also **supports parallel operations during ELAP certification, minimizing downtime and accelerating turnover milestones.**

Through early structural and MEP delivery, intentional turnover points, and specialized interiors and lab teams, **we reduce schedule risk and maintain clarity, safety, and predictability throughout construction.**

EQUAL OPPORTUNITY CONTRACTING

Our team is fully committed to the City's Equal Opportunity Contracting Program and brings a long history of meeting and exceeding SLBE, ELBE, and diverse business participation goals across Southern California. Every project begins with a tailored, locality-specific outreach and inclusion strategy led by our in-house Diversity & Community Engagement team, which is spearheaded by Michelle Keyser, who works directly with community partners, trade associations, and local firms to identify meaningful opportunities at every tier. We pair early engagement with transparent communication, mentoring, and real-time tracking to ensure small, local, and disadvantaged businesses not only participate, but succeed throughout the life of the project.

Within the following detailed design and construction strategy sections, you'll notice our team remains grounded not in abstract principles, but in the daily realities of how your laboratory works: your ELAP cycles, your testing volumes, your adjacency needs, and the operational pressures your staff manage every day. Your guiding principles below formed our framework from the beginning:

- **Purpose:** Deliver Safe & Reliable Water to the City of San Diego
- **Vision:** Elevate the Laboratory to a World Class Standard and,
- **Mission:** Address Functional and Operational Challenges

Our role is to protect the continuity you have maintained for more than a century while **making the facility easier to operate, safer to navigate, and more efficient to certify.** We understand the cost of even minor disruption, the importance of clean separation between inorganics and organics functions, and the need for a construction plan that respects your team's time and workflows. Our commitment is to work with you, not around you, to ensure the new laboratory performs the way your staff expect and supports the level of service San Diego relies on - now and in the future.

Main Entry Lobby and Stair to Level 2 Offices



3. Project Team

3. Project Team

3.1. Describe the proposed management plan for this Project. Describe the qualifications of key proposed construction and technical personnel, and subcontractors, from applicable fields including the following:

Management Plan Overview

Hensel Phelps utilizes systematic and standardized controls to manage our projects. The standardization eliminates any learning curve when new members start. These controls emphasize open communication, and proactive risk management. The features of our management plan include:

- A consistent team of construction professionals dedicated from proposal through turnover.
- Proactive risk management and early problem prevention by identifying issues early from past experience, where Construction Project Manager, Stephanie Carter, Design Manager, Tim Strawbridge, and Project Superintendent, Jon Ricketts, will be invaluable.
- Integrated schedule management using advanced scheduling tools (CPM, 90-Day Look Ahead, 4-Week Rolling, SIPS) built in close collaboration with our designers, consultants, and trade partner teammates ensuring the data provided in schedules are accurate, current, and actionable.
- Outreach and solicitation to the small business community leading to meaningful participation, spearheaded by our Jobs Coordinator, Michelle Keyser.
- A zero-accident safety culture, where every trade partner is contractually obligated to adhere to project-specific safety standards.
- Leadership in commissioning, with 100% pre-functional testing of all systems.

Trade Partner Selection and Integration

Hensel Phelps' trade partner procurement process is rigorous and transparent. We prequalify trade partners based on technical qualifications, safety record, financial stability, and past performance. By issuing bid packages to pre-qualified trade partners and making awards based on best value in lieu of low cost results in guaranteed performance. Prioritizing early engagement with Concrete, Rebar, HVAC, Electrical, Plumbing, Demolition, Abatement, Moving Services, Lab Equipment and other key trade partners allows us to maximize innovation and enhance overall quality. Additionally, purchasing major scopes as early as possible provides greater cost certainty, helping maintain budget integrity and reduce financial risk. This proactive strategy supports accurate forecasting and strengthens our ability to deliver projects on time and within budget. All trade partners participate in our safety onboarding, Six-Step Quality Control Process, and collaborative planning sessions.



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Qualifications of Key Personnel and Trade Partners by Discipline

3.1.1. CIVIL

Psomas brings extensive site development experience to projects throughout California, with extensive design-build projects in Southern California. Our skilled team excels at navigating challenging site conditions through innovative engineering solutions, including comprehensive utility coordination and design, creative grading strategies, stormwater quality improvements, and consideration of phased improvements. Whether addressing hillside sites, urban infill projects, or multi-phase developments, Psomas delivers quality engineering solutions that meet client objectives while addressing site constraints and regulatory requirements.

3.1.2. HEAVY CIVIL

Psomas is highly qualified in heavy civil engineering, with a portfolio that spans industrial, transportation, and large-scale infrastructure projects. The team has successfully designed complex projects such as the Mid-City Pipeline Phase II in San Diego featuring 6,000 linear feet of 66-inch diameter welded steel pipeline, adjacent to the Alvarado Laboratory project. Our technical knowledge encompasses many aspects of large pipeline projects, from alignment selection , review of assessments and investigations, traffic control planning, utility coordination, and specialized construction methods including trenchless crossings, lining, and boring. This experience confirms Psomas can deliver innovative, sustainable solutions for projects that demand robust civil engineering, including those with specialized water or laboratory components.

Their technical engineering expertise includes the design and realignment of major utility lines—such as water, sewer, and stormwater systems—often required for both water infrastructure and lab environments. This experience ensures Psomas can deliver innovative, sustainable solutions for projects that demand robust civil engineering, including those with specialized water or laboratory components.

3.1.3. ARCHITECTURAL

SmithGroup is an award-winning, multi-national organization and a leader in architectural design and engineering, particularly for sustainable laboratory environments and water quality laboratories. SmithGroup employs research, data, advanced technologies and design thinking to help clients solve their greatest challenge. SmithGroup's San Diego office brings together a national presence and boutique design style that creates an unparalleled combination of both planning expertise and creative exploration.

3.1.4. STRUCTURAL

Walter P Moore is a nationally recognized structural engineering firm with a deep portfolio in the design of complex structures, including laboratory and research facilities, healthcare, and parking garages. Their experience in the structural design of water and lab facilities is evident by their work on the University of Texas Medical Branch Health campus and other research environments. Their portfolio includes over 750 parking facilities, numerous healthcare and research projects, and long-term partnerships with institutional clients such as the UTMB. Their approach emphasizes functional integration, durability, and adaptability, ensuring that structures meet both operational and management needs for a variety of building types.

3.1.5. MECHANICAL

A.O. Reed & Co. is a leading local mechanical trade partner with extensive experience in mechanical and plumbing systems for large-scale laboratory, research and healthcare facilities. Their portfolio includes projects such as the Kaiser Permanente Riverside Hospital Expansion and the UCSD Altman Clinical & Translational Institute, where they managed the design and installation of complex HVAC and plumbing systems. A.O. Reed's expertise covers the full spectrum of mechanical systems required for lab and water-intensive environments, including precision air control, chilled water plants, and specialized lab exhaust and filtration systems. Their team is adept at delivering high-performance mechanical solutions that support the unique requirements of water and laboratory facilities.

3.1.6. ELECTRICAL

Dynalectric is a highly regarded local electrical trade partner with a strong record in delivering electrical systems for complex projects, including healthcare, laboratory, and water-related facilities. Their experience includes large-scale installations for hospitals, research centers, and conference facilities, where they have provided power distribution, emergency systems, and specialized electrical infrastructure to support critical lab and water operations. Dynalectric's capabilities encompass the full range of electrical services required for modern lab environments, ensuring reliability, safety, and compliance with stringent technical standards.

3.1.7. VIBRATION ENGINEER

Colin Gordon Associates (CGA) provides specialized consulting services in acoustics and vibration control. Staff members include technical experts in architectural acoustics and noise control, industrial and environmental noise studies, structural dynamics and building vibration, computer modeling techniques, and dynamic measurements. The firm is recognized nationally and internationally for its work in the design of low- vibration and low-noise environments for technological buildings. CGA serves a wide variety of organizations in the tech sector, including university research laboratories, the semiconductor and optoelectronics industries, the biotech, pharma, and healthcare communities, as well as the cutting-edge areas associated with nanotechnology.

1.8. ENVIRONMENTAL

Psomas brings a full roster of in-house qualified Biologists to help any project navigate the measures and regulations associated with sensitive biological resources. Our experienced field staff and tenured project managers are adept at identifying potential constraints before they become a problem and finding reasonable and workable solutions as project construction evolves.

3.1.9. GEOTECHNICAL

UES (Universal Engineering Sciences) is a recognized geotechnical engineering firm with a broad portfolio of geotechnical investigations, foundation design, and construction materials testing for a variety of project types, including water and laboratory facilities. UES's services include site-specific soil analysis, risk mitigation strategies, and recommendations for foundation and pavement design. Their expertise ensures that projects are built on a solid geotechnical foundation, addressing challenges such as soil stability, groundwater management, and site-specific risks that are critical for water and lab environments.

3.1.10. LAB PLANNER

With nearly 20 million square feet of LEED-qualified projects completed or underway, **SmithGroup** has a robust track record in delivering diagnostic testing laboratories, water testing facilities (including ELAP-certified projects), and highly sustainable buildings such as the DC Water Headquarters and the Hydro Building at Colorado State University for Denver Water. Their experience spans municipal, county, state, and federal water environmental agencies, supporting laboratory consolidations, upgrades, and new facility planning. SmithGroup's integrated design approach leverages innovative technologies and methodologies to advance water quality testing, research, and operations, while maintaining a strong focus on regulatory compliance and environmental stewardship.

3.1.11. CERTIFIED ACCESS SPECIALIST, CASP

US Access Consultants, Inc. brings over 25 years of accessibility/CASp consulting services to the project team. USAC provides existing condition inspections, plan review services, as needed accessibility consulting, and construction inspection services for a variety of project types including amusement parks, port districts, local jurisdictions, residential communities, assisted living facilities, hotel chains, restaurant chains, airports, medical care facilities, military facilities, financial institutions, public sector facilities, commercial buildings, and retail locations. Our Principal, Corina Wilkes, was one of the first Certified Access Specialists (CASp 019) in the state of California and is recognized as an expert in the industry.

3.1.12. CHEMICAL ENGINEER

Woden exists to keep people healthy and safe through the design of amazing buildings. Our team is made up of expert professionals who are passionate about helping you achieve your vision. We utilize our extensive hazardous material safety experience across the built environment to deliver the optimal maximum allowable quantities management plan for your situation, budget and future. Our engineering focus is to enable your work, research, or building design vision through safe, validated approaches. Better compliance, better safety, less re-work.

3.1.13. INDUSTRIAL HYGIENIST Since its founding in 1965, **Terracon** has grown into a thriving, employee-owned, multidiscipline engineering consulting firm that delivers environmental, geotechnical, facilities, and materials services. It's more than 7,000 employees include engineers, scientists, architects, facilities experts, and field professionals who focus on solving engineering and technical challenges from more than 180 locations nationwide, including a local office here in San Diego. Terracon's San Diego office has successfully delivered numerous projects as the Industrial Hygiene consultant for the project including numerous construction sites/ developments across San Diego County.

3.1.14. COMMISSIONING AGENT CXA

Hensel Phelps Services Group provides end-to-end commissioning solutions for complex facilities like labs and water treatment plants. Their accredited in-house team manages the full process—from design review to warranty support—ensuring systems are compliant, efficient, and built for long-term performance. With deep expertise in life sciences, healthcare, and infrastructure, they deliver value through early coordination, quality control, and stakeholder collaboration, resulting in streamlined delivery and reduced lifecycle costs.

Summary

Hensel Phelps' management plan and team structure are designed to deliver excellence across all technical disciplines. Our personnel and trade partners are selected for their proven expertise, certifications, and commitment to quality, safety, and collaboration. This integrated approach ensures the successful delivery of complex, multi-disciplinary projects.



DC Water Headquarters



Role
Emma will lead all civil design, permitting, and site development for this project.

Education
BS, Civil Engineering
University of Alabama

Registrations
2018/CA/Professional Engineer/Civil/89681

2023/AZ/Professional Engineer/Civil/78104

Certifications
Design-Build Professional/ Design-Build Institute of America/

Envision Sustainability Professional/Institute for Sustainable Infrastructure/

Qualified SWPPP Developer/Stormwater Multiple Application and Report Tracking System/ C89681

Emma Harrison, PE, QSD, ENV SP, DBIA

Project Manager, Project Engineer

Emma brings over ten years of experience in master planning and programming, criteria, comprehensive plan development for site development grading, utilities, and demolition, specification writing, site hydrology and utility hydraulics, and construction support. Emma has worked for a variety of public agency and private clients to provide design services. Her experience with various project delivery methods, particularly design-build, and phased design packages provides a unique perspective critical to project management.

Feasibility Study for 5th Avenue Pedestrian Promenade | San Diego, CA
6 AC | Civic Urban Revitalization/Pedestrian Infrastructure

Otay Mesa Commercial Land Port of Entry | Otay Mesa, CA
40 AC | Design-Build | Federal Civic Infrastructure

San Luis Land Port of Entry | San Luis, AZ
13 AC | Design-Build | Federal Civic Infrastructure

Calexico Land Port of Entry Phase 2B | Calexico, CA
2 AC | Design-Build | Federal Civic Infrastructure

California Air Resources Board Southern California Consolidation Programming & Criteria | Riverside, CA
7 AC | Design-Build | Civic/Zero-Net Energy Campus



5th Avenue Pedestrian Promenade (© MIG)



Otay Mesa Land Port of Entry (© Gruen Associates)



Role
Marc will oversee the technical execution of the condition assessment and rehabilitation design of the 72-inch water line.

Education
BS, Civil Engineering
California State Polytechnic University, Pomona

Registrations
1976/CA/Professional Engineer/Civil/26441

Certifications
Board Certified Environmental Engineer/ American Academy of Environmental Engineers and Scientists/09-20022

Marc Weinberger, PE, BCEE

Senior Project Manager

Marc Weinberger is a seasoned project manager with 42 years of engineering experience specializing in the planning and design of water and wastewater infrastructure for public agencies. He has led multidisciplinary teams on projects ranging from small-scale upgrades to large, complex developments. Marc's experience includes the design of pipelines, pumping facilities, lift stations, pressure-reducing stations, and rehabilitation of water and recycled water mains. Known for his ability to mentor staff and manage multiple concurrent projects, Marc promotes technically sound, cost-effective solutions that meet regulatory standards and client expectations.

Mid City Pipeline, Phase II | San Diego, CA
6,000 SF | Design-Bid-Build | Water Infrastructure

Tecolote Canyon Trunk Sewer Improvements | San Diego, CA
3.3 Miles | Design-Bid-Build | Wastewater Infrastructure

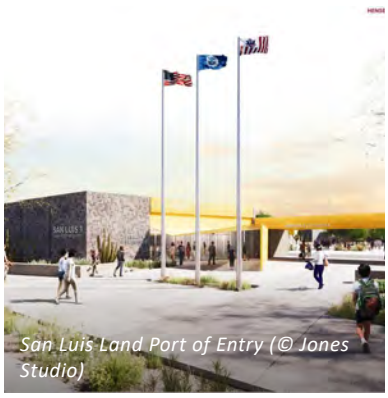
San Luis Land Port of Entry | San Luis, AZ
13 AC | Design-Build | Federal Civic Infrastructure

College Area Sewer Design Construction Support | San Diego, CA
6.5 AC | Design-Bid-Build | Wastewater Infrastructure

Parker Pump Station Rehabilitation | Coronado, CA
39,200 SF | Design-Bid-Build | Water Infrastructure



Tecolote Canyon Trunk Sewer Improvements



San Luis Land Port of Entry (© Jones Studio)



Role
Sandro will provide overall project leadership for the design team and consultants. He will ensure that SmithGroup abides by its commitment to allocate resources and meet the Alvarado Laboratory project goals.

Education
AAS, Mechanical Engineering Technology, University of New York

Sandro Bressi

Principal-In-Charge

Sandro Bressi has over 40 years of planning, engineering and management experience in the AEC industry with over 30 years dedicated to the design of highly complex research facilities. As the Southern California, Science + Technology Studio Leader for SmithGroup, he is responsible for leading multi-disciplinary teams to deliver projects from programming through construction documents, and to the commissioning of systems and project close out.

DGS Valencia Temporary Laboratory Buildout Emergency Testing Facility | Valencia, CA

134,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

150,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

County of San Diego, Crime Laboratory | San Diego, CA

158,000 SF | Design-Build | Forensic Laboratory | Laboratories | Administrative Space | LEED Gold

San Diego State University, Life Sciences Building | San Diego, CA

67,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories | Teaching Laboratories



DGS Valencia Temporary Laboratory Buildout Emergency Testing Facility



County of San Diego, Crime Laboratory



Role
Gabriel will serve as the point contact for SmithGroup throughout the entire project. He and is responsible for implementing the design schedule and workplan and coordinating design team and consultant efforts.

Education
M Architecture, University of California, Los Angeles

BA Architecture, University of California, Berkeley

Registrations
Registered Architect: CA (C28842)

AIA

LEED AP

CDT

Gabriel Cervantes, AIA, CDT, LEED AP

Design Project Manager

As a Project Manager with over 30 years of experience, Gabriel understands the complexities and challenges that arise with higher education projects with many stakeholders. Gabriel excels at establishing and maintaining effective relationships, and understanding the project goals towards achieving design excellence, high functionality, and cost effectiveness. Gabriel has extensive professional experience covering all project phases with an emphasis on higher education and research institution projects.

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

150,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

University of California, Riverside, Multidisciplinary Research Building 1 | Riverside, CA

180,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

DGS Valencia Temporary Laboratory Buildout Emergency Testing Facility | Valencia, CA

134,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

County of San Diego, Crime Laboratory | San Diego, CA

158,000 SF | Design-Build | Forensic Laboratory | Laboratories | Administrative Space | LEED Gold



California Institute of Technology, Chen Neuroscience Research Building



University of California, Riverside, Multidisciplinary Research Building 1



Role
Francisco will lead the design effort for the Alvarado Water Laboratory. Working with The City of San Diego and the rest of the Design-Build team, he will develop a design and program that will meet the city's needs.

Education
B Professional Architecture, Kent State University, Ohio

KSU Overseas Study Program, Florence, Italy and Vico Morcote, Switzerland

Registrations
Registered Architect: CA (C41130)

Registered Architect: UT (4778681-0301)

AIA

Francisco Owens, AIA

S+T Studio Design Leader

Francisco Owens has over 29 years of experience and has designed a number of complex institutional, academic, and research projects, including master planning, throughout the United States. He addresses the buildings' contexts from an urban and regional perspective, understanding that they require sensitivity to the climate and always produces the most environmentally sustainable solution. In this way, Francisco believes your project will evolve to become its own unique architectural solution.

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

150,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

University of California, Riverside, Multidisciplinary Research Building 1 | Riverside, CA

180,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

San Diego State University, Life Sciences Building | San Diego, CA

67,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories | Teaching Laboratories

County of Los Angeles, Rancho Los Amigos National Rehabilitation Center | Downey, CA

209,000 SF | Design-Build | Recovery & Rehabilitation Center | LEED Silver



University of California, Riverside, Multidisciplinary Research Building 1



County of Los Angeles, Rancho Los Amigos National Rehabilitation Center



Role
Mark will oversee the architectural aspects of the development of the design and the production of the construction documents and specifications, while coordinating those efforts with the Design-Build team.

Education
Professional Degree, Southern California Institute of Architecture

Registrations
Registered Architect: CA (C38440)

AIA

DBIA

NCARB

Mark Zajdzinski, AIA, DBIA, NCARB

Senior Project Architect / Architect of Record

Mark brings 19 years of experience to the team and has an array of project experience. His passion for architecture comes from the impact structure and form have on a community. The ability for buildings to connect to the users and contribute to the overall health of it's inhabitants. He is an active member in collaborative team efforts having worked on several Design-Build projects. Mark truly enjoys the tangibleness of taking a project from start to completion.

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

150,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

County of San Diego, Crime Laboratory | San Diego, CA

158,000 SF | Design-Build | Forensic Laboratory | Laboratories | Administrative Space | LEED Gold

University of Southern California Health, Sciences Campus Discovery and Translational Hub | Los Angeles, CA

220,000 SF | Research Building and Laboratories | LEED Platinum (target)

County of Los Angeles, Rancho Los Amigos National Rehabilitation Center | Downey, CA

209,000 SF | Design-Build | Recovery & Rehabilitation Center | LEED Silver



California Institute of Technology, Chen Neuroscience Research Building



County of San Diego, Crime Laboratory



Role
Jitendra will work with Mark to oversee the architectural aspects of the development of the design and the production of the construction documents and specifications.

Education
M Architecture, Staedelschule Architecture Class

B Architecture, L.S. Raheja, School of Architecture

Registrations
AIA Associate

LEED Green Associate

Jitendra Sawant, AIA Assoc., LEED GA

Project Architect

Jitendra is a Project Architect specializing in the design and delivery of cutting-edge science and technology buildings. With over 7 years of experience, Jit has proven expertise in leading complex, large-scale projects with multidisciplinary teams and projects in diverse geographical locations. Throughout his career, he has consistently delivered exceptional results, meeting the highest standards of quality, functionality, and client satisfaction.

San Diego State University, Life Sciences Building | San Diego, CA

67,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories | Teaching Laboratories

Edwards Lifesciences, Building E Laboratory Fit-Out | Irvine, CA

40,000 SF | Laboratories | Administrative Space

University of Southern California Health, Sciences Campus Discovery and Translational Hub | Los Angeles, CA

220,000 SF | Research Building and Laboratories | LEED Platinum (target)

University of California Davis Health System, Replacement Hospital Tower | Sacramento, CA

901,000 SF | Design-Build | Hospital Tower Expansion | LEED Gold (target)



University of Southern California Health, Sciences Campus Discovery and Translational Hub



University of California Davis Health System, Replacement Hospital Tower



Role
Tyler will be responsible for the analysis of structural systems within the building.

Education
BS, Structural Engineering
University of California, San Diego

Registrations
Licensed Structural Engineer
California 6548

Licensed Professional Engineer
California 81923

Tyler McCullough, PE, SE

Structural Engineer of Record

Tyler is a San Diego native who earned his engineering degree at UCSD and has invested his entire career in the city. He brings technical strength in structural engineering with specialized expertise in seismic design and retrofitting for laboratory functions. Tyler's approach combines rigorous technical standards with practical constructability, ensuring upgrades not only meet code but also enhance long-term performance. By aligning engineering solutions with demanding schedules and project interests, Tyler consistently delivers results that balance safety, function, and efficiency.

Confidential Member Center | San Diego, CA
105,000 SF | Design-Bid-Build | Multi-Use Facility

Moda - Life Science Campus | San Diego, CA*
210,000 SF | Design-Bid-Build | Five building campus, Science & Tech, Office, Seismic Retrofit

IQHQ - Research and Development District (RaDD) | San Diego, CA*
1,700,000 SF | Design-Bid-Build |Science & Tech, Office

5330 Morehouse - Life Science Tower | San Diego, CA*
~330,000 SF | Design-Bid-Build |Science & Tech, Office

Zoetis Lab Lateral Flow TI | San Diego, CA
25,000 SF | Design-Bid-Build | Lab/Research Facility

*Prior Experience


Confidential Member Center


Confidential Member Center



Role
Armen will lead our team of Parking Consultants to achieve a parking solution that complements the Client's and Design Team's vision for the development. He has completed multiple parking structure projects utilizing Design-Build.

Education
B Architecture, California State Polytechnic University, Pomona

Registrations
Nevada 9572

National Parking Association Parking Consultants Council

Armen Megerdoomian, NCARB

Parking Consultant

Armen has extensive parking experience, working with clients to perform master planning, functional design, design development, feasibility studies and field observations. Always interested in business development initiatives including international client relations and strategic partnership development.

Bioterra Life Sciences Campus Parking Consultation | San Diego, California

250,000 SF | Design-Bid-Build | Lab and Office building with integrated parking

University of California San Diego Theatre District Living and Learning Neighborhood | San Diego, California

1,500,000 SF | Design-Build | Higher education dormitory and classroom space with integrated parking

Entrada High-rise Creative Office Parking Structure | Culver City, California

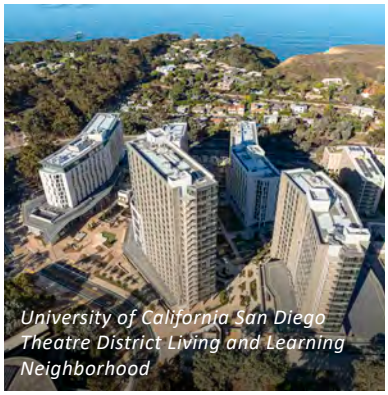
300,000 SF | Design-Bid-Build | six levels of office space with two levels of below-grade parking, five levels of above-grade parking

3401 S La Cienega Parking Consultation | Los Angeles, California

454,000 SF | Design-Bid-Build | Mixed-use, multi-family residential units, retail, creative space, and offices



Bioterra Life Sciences Campus Parking Consultation



University of California San Diego Theatre District Living and Learning Neighborhood



Role
Don will work alongside our Mechanical Trade Partner, AO Reed, to manage the mechanical engineering scope.

Education
BS, Architectural Engineering, Kansas State University

Registrations
Registered Engineer: CA (41075), AZ, CO, CT, DE, DC, IL, MD, MA, MO, NC, PA, VA, WA, WI, WV

LEED AP

CPD

CCP

GGP

Don Posson, PE, CCP, CPD, LEED AP, GGP

Mechanical Engineer of Record

Don has more than 30 years of experience in the field of mechanical engineering and has led the development of a wide variety of large and small-scale projects. Don is an inspirational leader in the design of high performance environments for mixed-use, workplace, higher education, science and technology, and cultural facilities and serves as the codirectorof sustainable design at SmithGroup.

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

150,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

County of San Diego, Crime Laboratory | San Diego, CA

158,000 SF | Design-Build | Forensic Laboratory | Laboratories | Administrative Space | LEED Gold

DC Water New Headquarters | Washington, DC

150,000 SF | Research Building and Laboratories | Office Space

DGS Valencia Temporary Laboratory Buildout Emergency Testing Facility | Valencia, CA

134,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories



California Institute of Technology, Chen Neuroscience Research Building



County of San Diego, Crime Laboratory

MECHANICAL



Role
Throughout the design phase, Phil will work closely with the project team to ensure the design intent, budget, and system performance align with the client's goals. He will also contribute value engineering solutions and conduct constructability reviews to help optimize the overall design.

Education
BS, Mechanical Engineering
California State Polytechnic University, Pomona

Registrations
CA/DBIA

Registered Professional Engineer in California and Hawaii

Phil Trinh, PE, DBIA

Mechanical/Plumbing Trade Partner

Phil has 37 years of experience in the mechanical engineering and contracting fields. Phil came on board at A.O. Reed in 2010. As the Vice President of Design, he will be managing the project's design to ensure the project meets the design intent, budget, and schedule.

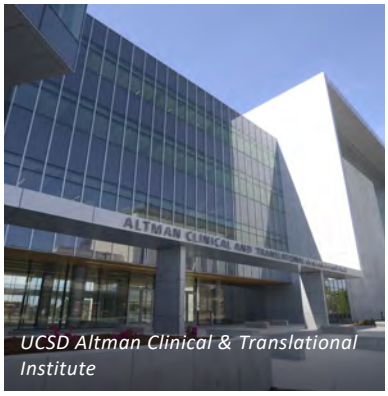
Gemdale USA, Neurocrine Aperture | San Diego, CA
535,000 sf | Design-Assist | Life Science

Regents of the University of California, UCSD Altman Clinical & Translational Institute | San Diego, CA
354,000 sf | Design-Assist | Wet and Dry Research Laboratories | Vivarium | Clinical Research Areas | Conference Halls | Office Space

BioLegend | San Diego, CA
129,000 sf | 7-level Parking Structure | Design-Assist | Laboratories | Office Space

San Diego State University, Life Sciences Building | San Diego, CA
80,000 sf | Design-Build | Research and Instructional Laboratories | Office Space | Collaboration Space


BioLegend


UCSD Altman Clinical & Translational Institute



Tony Panossian, PE, LEED AP BD+C

Electrical Engineer of Record

With more than 25 years of experience as an electrical engineer, Tony has an extensive history of working with electrical systems for a wide variety of projects, including medium voltage power systems, multi-megawatt engine generators and uninterruptible power supply systems.

Role
Tony will work alongside our Electrical Trade Partner, Dynalectric, to manage the electrical engineering scope.

Education
BS, Electrical Engineering
California Polytechnic State University, Pomona

Registrations
Registered Engineer: CA (E15178)

LEED AP BD+C

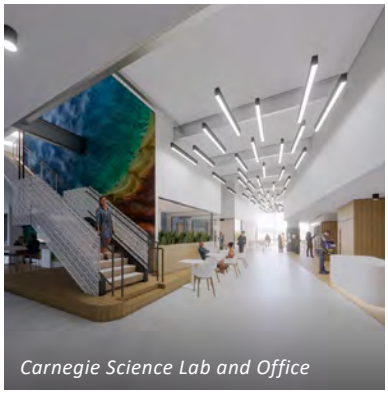
Carnegie Science Lab and Office | Pasadena, CA
51,968 SF | CM At Risk | Tenant Improvement | Research Laboratories | Office Space | Support Space

California State University, Chico, Human ID Lab | Chico, CA
33,000 SF | Design-Build | Research Laboratories | Instructional Laboratories | Classrooms | Collaborative Spaces | Department Offices

Las Positas College, STEAM Building | Livermore, CA
72,000 SF | Design-Bid-Build | Instructional Laboratories | Classrooms | Computer Laboratories | Meeting Space | Faculty Offices | Media Program Space | Amphitheater

University of California, Merced, Science & Engineering Building* | Merced, CA
165,000 SF | Instructional Laboratories | Classrooms | Office Space

*Prior Experience


Carnegie Science Lab and Office


California State University, Chico, Human ID Lab

ELECTRICAL

Dynalectric San Diego



Role
John Price will serve as the primary point of contact and will work closely with the construction and Design-Build teams to attain project requirements while maintaining the project budget.

Education
AA, Newcastle Poly Tech

Registrations
C10 Electrical Contractors License

California State Certified Electrician

LEED AP

John Price, LEED AP

Electrical Trade Partner

John Price has 35 years in the industry and over 24 years of experience as a project manager. John will be the lead project executive, overseeing subcontracts, major procurements, job costs, and scheduling. He is the primary contact for the project, ensuring clear objectives, cost management, and effective resolution of construction challenges.

San Diego State University, Engineering Interdisciplinary Sciences Building | San Diego, CA

85,000 SF | Hard-Bid | Research and Instructional Laboratories | Classrooms | Open Workspaces

Southwestern College Math, Science, & Engineering Building | Chula Vista, CA

132,000 SF | Hard-Bid | Instructional Laboratories | Classrooms | Lecture Halls | Open Study Space | Computer Laboratories

Illumina I3 Tenant Improvements | San Diego, CA

223,727 SF | Design-Assist | Research Laboratories | Courtyard | Restaurant / Cafe | Fitness Center | Underground Parking



San Diego State University, Engineering Interdisciplinary Sciences Building



Southwestern College Math, Science, & Engineering Building

ELECTRICAL

Dynalectric San Diego



Role
Matt is the Preconstruction Manager who will collaborate with customers and internal teams to guide this project from concept through design development.

Registrations
IBEW/NECA Joint Apprenticeship

NECA OSHA Training

Matt Russell

Electrical Trade Partner

With over 20 years in the electrical industry, including more than 15 years at Dynalectric, Matt Russell leads as the Preconstruction Manager. He oversees project teams, construction documentation, and budget management, ensuring alignment across all phases of preconstruction. Matt works closely with general foremen, the VDC department, and customers to facilitate a seamless transition from planning to construction.

San Diego State University, Life Sciences Building | San Diego, CA

67,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories | Teaching Laboratories

University of California, San Diego, Biomedical Research Facility | San Diego, CA

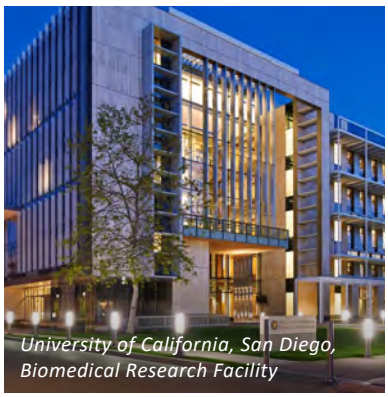
145,000 SF | Design-Assist | Research Laboratories | Meeting Rooms | Support Space | Office Space | Basement

Millipore Sigma | Carlsbad, CA

140,000 SF | Design-Build | Research Laboratories | Administrative Offices | Conference Rooms | Utility Yard

Ionis Lot 21 & 22 | Carlsbad, CA

165,000 SF | Design-Assist | Research Laboratories | Conference Center | Office Space | Parking Structure



University of California, San Diego, Biomedical Research Facility



Millapore Sigma

VIBRATION ENGINEER



Role
Steven will be the vibration and acoustical consultant. He will work with the team to provide suitable vibration control, noise control, and acoustical performance.

Education
BS, Mechanical Engineering
University of Virginia

Steven Lank, LEED AP

Acoustics and Vibration

Steven will be the vibration and acoustical consultant. He will work with the team to provide suitable vibration control, noise control, and acoustical performance. He has worked on hundreds of projects in the advanced technology industry, including those involving the latest generation of highly sensitive tools.

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

150,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

County of San Diego, Crime Laboratory | San Diego, CA

158,000 SF | Design-Build | Forensic Laboratory | Laboratories | Administrative Space | LEED Gold

California Air Resources Board, Southern California Headquarters | Riverside, CA

408,175 SF | Design-Build | Government Labs, Research, Emissions Testing

San Francisco Forensic, Science Lab Building | San Francisco, CA

100,000 SF | Design-Build | Government Forensics Lab



San Francisco Forensic, Science Lab Building



California Institute of Technology, Chen Neuroscience Research Building



Role
Alia will provide consultation related to CEQA and manage/ prepare required CEQA document.

Education
M Urban and Regional Planning, University of California, Irvine

BA, Development Studies, University of California, Los Angeles

Certifications
American Institute of Certified Planners (112796)

American Planning Association (112796)

Professional Affiliations
American Planning Association

Association of Environmental Professionals

Alia Hokuki, AICP

Senior Project Manager

Alia Hokuki serves as a senior project manager of environmental planning projects. She has over 30 years of experience in the environmental and policy planning field with a focus on environmental impact assessments for public and private sector clients. Alia's expertise include the preparation and management of environmental compliance documents pursuant to the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). She has managed a variety of projects, including infrastructure and land use (residential and non-residential).

Big Tujunga Reservoir Restoration Project EIR | Los Angeles County, CA

74 AC | Design-Bid-Build | Water Infrastructure

Corporate Yard Project Addendum to IS/MND | Claremont, CA

4 AC | Design-Bid-Build | Wastewater Infrastructure

Mayberry Parker Bridge Access Improvements IS/MND | Pasadena, CA

.61 AC | Planning Study | Public Recreational Infrastructure

Annandale Canyon Open Space Trail Access Improvements IS/MND | Pasadena, CA

.25 AC | Design-Bid-Build | Public Recreational Infrastructure

Glenarm BESS Project IS/MND | Pasadena, CA

.59 AC | Design-Build-Own-Operate | Renewable Energy Development

Queen of the Valley Hospital Specific Plan EIR | West Covina, CA

28.8 AC | Design-Bid-Build | Healthcare



Role
Steve will oversee and implement all biological monitoring activities for the project, verifying compliance with regulatory requirements and the project's environmental commitments.

Education
BS, Environmental Biology and Management
University of California, Davis

Certifications
Individual Specific Use Scientific Collecting Permits/S-190360012-19351-001/California Department of Fish and Wildlife/S-190360012-19351-001

Authorized Individual for Psomas Entity Scientific Collecting Permit for Raptor Species/California Department of Fish and Wildlife/SC ID-190240002-19040-001

Steve Norton

Senior Biologist

Steve Norton, Senior Project Manager and Biologist, brings 20+ years of experience in California wildlife and ecological studies. He specializes in CEQA/NEPA documentation, permitting, mitigation planning, and compliance during construction. His project management spans public and private sectors, including transportation, infrastructure, and utility projects. Steve has conducted protocol-level surveys for species such as burrowing owl, spotted owl, desert tortoise, and red-legged frog, and managed relocations for spadefoot, kit fox, and bats. He also installs artificial roosts for burrowing owls.

Sewer Group 835 Rehabilitation and Replacement | San Diego, CA

230 LF | Design-Bid-Build | Wastewater Infrastructure

Santa Anita Spillway Modification | Arcadia, CA

23 AC | Design-Bid-Build | Water Infrastructure

Camarillo Springs Golf Course Redevelopment | Camarillo, CA

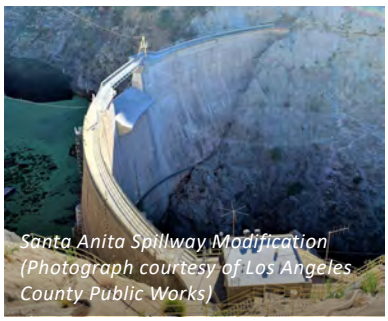
32 AC | Feasibility Study and Entitlement Process | Mixed-Use Redevelopment

Colton Community Soccer Park Initial Study and Mitigated Negative Declaration | Colton, CA

45 AC | Feasibility Study and Planning | Public Recreational Infrastructure

Desert Breeze Solar Project | San Bernardino County, CA

923 AC | Permitting | Renewable Energy Development



Santa Anita Spillway Modification (Photograph courtesy of Los Angeles County Public Works)



Colton Community Soccer Park



Dan Math, PE, GE

Geotechnical Engineer

Dan has over two decades of experience in civil, geotechnical, and materials engineering design, evaluation, and inspection and has an extensive background in construction quality control/assurance management.

Role
Dan will be Principal Geotechnical Engineer and is responsible for the overall technical supervision of the professional staff and technical staff in the region.

Education
BS, Civil and Environmental Engineering
San Diego State University

Registrations
Professional Geotechnical Engineer: CA No. 2665

Professional Civil Engineer: CA No. 61013

Gaylord Resort & Convention Center | Chula Vista, CA
2 Million SF |Design-Build | Resort & Convention

Ballpark Village | San Diego, CA
Seven-acres | Design-Build | Multi-Use

Mission Viejo Fire Station No. 24 | Mission Viejo, CA
14,455 SF | Design-Build | Civic (Fire Station)

Palomar CC, Escondido Center HVAC Lab | San Marcos, CA
14,455 SF | Design-Bid-Build | Fire Station

Southwestern CCD Instructional Complex | Chula Vista, CA
113,000 SF | CM at Risk | Education

Willow Elementary School Campus | San Diego, CA
85,000 SF | Design-Build | Education


Gaylord Resort & Convention Center


Ballpark Village

LAB PLANNER

SMITHGROUP



Role
Alex will lead the documentation of laboratory systems and develop space programs and physical plans at a variety of scales.

Education
B Architecture
New School of Architecture & Design

Assoc Architecture, Vatterott College

Registrations
AALAS

ABSA

I2SL

SCUP

Alex Munoz, AALAS, ABSA, I2SL, SCUP

Senior Laboratory Planner

Alex has over 20 years of experience and has worked on some of the most innovative research buildings around the world. He brings an extensive resume of lab planning experience for R&D, Engineering, Biomedical, Chemistry, Physics, Teaching, Containment and Vivarium spaces. Alex's diverse skill set offers our clients an opportunity to take advantage of his ability to blend an organization's cultural identity with environmental and quality of life concerns.

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

150,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

Edwards Lifesciences, Building B Laboratory Fit-Out | Irvine, CA

32,000 SF | Research Building and Laboratories

DGS Valencia Temporary Laboratory Buildout Emergency Testing Facility | Valencia, CA

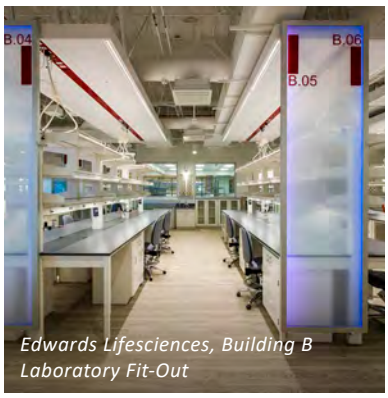
134,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories

San Diego State University, Life Sciences Building | San Diego, CA

67,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories | Teaching Laboratories



California Institute of Technology, Chen Neuroscience Research Building



Edwards Lifesciences, Building B Laboratory Fit-Out

CERTIFIED ACCESS SPECIALIST



Role
Corina will perform plan reviews, conducts training sessions on accessibility, provides accessibility consulting services, and lead code reviews and accessibility compliance surveys with specific attention to the Americans with Disabilities Act Accessibility Guidelines, American National Standards Institute, International Building Code, Fair Housing Act, and California Chapter 11A/11B code compliance.

Education
BA, Communication
University of California, San Diego

Registrations
CASp 019
RAS 1233

Corina Wilkes, CASp, RAS

Certified Access Specialist

Corina has over 24 years of experience in the architecture, engineering, and construction industry, practicing exclusively in accessibility. She specializes in plan reviews, surveys, transition plans, training sessions, and consulting services. She is the leader of the accessibility team and handles the organization and management of all barrier removal and corrective action plans.

San Diego State University, Life Sciences Building | San Diego, CA

67,000 SF | Design-Build with Hensel Phelps | Research Building and Laboratories | Teaching Laboratories

Genentech | San Francisco, CA

Campus survey all the exterior routes from the public right of way to the entrance(s) of each building, including accessible parking

University of California, San Diego | San Diego, CA

Exterior transition plan to identify/remediate campus barriers

University of California, Los Angeles | Los Angeles, CA

1,000 – 1,000,000 SF | On-call/as-needed accessibility plan review consultant

San Diego Central Courthouse | San Diego, CA

Identified and remediated accessibility barriers found when seeking occupancy from the City of San Diego



San Diego State University, Life Sciences Building



University of California, San Diego

CHEMICAL ENGINEER



Andrew J. Thul, PE

Principal

Andy Thul is a Life Safety Consultant with over 15 years of experience exclusively allocated to building code consulting, fire protection, life safety and hazardous materials consulting. He has an in-depth understanding of application and interpretation of Building and Fire Codes, Performance Based Design and Fire Protection and Alarm System Design. Andy has been recognized for his expertise and included in multiple working groups by the NFPA, the California State Fire Marshal's Office and the City of Los Angeles.

California Department of General Services (DGS), Turlock North Valley Lab Replacement | Turlock, CA

40,000 SF | Design-Build | Government + Academic Laboratory

California Air Resources Board, Southern California Headquarters* | Riverside, CA

380,000 SF | Design-Build | Government Laboratory

California Institute of Technology, Resnick Sustainability Resource Center | Pasadena, CA

80,000 SF | Design-Build | Academic Laboratory

Bristol Myers Squibb at Campus Point (Renovation)* | San Diego, CA

15,000 SF | Design-Bid-Build | Private Laboratory

Role

As the Hazardous Materials Consultant, Andrew will work with the project team and the authority having jurisdiction (AHJ) to develop a hazardous materials inventory statement and a hazardous materials management plan in compliance with the California Fire Code (CFC).

Education

BS, Mechanical Engineering, University of Colorado at Boulder

Graduate Certificate in Fire Protection Engineering, Worcester Polytechnic Institute

Registrations

Licensed Fire Protection Engineer: CA (FPE #1782), AK, AZ, CO, WA, ID, TX, NY, NE, NC, KY

*Prior Experience



California Air Resources Board, Southern California Headquarters



California Institute of Technology, Resnick Sustainability Resource Center

INDUSTRIAL HYGIENIST



Role
Danish will monitor noise and dust during construction to protect lab staff. Additionally, he will help support hazard identification and regulatory compliance, and conducts. Danish will conduct biweekly site visits, provide air quality monitoring services, and conduct asbestos/lead clearances, as needed.

Education
BS, Environmental Systems, Chemistry, University of California, San Diego

Registrations
CIH #11982
CSP #11982
CAC #18-6175

Danish Mansoor, CIH, CSP, CAC

Certified Industrial Hygienist

Danish Mansoor has over 14 years of experience managing industrial hygiene and asbestos projects for many types of entities, including, but not limited to, government, commercial, retail, and medical facilities. He is well versed in all asbestos, lead paint, and all other OSHA/Industrial Hygiene regulations. Danish also has experience working as an environmental, health, and safety professional, performing safety training, managing hazardous waste, and providing safety support to staff in industrial and manufacturing facilities.

Naval Air Station Coronado, Building 464 and 465, Industrial Hygiene Assessment | San Diego, CA

Los Angeles Effluent Tunnel, Industrial Hygiene Assessment | Los Angeles, CA

Albertsons Manufacturing Plants, Industrial Hygiene Assessment | 18 Sites Nationwide

Confidential Federal Client, Lead Remediation and Clean-Up Services | San Diego, CA

General Services Administration (GSA), Water Testing Services | Nationwide Sites



Los Angeles Effluent Tunnel, Industrial Hygiene Assessment



Confidential Federal Client, Lead Remediation and Clean-Up Services

COMMISSIONING AGENT

HENSEL PHELPS
Plan. Build. Manage.



Role
Alan will ensure that all lab systems are properly designed, installed, and tested to meet The City of San Diego's requirements and regulatory standards. He will also resolve issues, document performance, and train staff to deliver a safe, efficient, and fully operational facility.

Registrations
Professional Engineer: GA, TX

Building Commissioning Professional Certification

Alan Miller, PE, BCxP

Commissioning Agent

As Commissioning Manager, Alan oversees and coordinates field operations for Hensel Phelps Services employees and trade partners. His comprehensive knowledge of production, procurement, equipment logistics and scheduling make him a full-spectrum manager with an eye for both strategy and execution. A proven leader, he sets the tone for team collaboration through professionalism, initiative and accountability. He builds strong, respectful relationships with colleagues, clients and contractors, and brings excellent organizational, problem-solving and communication skills to every project. In addition, Alan brings deep familiarity with building codes, permitting and regulatory processes, ensuring efficient day-to-day site administration and exceptional project performance.

University of California, Irvine, Health Medical Center-Irvine | Irvine, CA

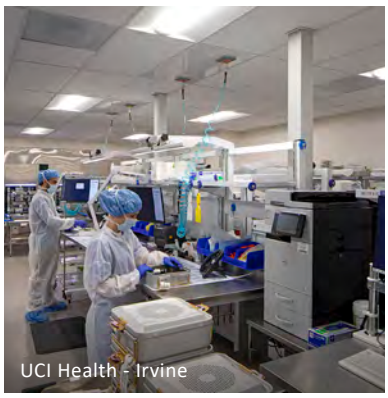
1,085,000 SF | Progressive Design-Build | Healthcare | LEED Platinum Targeted

Lockheed Martin Valley Forge Space Host Building| King of Prussia, PA

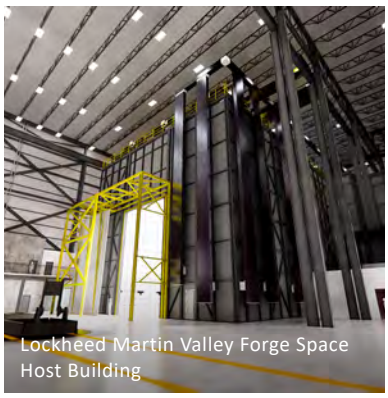
54,000 SF | Design-Build | Research/Laboratories

Surgery, Radiology, And Laboratory Medicine (SRLM) Building, National Institutes Of Health (NIH) | Bethesda, MD

170,000 SF | Design-Build | Research/Laboratories



UCI Health - Irvine



Lockheed Martin Valley Forge Space Host Building

PROJECT EXECUTIVE

HENSEL PHELPS
Plan. Build. Manage.



Role
Brian will oversee project execution to ensure timely, on-budget delivery through effective staff management, cost control, strategic planning, and stakeholder coordination.

Education
BS, Construction Science & Management
Kansas State University

Brian Maximuk, DBIA

Operations Manager

Brian is an experienced Operations Manager with over a decade of success leading construction projects exceeding $100 million in healthcare and federal sectors. He has managed all aspects of project delivery, including staffing, safety, scheduling, and cost control, on high-profile projects achieving LEED and NetZero certifications. Known for strategic planning and stakeholder engagement, Brian consistently delivers complex projects on time and within budget while maintaining operational continuity.

University of California, Irvine, Health Medical Center-Irvine | Irvine, CA

1,085,000 SF | Progressive Design-Build | Healthcare | LEED Platinum Targeted

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA

144,780 SF | Progressive Design-Build | Higher Education | LEED Gold

San Ysidro U.S. Land Port of Entry, Phase 2 | San Ysidro, CA

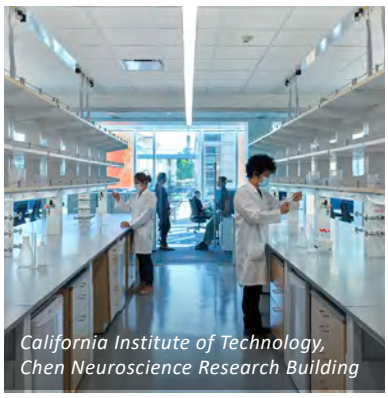
126,000 SF | Design-Build | Federal | LEED Platinum, Net Zero Energy, Net Zero Water

San Ysidro U.S. Land Port of Entry, Phase1B2 | San Ysidro, CA

191,000 SF | CM at Risk | Federal | LEED Gold/Platinum efforts



University of California, Irvine Health



California Institute of Technology, Chen Neuroscience Research Building

PROJECT MANAGER

HENSEL PHELPS
Plan. Build. Manage.



Role
Stephanie will serve as Hensel Phelps' on-site management representative. She will ensure that all requirements and concerns of the City of San Diego are addressed in a timely and effective manner.

Education
BS, Civil & Environmental Engineering
University of California, Berkeley

Stephanie Carter

Construction Project Manager

With over 13 years of experience, Stephanie manages complex projects across research, healthcare, and higher education sectors in Southern California. She oversees budgets, schedules, permitting, and coordination to ensure client expectations are met. Her leadership on high-profile projects like the DGS CARB Headquarters and UCR School of Medicine reflects her strength in stakeholder communication, quality control, and project delivery.

Department of General Services, CARB Southern California Headquarters, Mary D. Nichols Campus | Riverside, CA
408,175 SF | Design-Build | Research Building and Laboratories | LEED Platinum, Zero Net Energy

University of California, Riverside, School of Medicine Education Building II | Riverside, CA
95,476 SF | Design-Build | Higher Education | LEED Platinum

Kaiser Permanente, Specialty Medical Office Building & Parking Structure | Irwindale, CA
202,615 SF | CM at Risk | Healthcare | LEED Gold

Sharp Rancho Bernardo, Tenant Improvements | Rancho Bernardo, CA
100,000 SF | Design-Build | Healthcare


DGS CARB Southern California Headquarters


UC Riverside School of Medicine Education Building II

PROJECT SUPERINTENDENT

HENSEL PHELPS
Plan. Build. Manage.



Role
Jon will oversee all on-site construction activities, ensuring safety, quality, scheduling, and coordination to successfully deliver the lab renovation and expansion while maintaining operations and meeting LEED Silver and Zero Net Energy standards.

Education
BS, Civil Engineering
San Diego State University

Jon Ricketts

Project Superintendent

Jon brings 20 years of experience managing onsite construction, coordinating with stakeholders, overseeing quality control, and ensuring permit compliance. He works closely with environmental staff and the Project Manager to lead field activities. His background includes complex healthcare and LEED Gold-certified lab projects, consistently delivered on time and within budget through strong leadership and collaboration.

University of California, Irvine, Health Medical Center-Irvine | Irvine, CA
1,085,000 SF | Progressive Design-Build | Healthcare | LEED Platinum Targeted

Sanford Consortium for Regenerative Medicine | La Jolla, CA
150,000 SF | CM at Risk | Research/Laboratories

Delta Air Lines, LAX Sky Way Program | Los Angeles, CA
695,001 SF | CM at Risk | Aviation | LEED Silver BD+C v2009

University of California, San Diego, Nuevo East Graduate Student Housing | La Jolla, CA
712,000 SF | Design-Build | Student Housing | LEED Gold


Sanford Consortium for Regenerative Medicine


UCI Health Medical Center-Irvine

ASSISTANT PROJECT MANAGER

HENSEL PHELPS
Plan. Build. Manage.



Saba Basravi

Assistant Project Manager

Saba holds expertise in complex building systems, MEP coordination, and stakeholder management. She's led key efforts on projects like UC San Diego's Ridge Walk Neighborhood and Caltech's Chen Neuroscience Research Building, ensuring lab integration, LEED compliance, and operational continuity—making her well-suited for technically demanding initiatives like the Alvarado Laboratory Improvements.

Role
Saba will lead preconstruction startup, establish project processes, manage cost controls, and coordinate complex technical scopes to maintain schedule, code compliance, and sustainability goals.

Education
BS, Civil Engineering
University of California, Irvine

California Institute of Technology, Chen Neuroscience Research Building | Pasadena, CA
144,780 SF | Progressive Design-Build | Research/Laboratories

Kaiser Permanente, Riverside Medical Center | Riverside, CA
714,000 SF | Integrated Project Delivery | Healthcare

University of California, San Diego, Ridge Walk North Living and Learning Neighborhood | La Jolla, CA
971,712 SF | Design-Build | Housing

University of California, Irvine, Verano 8 Graduate Student Housing | Irvine, CA
730,700 SF | Design-Build | Housing



Caltech Chen Neuroscience Research Building



UCI Verano 8 Graduate Student Housing

ASSISTANT SUPERINTENDENT



Role
Mitch will manage daily site operations, lead safety planning, coordinate crews and trade partners, and ensure documentation, logistics, and stakeholder alignment to keep the project on track while supporting Project Superintendent Jon Ricketts.

Mitch Bressie

Assistant Superintendent

Mitch has 18 years of industry experience and is recognized for his leadership and technical expertise. He oversees and coordinates work for Hensel Phelps' teams and trade partners, applying deep knowledge of production, scheduling, safety culture, MEP coordination, cost control, and regulatory compliance. His recent work includes leading Hensel Phelps' first self-performed Mass Timber effort at Caltech Resnick, where he directed the integration of mass timber with the curtain wall system. At City of Hope Orange County Hospital, Mitch managed critical interior and exterior work and coordinated complex connections between new and existing facilities without disrupting patient care. His experience spans complex, high-profile projects where he ensures efficient organization, quality delivery, and exceptional results.

UCR OASIS Park| Riverside, CA
5,000 SF | Progressive Design-Build | Research/Laboratories

City of Hope Orange County Hospital | Irvine, CA
170,000 SF | Design-Build | Healthcare

Caltech Resnick Sustainability Center (RSC) | Pasadena, CA
80,000 SF | Progressive Design-Build | Research/Laboratories


City of Hope Orange County Hospital


Caltech Resnick Sustainability Center

Organizational Chart

The City of SAN DIEGO



Bryan Maximuk
Operations Manager



Sandro Bressi
Principal-In-Charge

HENSEL PHELPS+SMITHGROUP DESIGN-BUILD TEAM *



Mike Verrastro
Chief Estimator



Jon Ricketts
Project Superintendent



Mitch Bressie
Assistant Superintendent



Mike Gulotta
General Superintendent



Gabriel Cervantes
Design Project Manager



Stephanie Carter
Construction Project Manager



Saba Basravi
Assistant Project Manager



Mike McKenna
Senior Estimator



Francisco Owens
S+T Studio Design Leader



Chris Anderson
Design Principal



Lesley Christensen
Interior Designer



Tim Strawbridge
Design Manager



Mark Zajdzinski
Senior Project Architect / AOR



Jitendra Sawant
Project Architect



Alex Munoz
Senior Laboratory Planner



Harrison Bolden
Laboratory Planner



Don Posson
Mechanigal Engineer



Tony Panossian
Electrical Engineer



Jose Alicea
Plumbing Engineer



Beth Lavelle
Sustainability Strategist



Rachel Eckley
Fire Life Safety Engineer



Alan Miller
Commissioning Agent

CONSULTANTS AND TRADE PARTNERS

Tyler McCullough
Structural Engineer
Walter P Moore *

Armen Megerdoomian
Principal, Parking
Walter P Moore *

Emma Harrison
Civil Engineer, PM, PE
Psomas *

Marc Weinberger
Civil Engineer, Sr PM
Psomas *

Kyle Fiddelke
Landscape Architect
OJB *

Cory Murphy
Low Voltage
Elen Consulting *

Dan Math
Geotechnical Engineer
UES *

Corina Wilkes
CASp Specialist
USAccess *

Steven Lank
Acoustics & Vibration
Colin Gordon

Eileen Sien
Partnering Facilitator
Velo Group

Phil Trinh
Mech/Plumb Trade Partner
AO Reed *

John Price
Elec Trade Partner
Dynalectric *

Matt Russell
Elec Trade Partner
Dynalectric *

Alia Hokuki
Environmental, PM
Psomas *

Steve Norton
Senior Biologist
Psomas *

Andrew J. Thul
Chemical Engineer
Wōden

Danish Mansoor
Industrial Hygienist
Terracon *

*Indicates Local Firm

INCLUDED IN PAGE COUNT

Project Partnering and Coordination

3.6. Project Partnering and Coordination: Describe past experience with formal partnering process, including partnering facilitator and qualifications (IPI certification). List any awards won for partnering or teamwork on past projects. Describe process and intent to solicit City input and approval for compliance with RFP requirements.

Our approach to developing a project specific structured partnering process with the client and team is designed to create a transparent, inclusive environment where all stakeholders, including the City of San Diego, the design team, trade partners, and regulatory authorities work together to achieve project success.

At Hensel Phelps, partnering is more than a project strategy—it's a guiding philosophy that shapes how teams work together from day one. Rather than treating collaboration as a single event, the company embraces partnering as a continuous process that brings together owners, designers, trade partners, and regulatory authorities in pursuit of shared goals.

This philosophy is rooted in the belief that strong relationships, built on trust and open communication, are essential to project success. To foster this environment, Hensel Phelps integrates both formal and informal partnering practices throughout the life of a project.

Eileen Sien at Velo Group is recommended and available to act as the neutral, IPI-certified facilitator.

Key components of our process include:

- **Open Discussion:** This first meeting between the City of San Diego, Hensel Phelps and Smith Group will foster collaboration in the selection process of a mutually agreed upon IPI partnering facilitator.
- **Kick-Off and Executive Workshops:** These initial sessions build team cohesion, establish project-specific goals, and align leadership. For the Alvarado project, this includes understanding the City's "world-class" laboratory standards and ELAP certification requirements.
- **Quarterly (or Monthly) Workshops:** Regularly scheduled workshops coincide with project milestones to review progress, update the partnering charter, resolve issues, and evaluate performance.
- **Focus Groups:** Dedicated teams address critical City concerns such as maintaining laboratory operations during construction, neighborhood relations, and supporting Climate Action stewardship.
- **Partnering Surveys:** Distributed prior to each workshop to gather stakeholder input, ensuring all voices are heard and considered in decision-making.
- **Informal Partnering Activities:** Events like BBQs, sports outings, and family open houses foster camaraderie and deepen trust among team members, enhancing collaboration and morale.
- **Structured Dispute Resolution:** Conflicts are addressed at the lowest responsible level, with escalation protocols involving executive and principal committees when necessary—minimizing disruption and avoiding litigation.

This comprehensive partnering approach consistently delivers results. Clients and users report greater satisfaction with the final product. Barriers between constructors, consultants, and specialists are eliminated. A culture of trust and knowledge sharing replaces blame. Long-term relationships are formed, and project goals—whether related to schedule, budget, quality, or safety—are consistently achieved.

Through its commitment to collaboration and communication, Hensel Phelps has built a legacy of award-winning projects recognized for exceptional teamwork and partnership.

Soliciting City Input and RFP Compliance

To ensure the City's valued outcomes are achieved, our partnering process includes:

- **Laboratory Operations Input:** Structured engagement with lab staff to guide phasing and maintain critical testing functions.
- **Sustainability Coordination:** Workshops with City sustainability experts to meet prescriptive energy efficiency measures and zero emissions goals.
- **Regulatory Compliance Reviews:** Scheduled checkpoints with City permitting authorities to prevent delays related to ELAP certification.
- **Local Workforce Participation:** Partnering sessions that include SLBE/ELBE subcontractors to meet the City's 3.4% participation requirement and support the PLA's 30% local worker goal.
- **Comprehensive Review and Feedback:** We work with the City to review the Partnering Plan, gather feedback, and incorporate comments to address specific project goals and compliance requirements.
- **Empowered Participation:** The City is invited to assign empowered personnel to participate at every level of the partnering process, ensuring that all decisions and conflict resolutions are made collaboratively and in alignment with City objectives.
- **Ongoing Communication:** Regular meetings, surveys, and focus groups provide structured opportunities for the City to provide input, approve key decisions, and monitor compliance with RFP requirements.
- **Dispute Resolution:** Cohesive development of a dispute resolution plan that is designed to resolve issues at the lowest responsible management level, with clear escalation procedures involving City representatives as needed, ensuring that conflicts are addressed promptly and do not impede project progress.



OUR PARTNERING EXCELLENCE

Our dedication to partnering excellence has been recognized with several prestigious industry awards, including:

- **Marvin M. Black Partnering Excellence Award (AGC)** For the Air Force Technical Applications Center (AFTAC) project, the team's collaborative approach resulted in the successful delivery of a complex, high-security facility, recognized for its outstanding teamwork and issue resolution.
- **John L. Martin Partnered Project of the Year Award (IPI**) On the SFO Terminal 3, Boarding Area E project, continuous stakeholder engagement, open communication, and shared goals led to the project being completed on time and within budget, while saving approximately $16 million through effective partnering.
- **Multiple Marvin M. Black Excellence in Partnering Awards** Projects such as the JD Edwards Building II Corporate Headquarters, Steven F. Udvar-Hazy Center, Dr. Martin Luther King Jr. Library, Corbalis Water Treatment Plant, and the Headquarters Air Force Inspection and Safety Center all benefited from Hensel Phelps' structured partnering approach, which emphasized early goal setting, consistent progress reviews, and a foundation of trust and transparency.

These awards highlight our ability to foster collaborative environments and deliver exceptional project outcomes through effective partnering.



View of Entry Walk

4. Technical Approach and Design Concept

4. Technical Approach and Design Concept

4.1 Describe in detail the proposed design concept for this Project, include detailed descriptions, conceptual design drawings, schematics, a list of major equipment, and any other information deemed necessary to allow the City to make an informed evaluation of the Proposer's technical approach. The completeness and technical merit of the design concept will be evaluated.

4.1.1. Proposed Design – describe the proposed design concept outlined in Attachment A of the RFP. Demonstrate how the Design-Builder will meet the intent of the bridging documents within the limits of the project budget, schedule, and scope.

Our proposal delivers a "world class" water quality testing facility for San Diego by **maximizing functionality** and creating **human centered** spaces that enhance wellness, safety and productivity. Our design significantly enhances the programmatic goals shown in the bridging documents delivering the best value while **greatly reducing the overall cost.**

We have achieved this through rigorous **laboratory planning**, intensive **systems optimization** and **expertise in Design-Build** delivery. Building upon the great work reflected in the bridging documents, we have 3 distinct strategies for delivering value to the initial bridging document concept outlined in Attachment A of the RFP.

Streamline the Building Addition

Streamline the Renovation

Interconnect the Common Spaces

Our design delivers the full program while being **19% more space efficient** in the expansion building and **12% more space efficient** than the bridging documents overall. These innovations have resulted in a solution that gives you the **highest quality design** for the **most effective cost.**

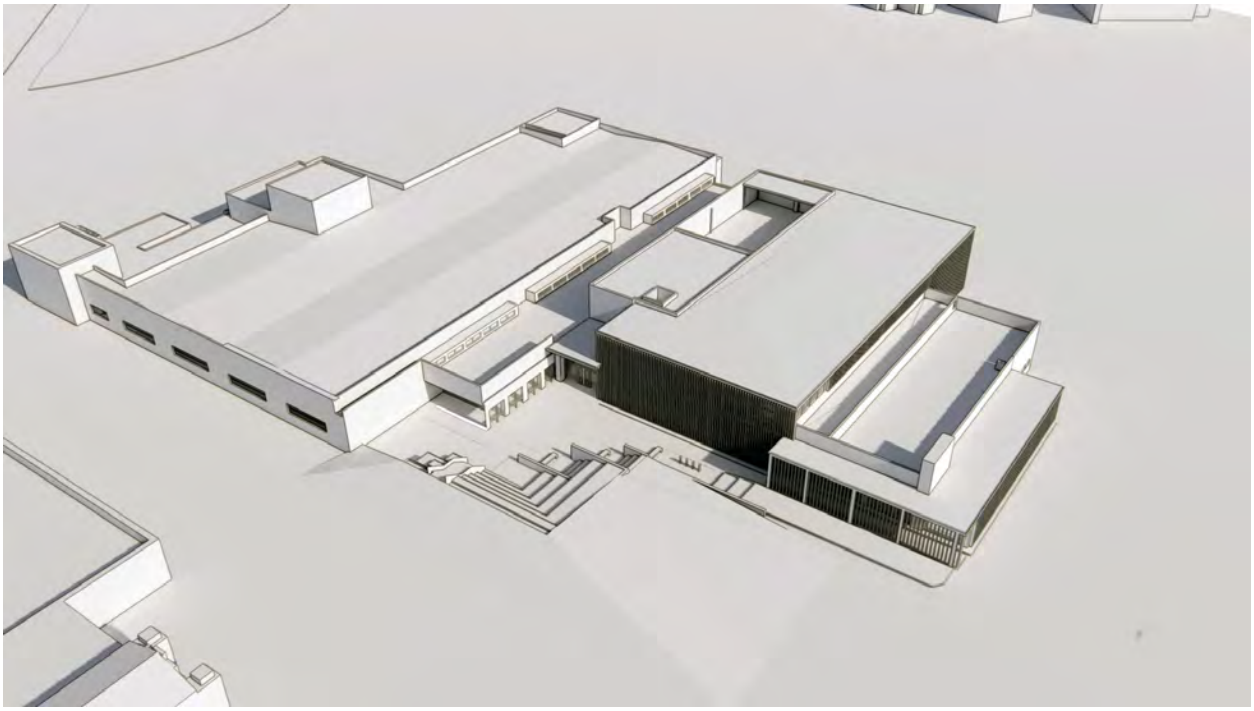
Beyond reducing the overall cost, these enhancements result in in a **wholistic facility** where laboratories are more functional, flexible & safe and common spaces are full of natural light and support wellness. Altogether, a **welcoming and highly functional place** with an architecture and landscape that truly lives up to the critical nature of the scientific work provided to the citizens of San Diego.



Overall View Looking South

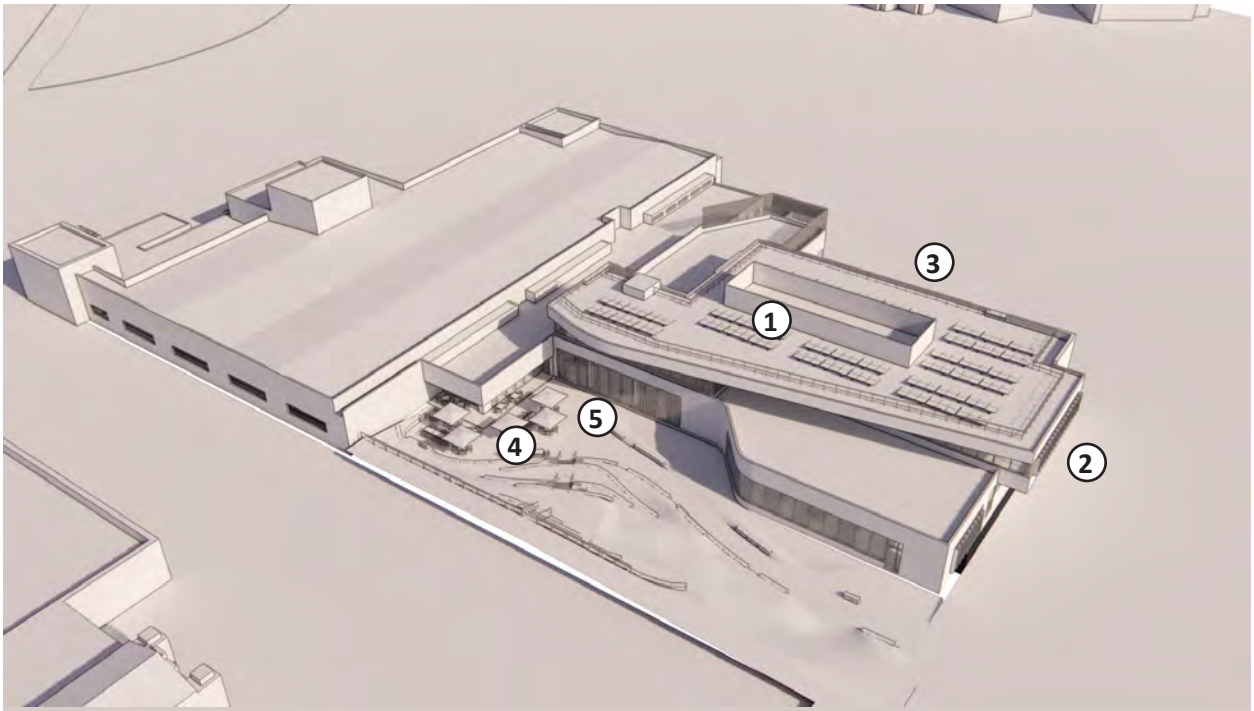
Bridging Document Massing

Figure 4.1



Proposed Design Massing

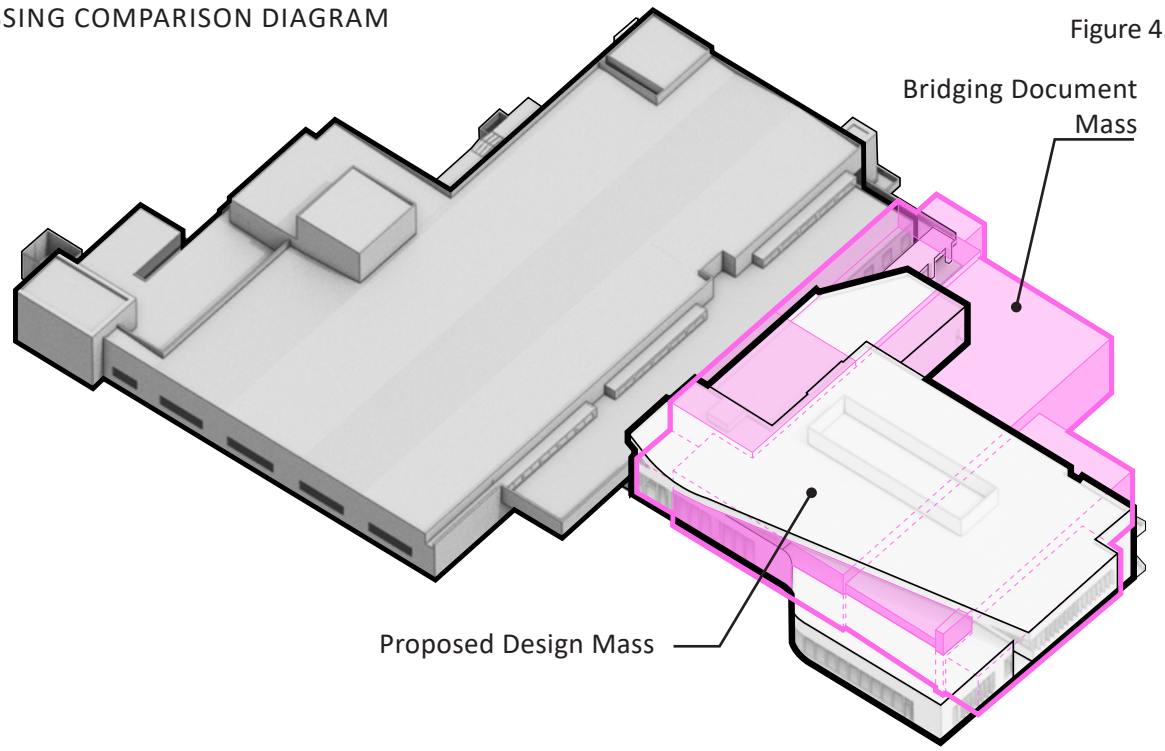
Figure 4.2



1. Optimize the Gross area
2. Orient the Mass to reduce the West Exposure
3. Increase daylight to the Interior Labs
4. Reposition the Cafe to have exterior access
5. Create welcoming entry

MASSING COMPARISON DIAGRAM

Figure 4.3



AREA CALCULATIONS & COMPARISON

BUILDING ADDITION

BRIDGING DOCUMENTS		PROPOSED DESIGN		DELTA	
Level 2	12,300 sf	Level 2	10,645 sf		
Level 1	22,000 sf	Level 1	18,015 sf		
B-Level Enclosed	2,313 sf	B-Level Enclosed	3,546 sf	B. Docs	54,217 sf
Structured Parking	17,604 sf	Structured Parking	11,663 sf	Proposed	43,869 sf
Total	**54,217 sf**	**Total**	**43,869 sf**	**Savings**	**10,348 sf**

19% SPACE SAVINGS WHILE DELIVERING THE ENTIRE PROGRAM

OVERALL PROJECT

BRIDGING DOCUMENTS		PROPOSED DESIGN		DELTA	
Addition	54,217 sf	Addition	43,869 sf	B. Docs	97,217 sf
Renovation	43,000 sf	Renovation	42,000 sf	Proposed	85,869 sf
Total	**97,217 sf**	**Total**	**85,869 sf**	**Savings**	**11,348 sf**

12% SPACE SAVINGS WHILE DELIVERING THE ENTIRE PROGRAM

Figure 4.4



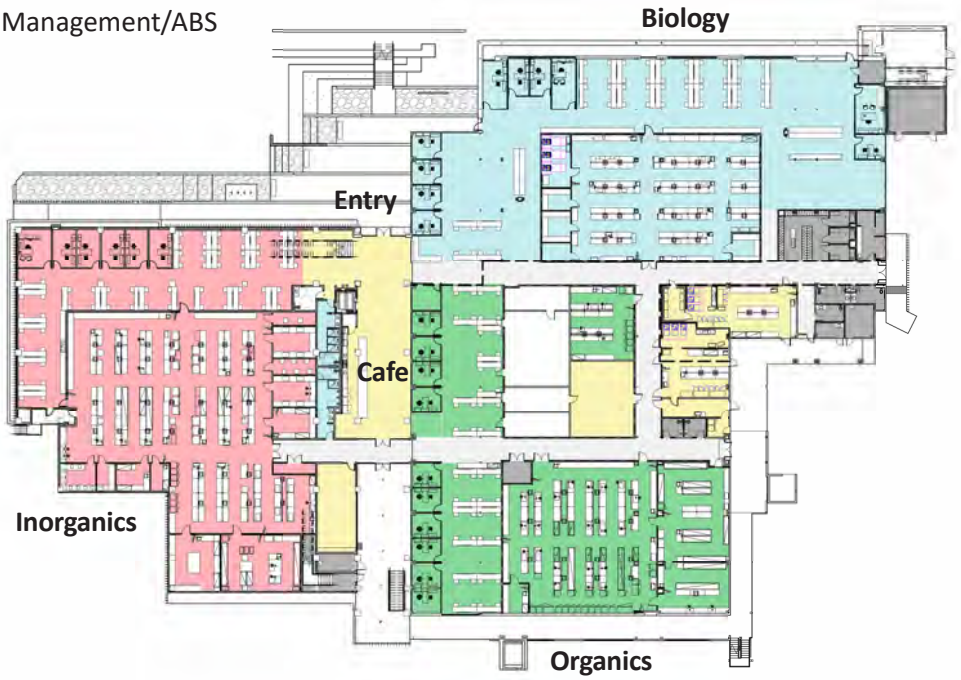
Proposed Design - Site Plan

N

LEGEND

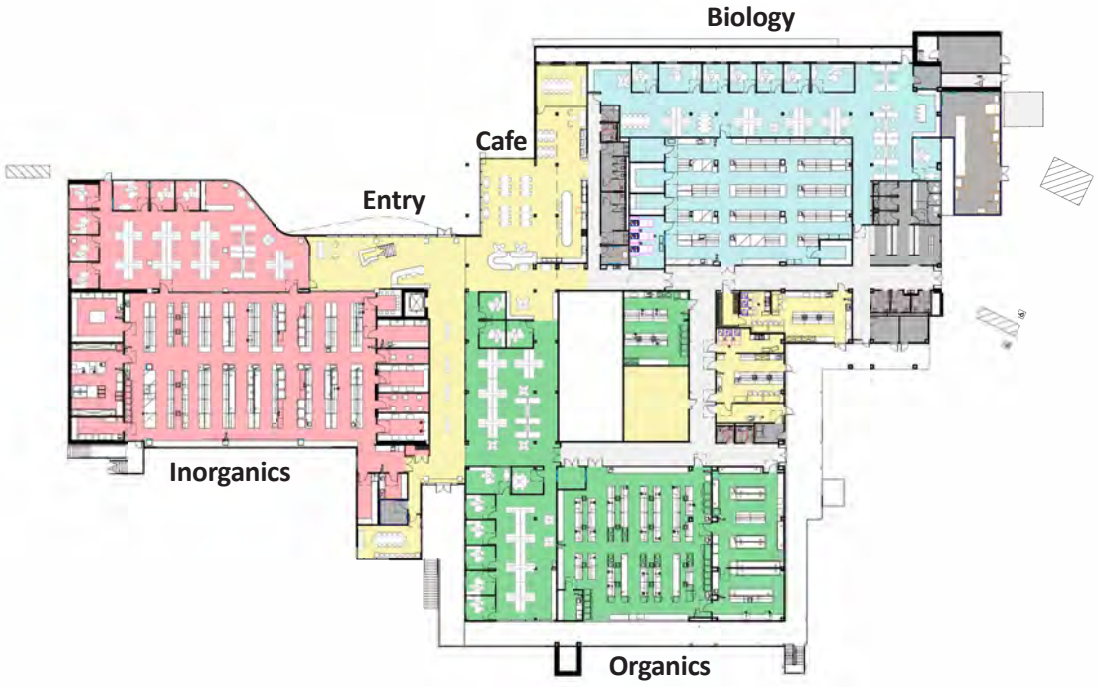
- Inorganics Laboratories
- Organics Laboratories
- Biology Laboratories
- DMQS & Management/ABS
- Shared

Figure 4.5



Bridging Document - Level 1

Figure 4.6



Proposed Design - Level 1

N

LEGEND

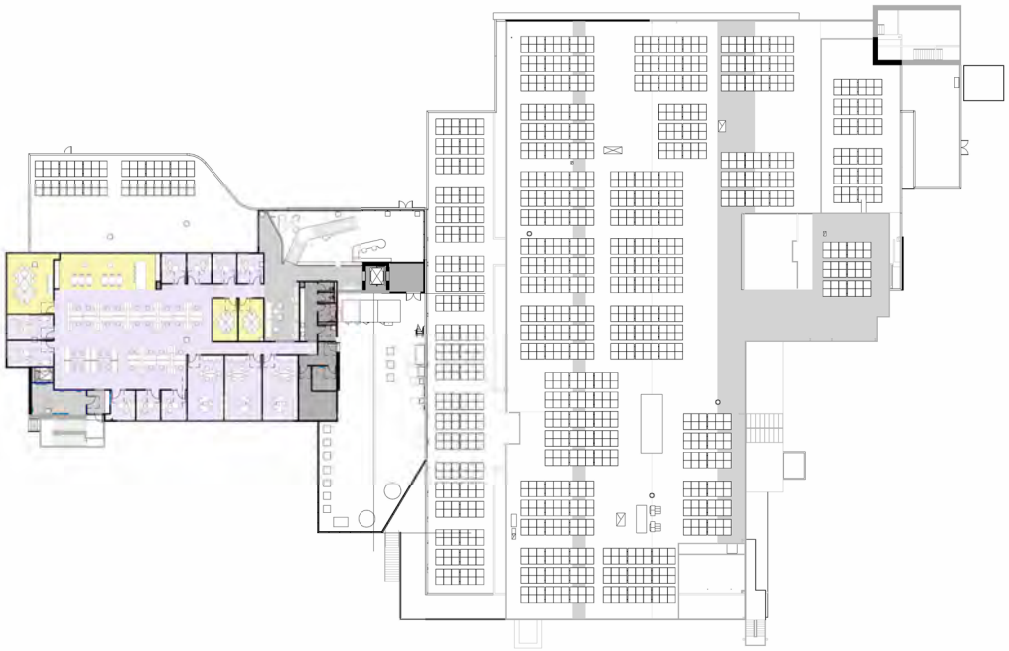
- Inorganics Laboratories
- Organics Laboratories
- Biology Laboratories
- DMQS & Management/ABS
- Shared

Figure 4.7



Bridging Document - Level 2

Figure 4.8



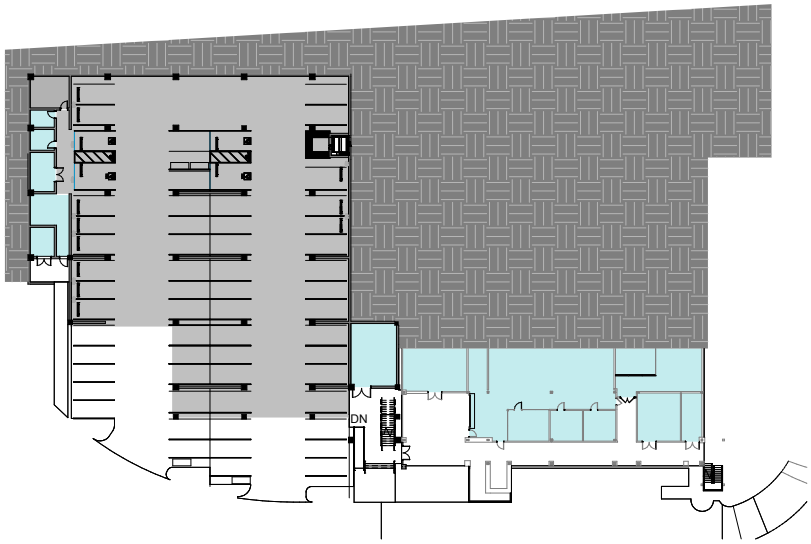
Proposed Design - Level 2

N

LEGEND

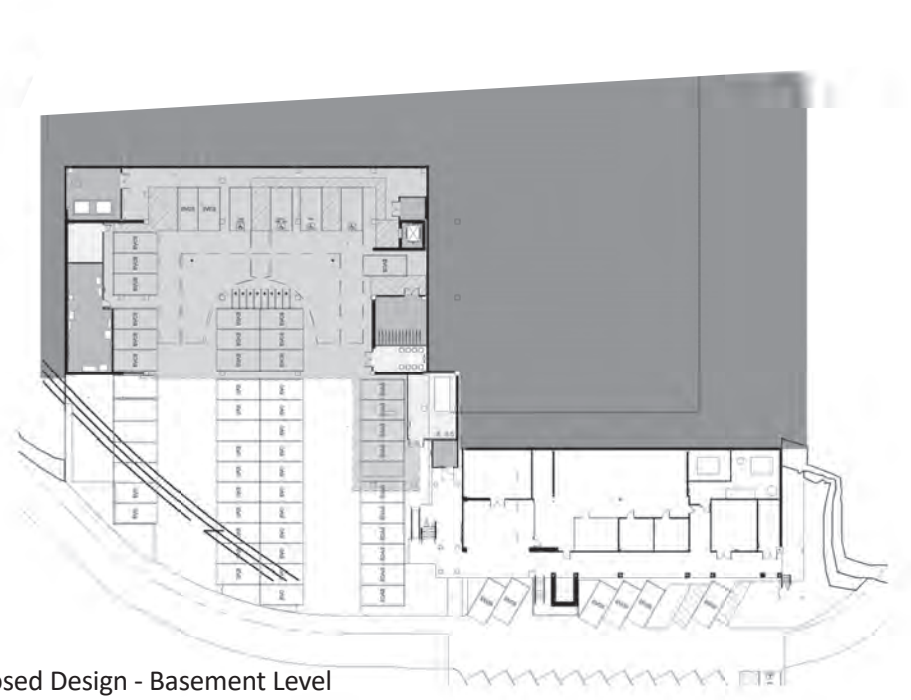
- Inorganics Laboratories
- Organics Laboratories
- Biology Laboratories
- DMQS & Management/ABS
- Shared

Figure 4.9



Bridging Document - Basement Level

Figure 4.10

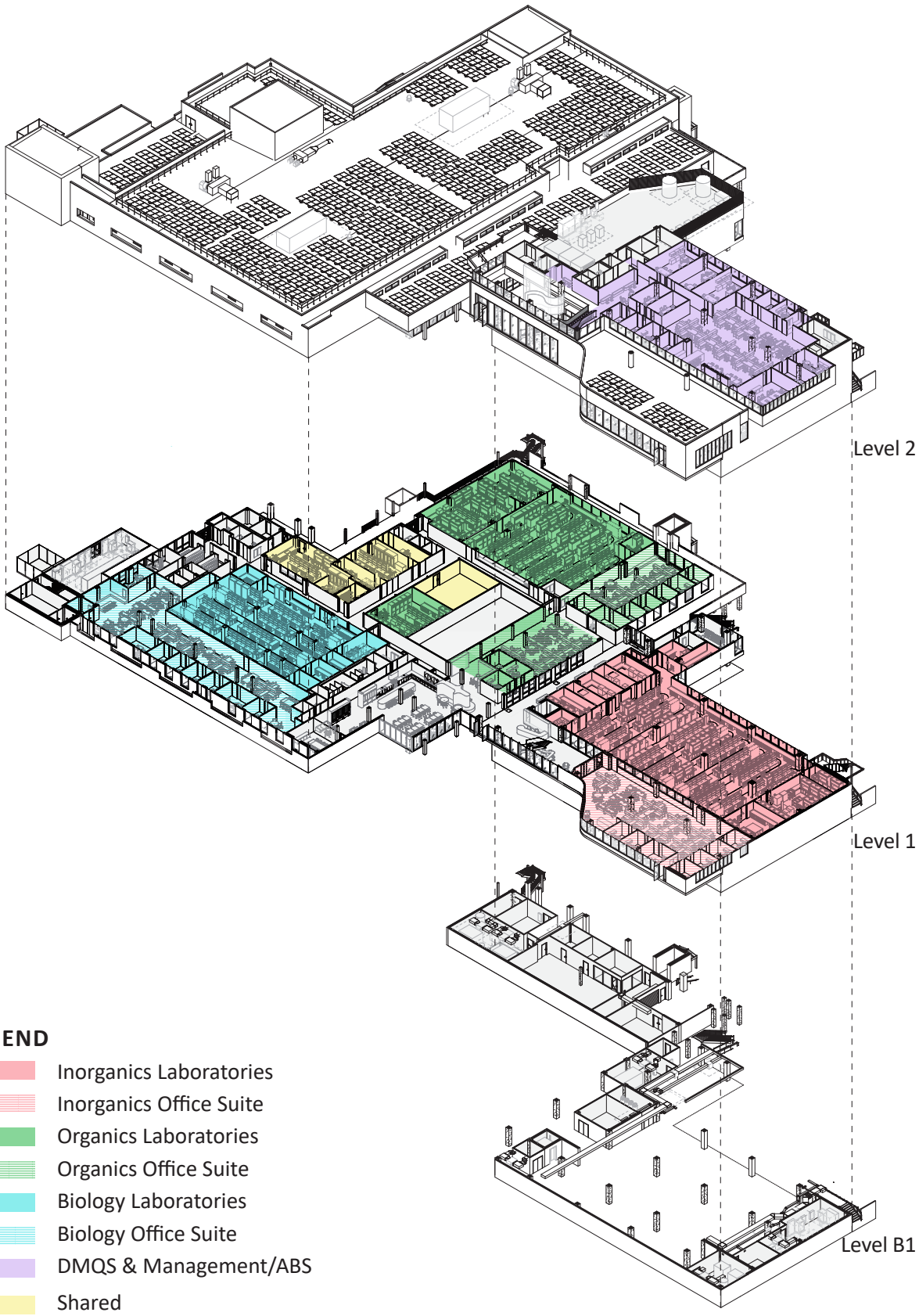


Proposed Design - Basement Level

N

PROGRAMMING (LABORATORIES)

Figure 4.11



4.1.2. Aesthetics and Functionality– Describe the building design, architecture, aesthetics, and functionality in accordance with requirements set in the RFP.

Building Design & Aesthetics



Our proposed design has 3 main drivers:

1. **Laboratory Excellence:** Create an optimal, effective & safe environment for scientific testing.
2. **Human Wellness:** Create a thriving workplace environment with spaces that support their physical and mental wellness.
3. **Celebrate Public Service:** Create a facility that represents this critical service through its architecture and planning for the benefit of staff and the public.

The architecture of our proposed design takes its inspiration from San Diego's natural environment especially the Murray Reservoir. Our intent is to create a warm and inviting facility with an aesthetic expression of soft forms and light textures that evoke the way **light glistens off of moving water.** Inside and out, spaces give subtle cues to the vital qualities of water, creating a place where people enjoy working together.

Our proposal integrates more planting and less hard surfaces than the bridging documents. We have designed a natural landscape through stepped and sloped planting, low edges and climate sensitive plants. This is achieved through practical and creative landscape details that are less costly than the bridging document concepts.

Walkways lead to the main entrance lobby that is at the center of activity. The lobby includes an open stair that connects up to the second floor offices and visitors can be received. Views into the inorganics open lab allow for **science on display** without disruption of the lab spaces. **Wayfinding is intuitive & seamless** as it connects all 3 departments (Inorganics, Organics & Biology) through distinct corridors and unified lab and office spaces.

A flexible collaboration space gives the opportunity for future uses such as a gallery of exhibits for school tours, & informal staff meeting space extends from the entry to the south where a shared conference rooms resides.

Adjacent to the main entrance, the cafe/kitchen opens on to an outdoor terrace with seating and shade. Included is the opportunity for a shared activity space including an electric BBQ area for staff events and meetings. An operable wall is integrated into the cafe to make an **indoor/outdoor experience** that takes advantage of the San Diego climate.



Proposed Main Entry and Landscape



Figure 4.6



Inspirational Images - Murray Reservoir

Figure 4.12

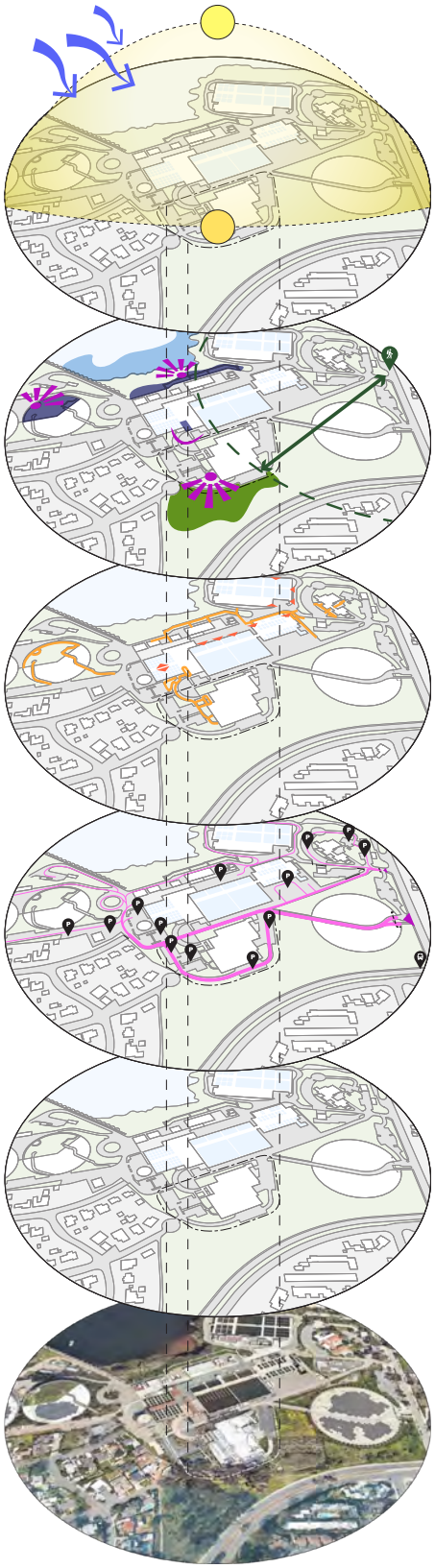


Inspirational Images - Murray Reservoir

Figure 4.13

SITE ANALYSIS

Figure 4.14



SUN PATH & WIND

- Summer Solstice
- Winter Solstice
- Wind Direction

AMENITIES & VIEWS

- 5-Minute Walk
- Lake Murray Trail
- Resting Spot
- View of Site
- Scenic View of Lake or Foliage

PEDESTRIAN CIRCULATION

- Pedestrian Circulation
- Water Treatment Access

VEHICULAR CIRCULATION

- Vehicular Circulation
- Site Entry
- Parking Spaces
- Bus Stop

SITE PLAN

- Work Area

AERIAL

Figure 4.15


Metal Panel Cladding System
Built example
Exterior Cement Plaster
High Performancve Low-E Glass



View of Main Entry & Outdoor Seating Space Figure 4.16



View of North Facades Figure 4.17



View of Outdoor Terrace & Cafe

Figure 4.18



Aerial View of Main Entry & Outdoor Terrace

Figure 4.19



Overall View of the South & West Facades

Figure 4.20



View of South & West Facades and Parking

Figure 4.21



Landscape at Main Entry and Outdoor Terrace

Figure 4.22



Proposed Main Entry and Outdoor Terrace

Figure 4.23



Concrete Benches and Stair at North Lanscape Area

Figure 4.24



Landscape at Main Entry and Outdoor Terrace

Figure 4.25



Walkway towards the Main Entry Figure 4.26



Walkway along the Inorganic's Office Space Figure 4.27



Outdoor Seating connected to the Cafe/Kitchen Figure 4.28



Outdoor Terrace & Concrete Benches Figure 4.29



Stair from Parking towards the Main Entry

Figure 4.30



Main Entry

Figure 4.30



Science on Display in Lobby

Figure 4.31



Main Entry & Multi-Purpose Space Figure 4.31



Typical Office Space Figure 4.32



Typical Office Space Figure 4.33



Typical Office Space Figure 4.34



View of Cafe/Kitchen

Figure 4.35



View from Cafe/Kitchen

Figure 4.36

INTERIOR FINISHES: LOBBY

Figure 4.37







INTERIOR FINISHES: CAFE

Figure 4.38







INTERIOR FINISHES: OFFICE SUITES

Figure 4.39

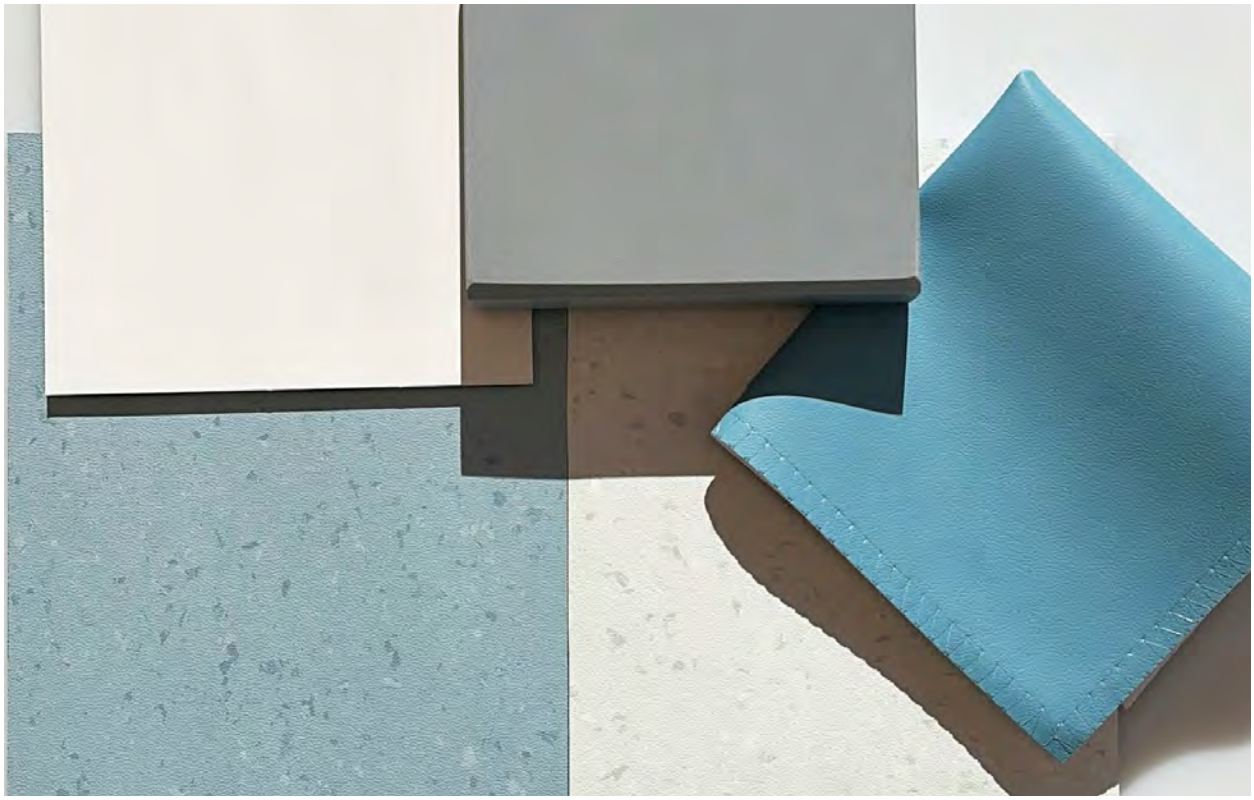






INTERIOR FINISHES: LABORATORIES

Figure 4.40

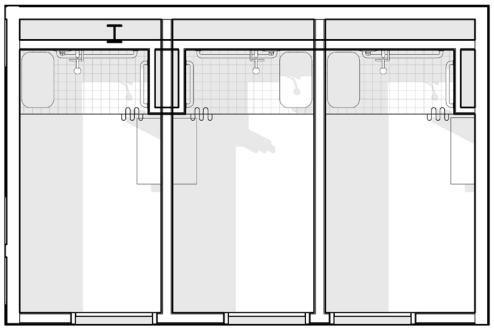


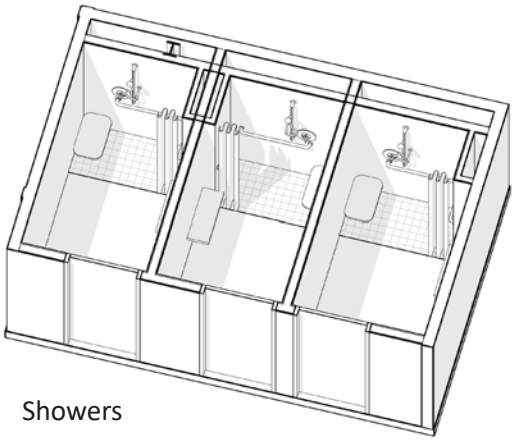


INTERIOR FINISHES: RESTROOMS & SHOWERS

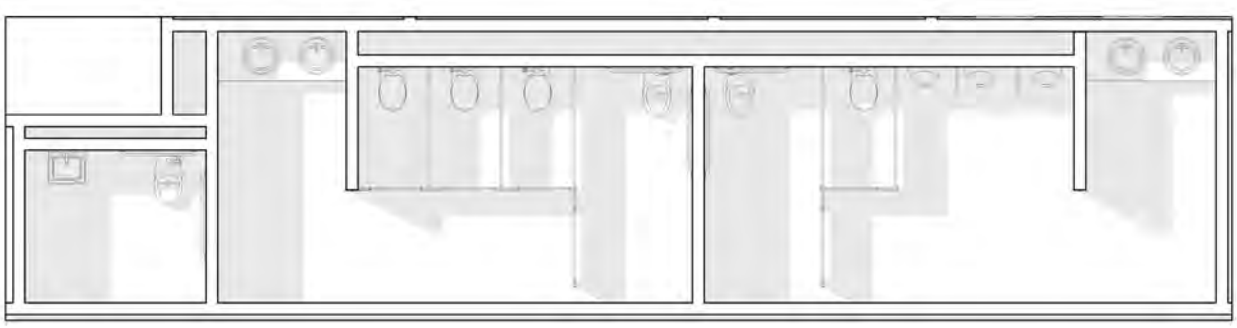
Figure 4.41







Showers

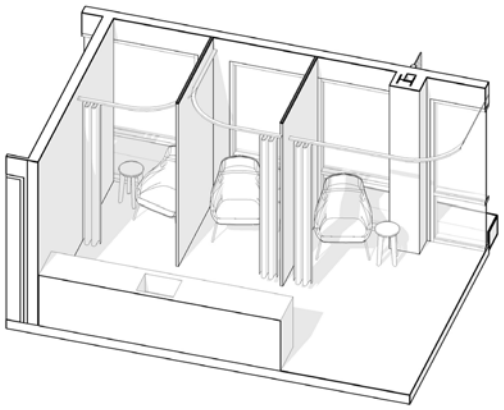


Public Restrooms

INTERIOR FINISHES: LACTATION ROOM

Figure 4.42





Laboratory Excellence

Modern laboratories are comprised of flexible and efficient spaces where staff can conduct critical testing procedures safely.

These environments have dedicated and shared support rooms in optimal locations for increased workflow and safety.

Our proposal has exercised the following methods in delivering highest level of functionality to the facility:

1. **Industry Standard Lab Module**
2. **Open Concept Lab Planning**
3. **World Class Lab Operations**

1. Industry Standard Lab Module

With the existing structure and new building addition the design team has looked at a more efficient module that is standard for this type of lab space and recommending a 10'-6" module. This dimension is typical for this laboratory typology, and the design team will work around the existing columns to be as efficient as possible.

This module allows adequate clearance in aisles to promote safe working environments for the lab users, adequate circulation space widths for carts and the movement of new equipment into the labs, and accommodation for code requirements for ADA use in the laboratory spaces.

2. Open Concept Lab Planning

The lab design goal of this project is to create a **vibrant, transparent, safe, and engaging** state-of-the-art open-concept laboratory that will achieve Environmental Laboratory Accreditation Program (ELAP).

The focus will be to **create testing hubs** for all three departments of Biology, Organics and In-organics that have been previously dispersed creating inefficiencies.

The new design will focus on **efficient design** that will allow for direct connectivity from lab-to-office with circulation patterns that will improve flow of material, people and waste.

Glass will be used to **create transparency and introduce daylight** that will also serve as a safety visual in lab and office spaces and improve the quality of life of the staff.

A design strategy is to future-proof lab spaces; therefore, f**lexibility and adaptability** are necessary to plan for. This design approach will allow adaptability for any changes that may occur over the life cycle of the lab space. In order to plan for this, it was important to investigate the use of a specific laboratory planning module that the organizational planning of the building would be based on.

The development of a **repetitive module** allows for a more efficient planning approach to the engineering systems of the building, thereby simplifying future maintenance and renovation requirements.

3. World Class Lab Operations

Each department will have access to lab and office with **direct connectivity**. All departments will have access to support functions such as shared glass-wash, cold room, loading dock areas, sample and receiving, consumable goods, proper waste collection points, and safe access to chemicals.

The design will also look at strategies to **share common equipment** to reduce the footprint of repetitive equipment throughout facility.

The laboratory design should accommodate the functional needs of the lab users to evolve and change in a flexible and sustainable manner over the life cycle of the building.

To provide that level of adaptability, the design team is proposing **state of the art casework** that is user friendly and will allow them to easily move benches and cabinets around to accommodate equipment changes in the labs, systems that allow raising and lowering the counter-tops to accommodate stand up and sit-down activities, and a system that is non-proprietary that doesn't require specific vendor's products to be purchased in the future.

The casework system proposed does not require any outside vendors or sub-contractor to be hired to make such revisions.

The lab benches are movable and adjustable in height. They can be produced in a variety of finishes and colors. The base cabinets are on casters or glides that allow users to easily move and reposition them or make room for under-counter equipment such as refrigerators or freezers.

The lab utilities (lab gases and elec/data) are supplied by overhead ceiling service panels piped into the table frame, so the counter-tops are left clean and open, while the shelving is adjustable to allow for counter-top equipment.

Where plumbing (water) needs to occur, fixed floor standing benches are provided for sink stations. This design provides t**rue plug-in-play** options for the life cycle of the lab space and a sustainable design.

HUMAN WELLNESS

Our proposed design seeks to create a highly functional workplace in a warm and welcoming environment full of natural light and connections to the outdoors.

We have developed the expansion design to have a significant increase in direct exterior glazing. The renovation utilizes innovative space planning and interior glazing, creating an open and connected environment with strong way-finding elements.

Our design uses exterior and interior materials that are inspired by nature, including the qualities of water.

CELEBRATE PUBLIC SERVICE

The Alvarado Water Treatment Plant has serviced the city of San Diego since 1951. Despite being closed to the public after 2001, occasionally groups such as college students, industry specialists and city staff visit the site.

Our proposed design offers the opportunity to **invite the public for tours**, such as school groups, to learn about the work done in the laboratories and the history of water in San Diego.

Through careful planning of the landscape, entry and interiors, we have created a sequence of spaces that can serve as a reception, gallery & meeting area for gatherings.

These spaces are separate from the labs but give visitors direct view into them. A gallery space is formed from the corridor between the expansion and renovation without adding any additional space. This space leads back to a conference room and open deck perfect for presentations.

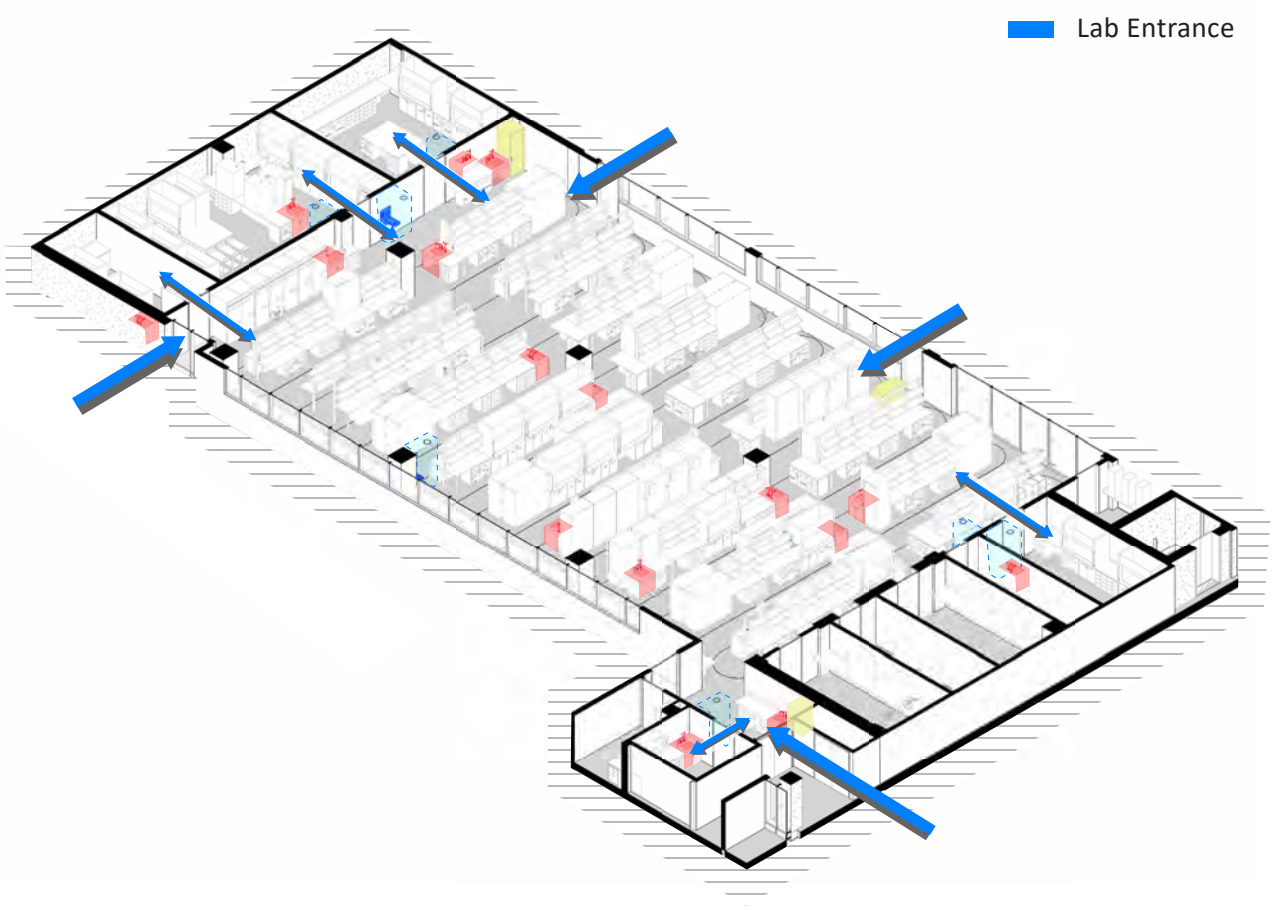
The landscape is natural and rustic using low walls and native planting. The café has an open view to the entry plaza allowing for a variety of activities. Whether it is on site staff, industry/department meetings or school/community tours, the entry space is a wonderful place to gather and meet.

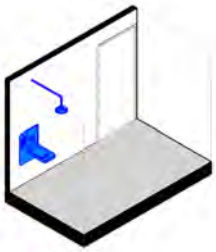
4.1.3. Incorporation of Bid Alternates – Describe how your team will incorporate the bid alternates. Provide any renderings/or schematics necessary.

Our Design-Build team has provided an Allowance Bid item for the condition assessment and complete re-lining of the existing 72-inch pressurized water pipeline (operating at 8 psi) that is located under the existing laboratory building, in accordance with Price Proposal Sheet Alternatives Tab of the K-26-2318-DB2-3-C - Excel document provided to us as part of the Solicitation Document. Other upgrades include the rehabilitation of (2) access vaults, and the associated valves and fittings. The Linear Foot Bid item for Additive Alternate A includes the scope as specified in the Plans, Contract Documents, and Technical Specifications.

INORGANICS DEPARTMENT

Figure 4.43





SAFETY STATION
Emergency shower head & eye wash



PPE STATION
Personal protective equipment storage

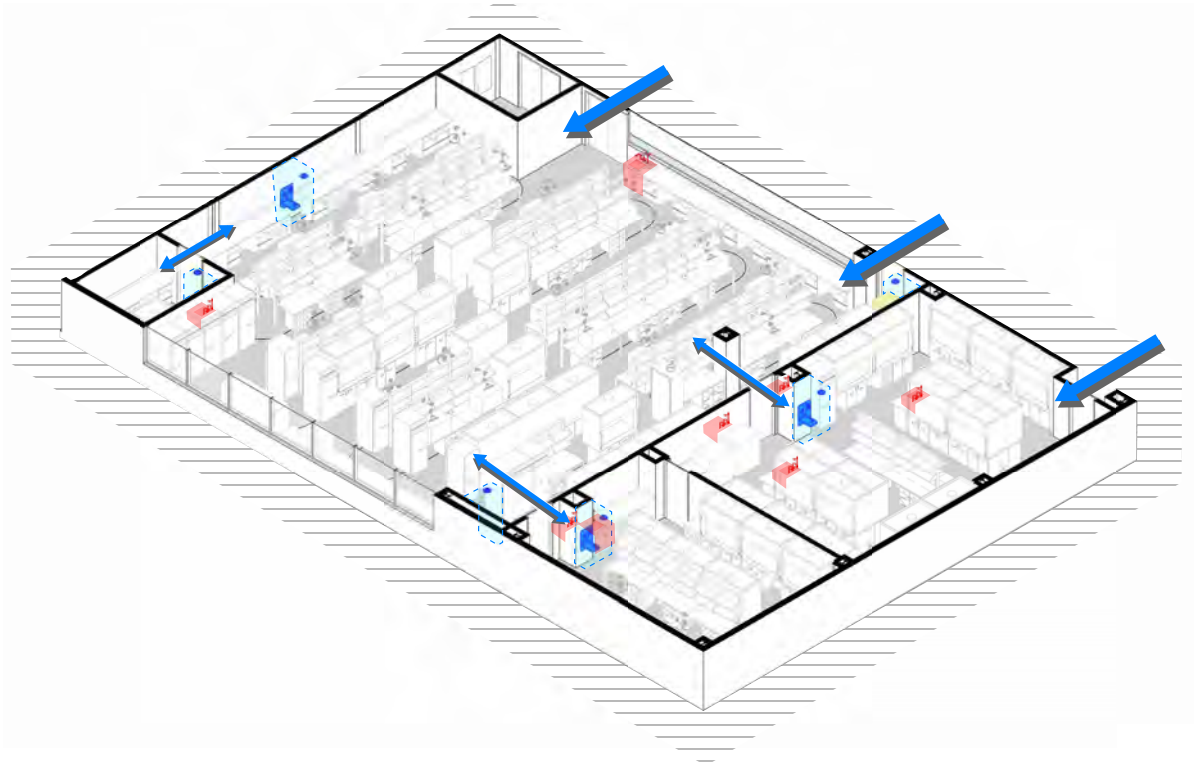


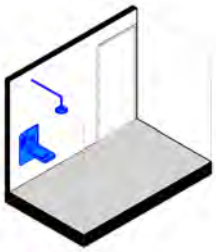
EMERGENCY STATION
Deck-mounted eye/face wash unit

ORGANICS DEPARTMENT

Figure 4.44

Lab Entrance





SAFETY STATION
Emergency shower head & eye wash



PPE STATION
Personal protective equipment storage

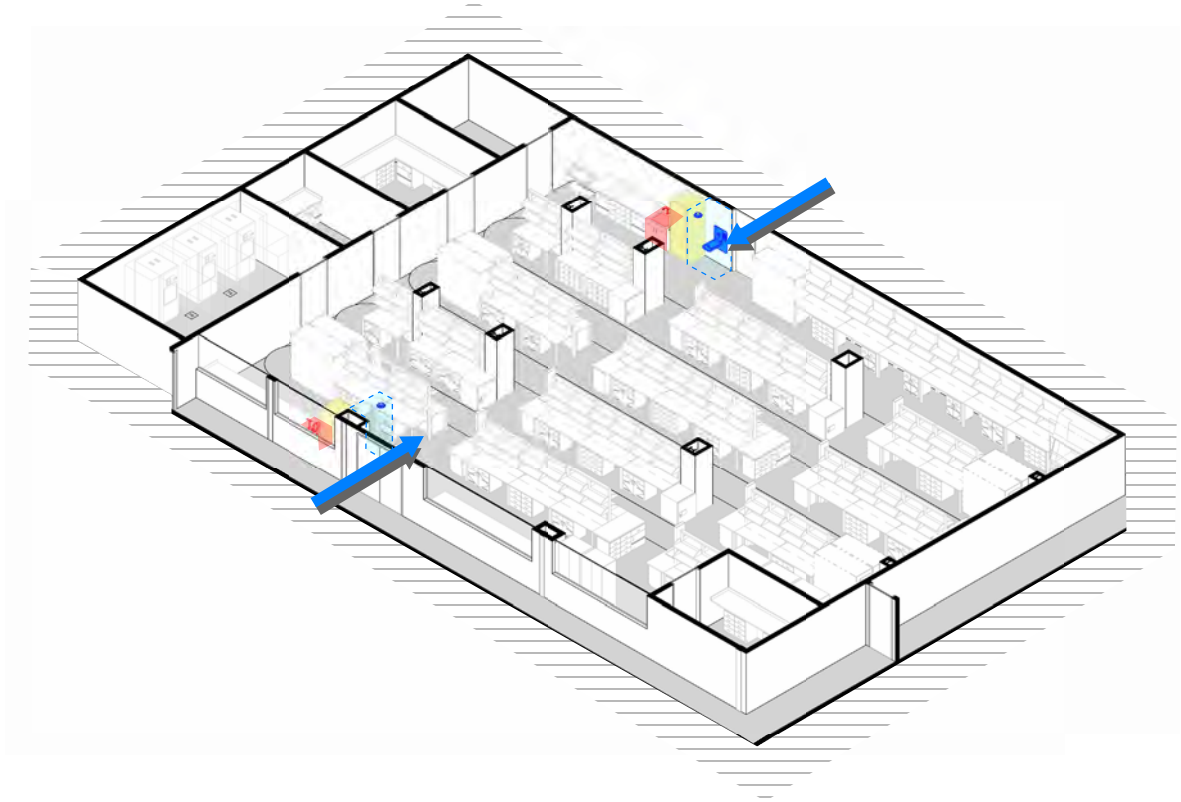


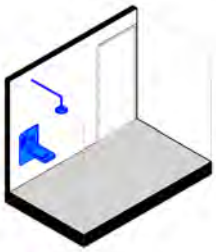
EMERGENCY STATION
Deck-mounted eye/face wash unit

BIOLOGY DEPARTMENT

Figure 4.45

Lab Entrance





SAFETY STATION
Emergency shower head & eye wash



PPE STATION
Personal protective equipment storage

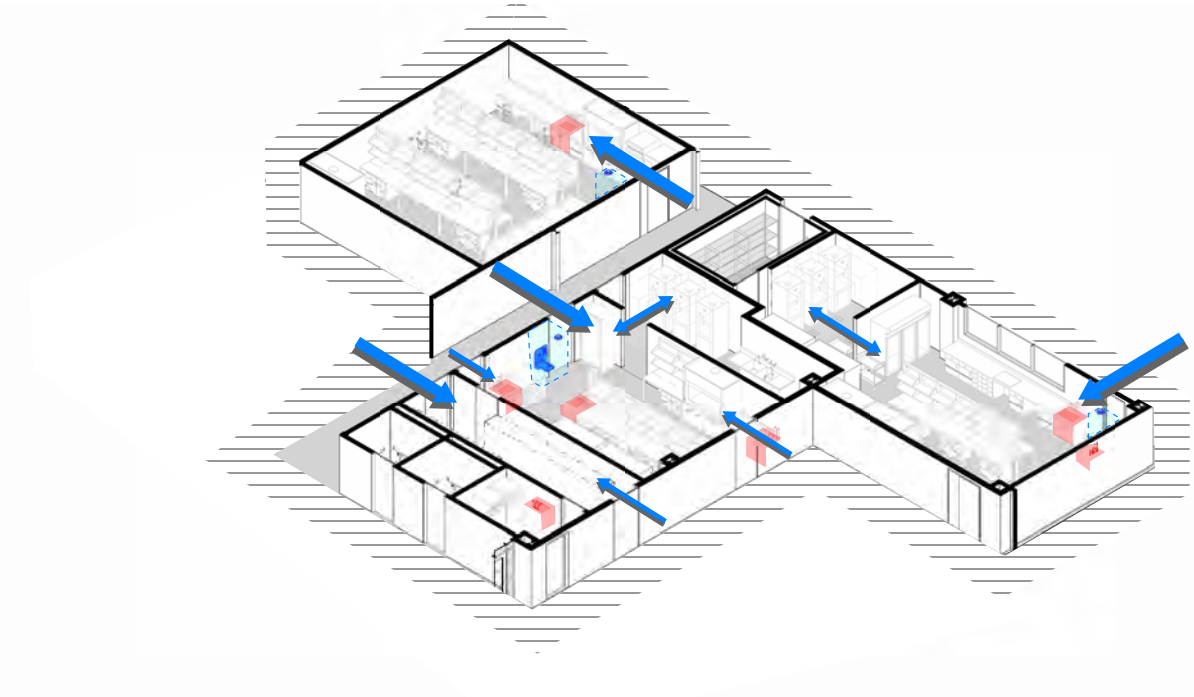


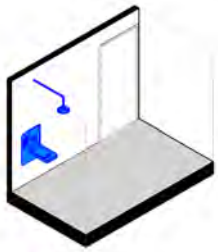
EMERGENCY STATION
Deck-mounted eye/face wash unit

SAMPLE & RECEIVING & VOC

Figure 4.46

Lab Entrance





SAFETY STATION
Emergency shower head & eye wash



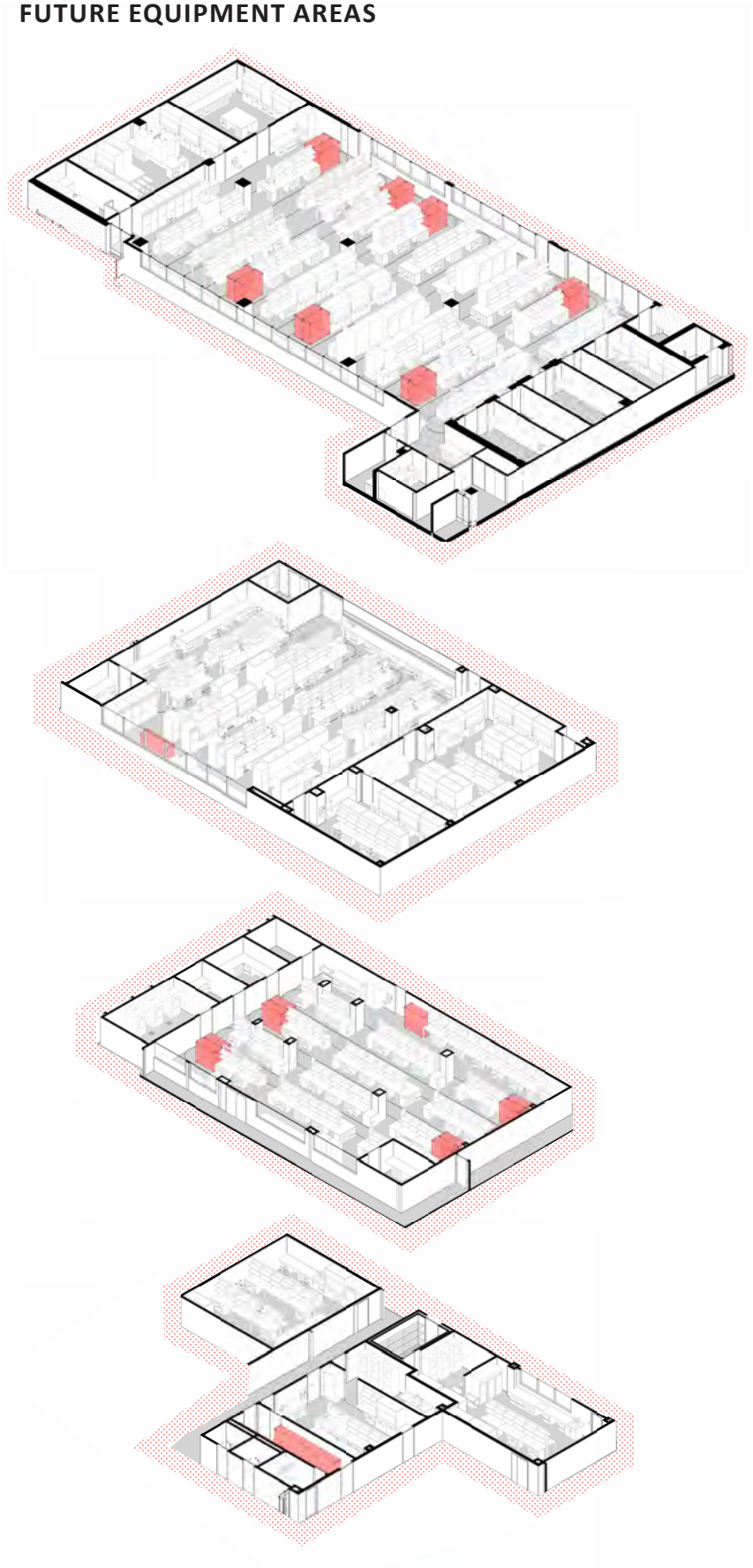
PPE STATION
Personal protective equipment storage



EMERGENCY STATION
Deck-mounted eye/face wash unit

FUTURE EQUIPMENT AREAS

Figure 4.47



Future Equipment Area

INORGANICS

ORGANICS

BIOLOGY

SAMPLE & RECEIVING & VOC



Figure 4.48



Views of Typical Open Lab Interiors (Inorganics shown)

Figure 4.49

4.1.4. Describe any major changes to the bridging document conceptual plans that the Design-Builder believes will enhance the overall programming and functionality of the Lab, and/or will reduce overall cost.

As stated above in Section 4.1.1 where we describe our proposed plan alternatives, our team analyzed the current floor plan and phasing approach for the existing building's reconstruction effort, as well as the layout and design for the new building addition, and how the two buildings are interconnected creating a holistic and functional facility.

Notwithstanding, the **program remains exactly as defined in the bridging documents**. No changes. We have not altered the primary relationships between open laboratory environments with lab support spaces, or the adjacencies required between administrative offices and open workstations, to the laboratories. Are these shifts in planning considered 'major' changes? We don't believe so.

The goal of our analysis is to improve and enhance the functional design of the combined facility and ultimately save the City time and money. Our resulting proposed plan options simply rearrange the blocks of space to gain functional efficiencies, thereby saving space required to build, and the costs of construction.

Every square foot saved yields a significant cost reduction.

More importantly, it allows every space to be developed with the goals of creating a **highly functional scientific environment**, and a place of work that supports **wellness and collaboration**.

Rearrangement in the new building addition works off a standard module that we typically see in laboratory environments. For instance in the bridging documents, column bay spacing for Levels 1 and 2 is driven by how the parking is positioned below.

We believe this causes the spaces above to be less efficient, so we have looked at reversing the approach.

Using an industry standard planning module for laboratories (10'-6" X 10'-6"), we can solve for the parking below utilizing other innovative ideas. Achieving the same number of spaces as required by the program.

Our proposed solutions also **enhance the public spaces** currently programmed, and how they interface with the functional laboratory environments. These enhancements provide for improved areas for staff **collaboration**, and common spaces that are **more inviting and inspiring**.

By adjusting the location of the entry lobby, café seating area, and main restrooms, we can provide a centralized opportunity for social connection, **fostering a sense of community** that can improve morale and lead to better team performance and resilience.

By rotating the new building addition, we can move further away from the large existing underground water lines and eliminate the need for structural piles in these locations, **simplifying the foundation** system, saving cost to the project. This rotation also presents us with other opportunities to enhance the interior and exterior design, improve the flow of people, and create a more inviting laboratory facility.

The following pages list out in detail how our 3 strategies for enhanced value have been implemented.



Streamline the Building Addition



Streamline the Renovation



Interconnect the Common Spaces

Streamline the Building Addition

Our proposed design streamlines the building addition by providing **more lab capacity in less space.**

It results in a **19% savings in gross area** of the addition over the bridging document design, all while delivering the full program.

Furthermore, it enhances the laboratory layout placing support spaces in optimal locations for function, structure and natural light.

We discovered several adjustment in the bridging document concept to help in achieving the best functionality and cost value.

1. **Optimize the Inorganics Lab**
2. **Implement shear walls in lieu of moment frames**
3. **Implement a Flat-plate concrete slab in lieu of a concrete waffle slab**
4. **Optimize the office spaces per Bridging Document Sheet TS 102**
5. **Increase daylight to the open labs**
6. **Minimize West/SW Exposure**
7. **Optimize solar shading on the exterior**
8. **Reduce pile footings**
9. **Reduce Floor to Floor of Level 1**



1. Optimize the Inorganics Lab

The bridging document building addition was planned on a structural module driven by parking dimensions (28’ x 30’).

In our analysis, when the addition is planned on a module driven by laboratory standards (10’6” lab module; or 31’6 x 31’6 structural module) we are able to **significantly reduce the gross area** while delivering more capacity for equipment, benches, and support space.

While this improves the efficiency of the addition by 19%, the real value is in a higher quality lab space that is **more functional, flexible and safer**. This results in an open lab with an abundance of natural light, creating a workspace that promotes human wellness.

Please see Figures 4.50 & 4.51.

2. Moment Frames vs Shear Walls

The bridging documents utilize moment frames for seismic bracing with 30” deep beams. Moment frames are one of the most expensive systems to construct. While they allow for an open floor plan due to no solid walls, they significantly limit the mechanical system space above the ceiling.

Our approach thoughtfully locates shear walls to ensure maximum flexibility in the open lab while being significantly less expensive and giving more space for building MEP systems.

The proposed design established the vibration criteria of 4,000 MIPS (VC-A). This level is a common baseline for general laboratories of this type.

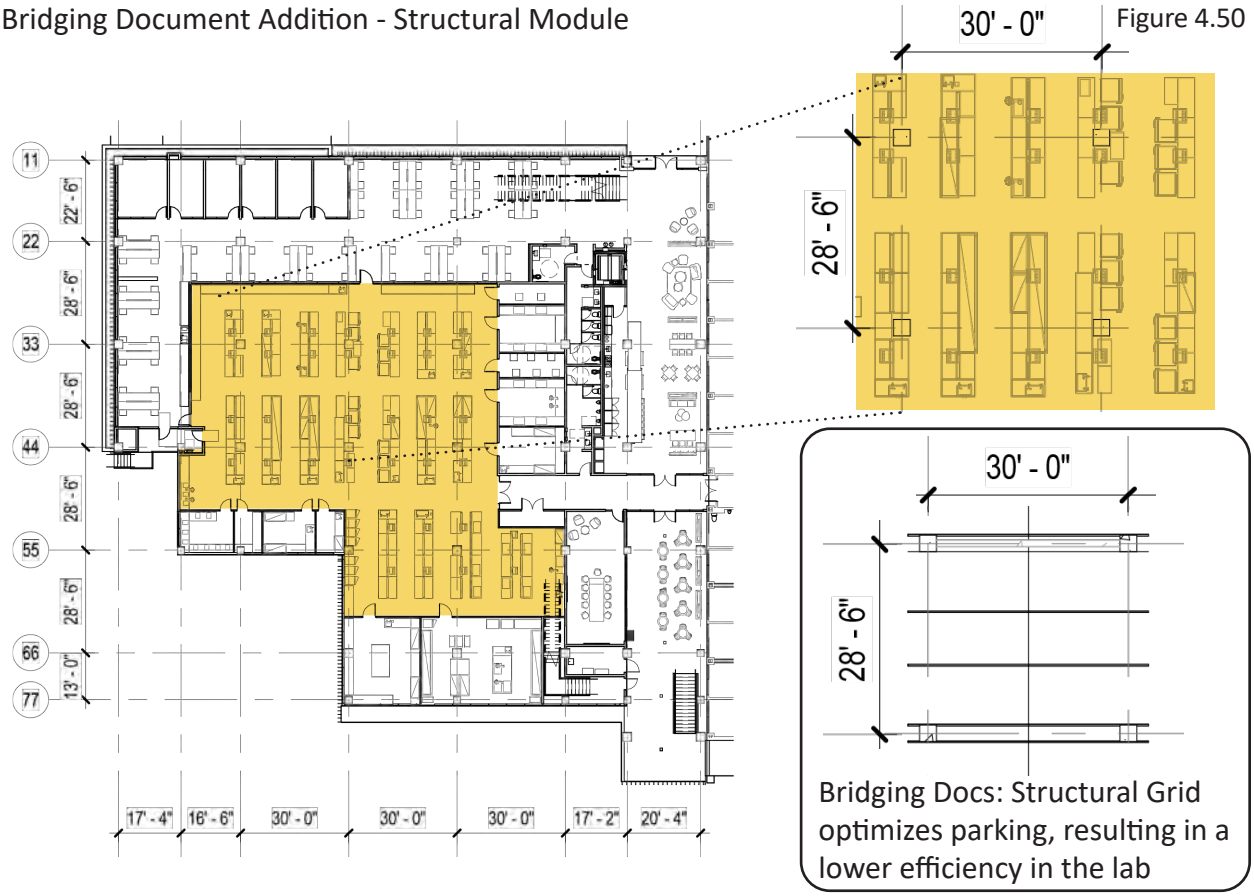
Refer to Figures 4.52 & 4.53 for more detail.

Additionally, our approach to the existing building structure includes the balance of cost and optimization. For instance areas of existing Light Weight Concrete (LWIC) will only be replaced when needed to be accessed from above.

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Bridging Document Addition - Structural Module

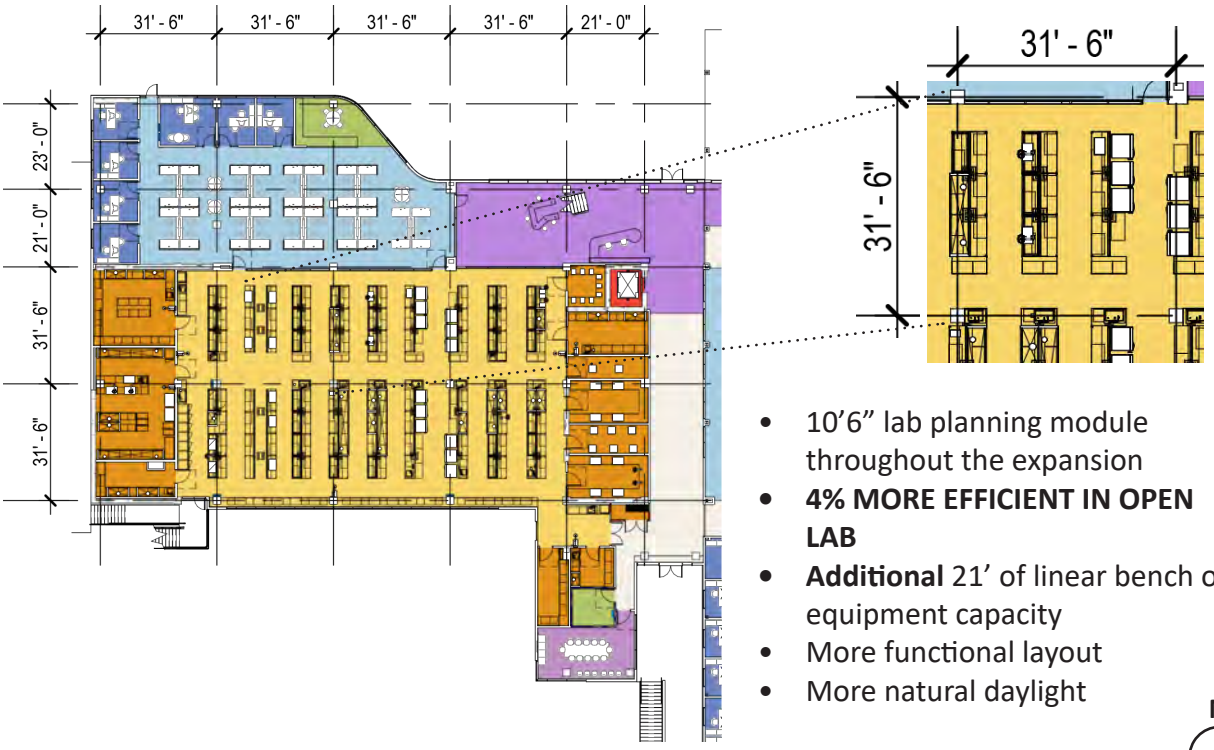
Figure 4.50



Bridging Docs: Structural Grid optimizes parking, resulting in a lower efficiency in the lab

Proposed Addition - Structural Module

Figure 4.51

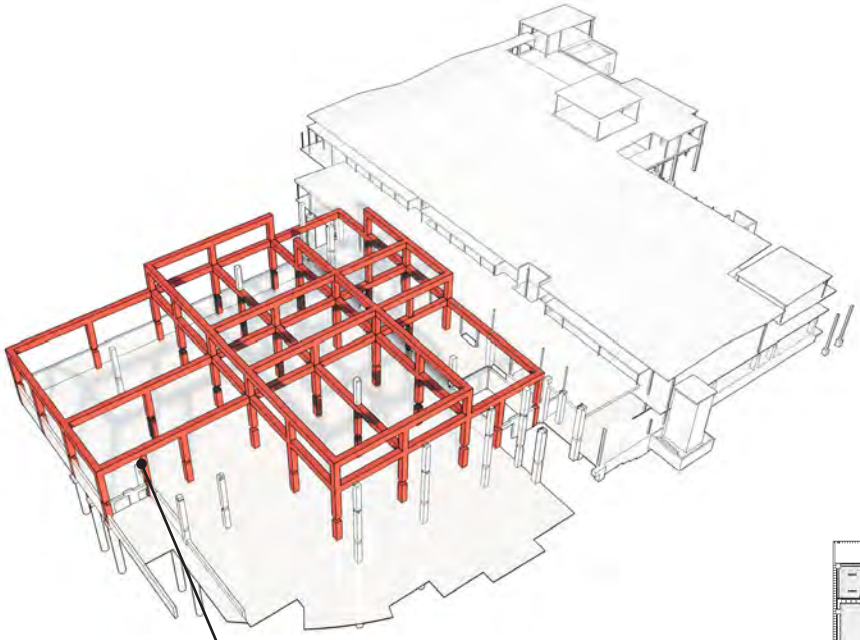


- 10’6” lab planning module throughout the expansion
- **4% MORE EFFICIENT IN OPEN LAB**
- **Additional** 21’ of linear bench or equipment capacity
- More functional layout
- More natural daylight

N

Bridging Document Structural System - Moment Frame & Waffle Slabs

Figure 4.52



Moment frames allow for an open lab plan but at a cost premium

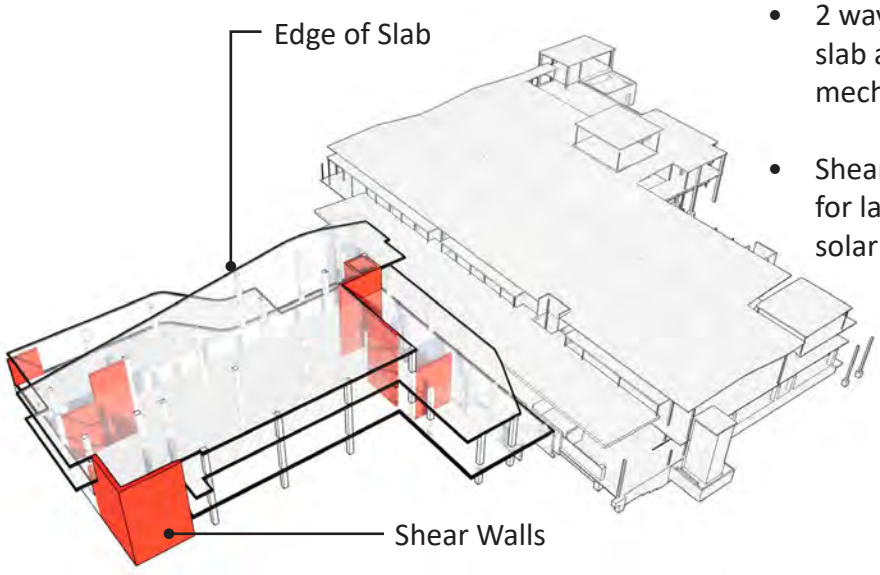
Only 25% of the concrete waffle slab is visible

Bridging Doc - RCP



Proposed Structure - Shear Walls & Flat Plate 2-Way Concrete Slabs

Figure 4.53



- 2 way concrete structural slab allows for more room for mechanical systems
- Shear walls strategically located for lab flexibility and reducing solar exposure from the west

3. Waffle Slab vs Flat Plate

The structural system for the bridging documents consists of a concrete waffle slab. This approach is very costly and results in a significant reduction of space for the mechanical & building systems due to the 24" depth of the waffle slab system.

While architecturally beautiful, **75% of the bridging document waffle slab is covered up** by a suspended ceiling, negating any of the aesthetic reasons for using the system.

Our design utilizes a 12-14" flat plate concrete 2-way slab allowing for **more ceiling space for systems.** We have integrated specialty ceilings in the common spaces to address the architectural intent of the bridging documents in creating a human centered welcoming environment for visitors and staff.

Refer to figure 4.52 for more detail.

4. Office Workstations throughout the expansion and the renovation

The bridging documents floor plans identify workstations that were not accurately reflecting the selected types of workstations shown in the furniture plans. When properly drawn, there are **significant savings of space.**

Our proposal right sizes all computational and office spaces to the furniture standards shown in the bridging document furniture plans.

See figures 4.54 & 4.55 for more detail.

5. Increase Natural Light in the Open Labs

Many of the laboratory spaces in the bridging documents are designed with little to no direct access to natural light.

Our proposal innovates the planning to provide **significant improvements of natural light** to the expansion building. This exterior glazing also minimizes the Western exposure resulting in a more sustainable approach to the design.

Refer to figures 4.56 through 4.59

6. Minimize West/SW facing glass

The massing of the bridging document design is planned with many spaces facing W/SW. This results in the need for an exterior skin to help mitigate glare and the heat of the western sun.

Our proposed design **optimizes the northern and southern exposures** while minimizing glazing along the W/SW facades.

Refer to figures 4.60 & 4.61

7. Optimize Solar Shading on the Exterior

The bridging document design integrates vertical shading elements along the Western facades which work well to protect against sun exposure, but they also continue the fins around to the northern facade. While this can provide a distinct architectural aesthetic, it isn't significantly needed for those facades.

Our proposed design optimizes the massing to **eliminate the need for additional exterior shading** along the north facade.



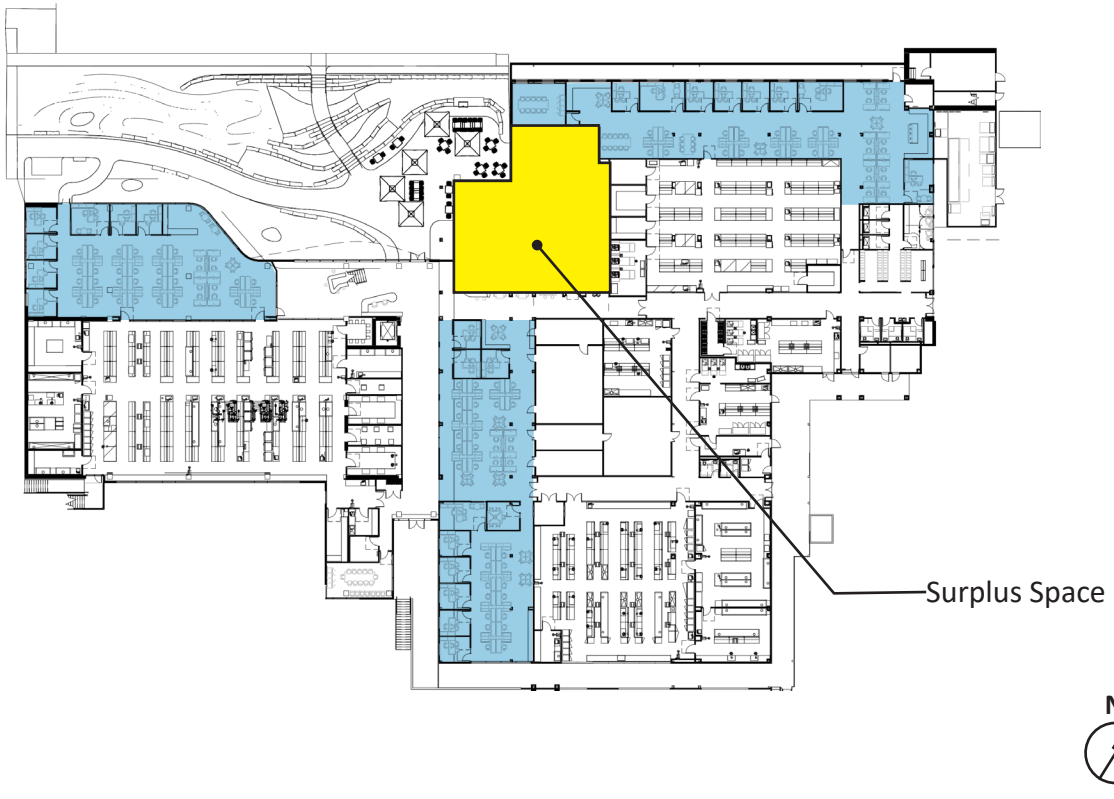
Bridging Document - Office Spaces

Figure 4.54



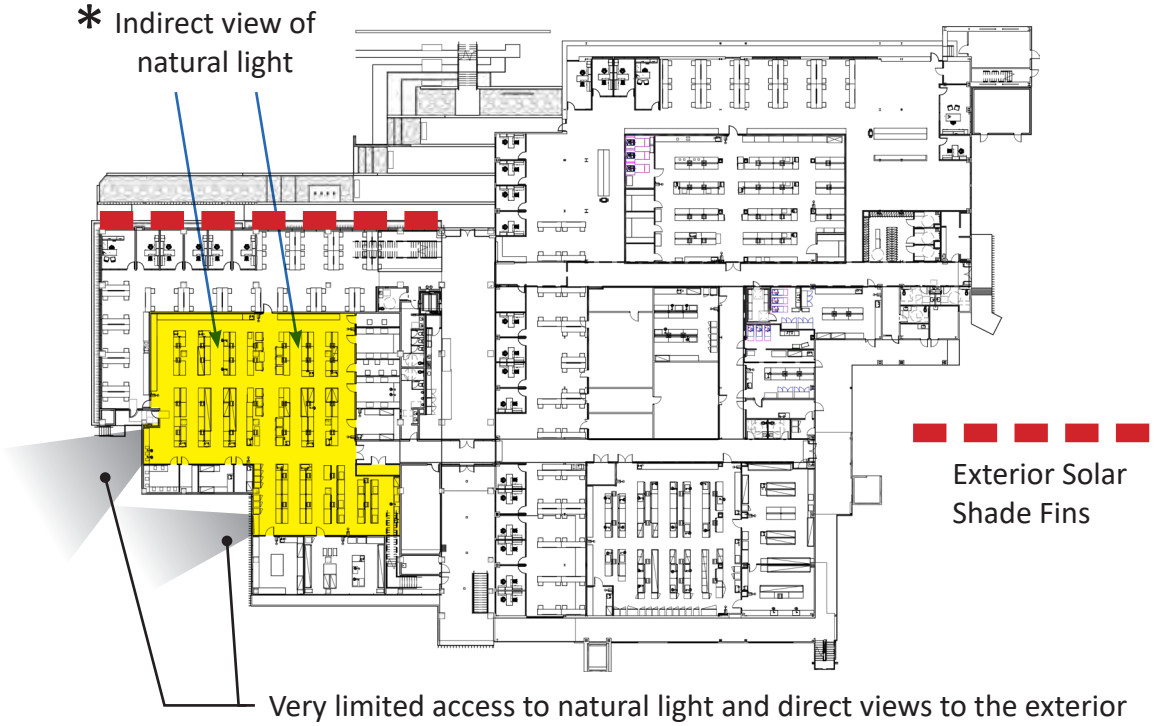
Proposed Design - Office Spaces

Figure 4.55



Bridging Documents - Limited Natural Light in Expansion

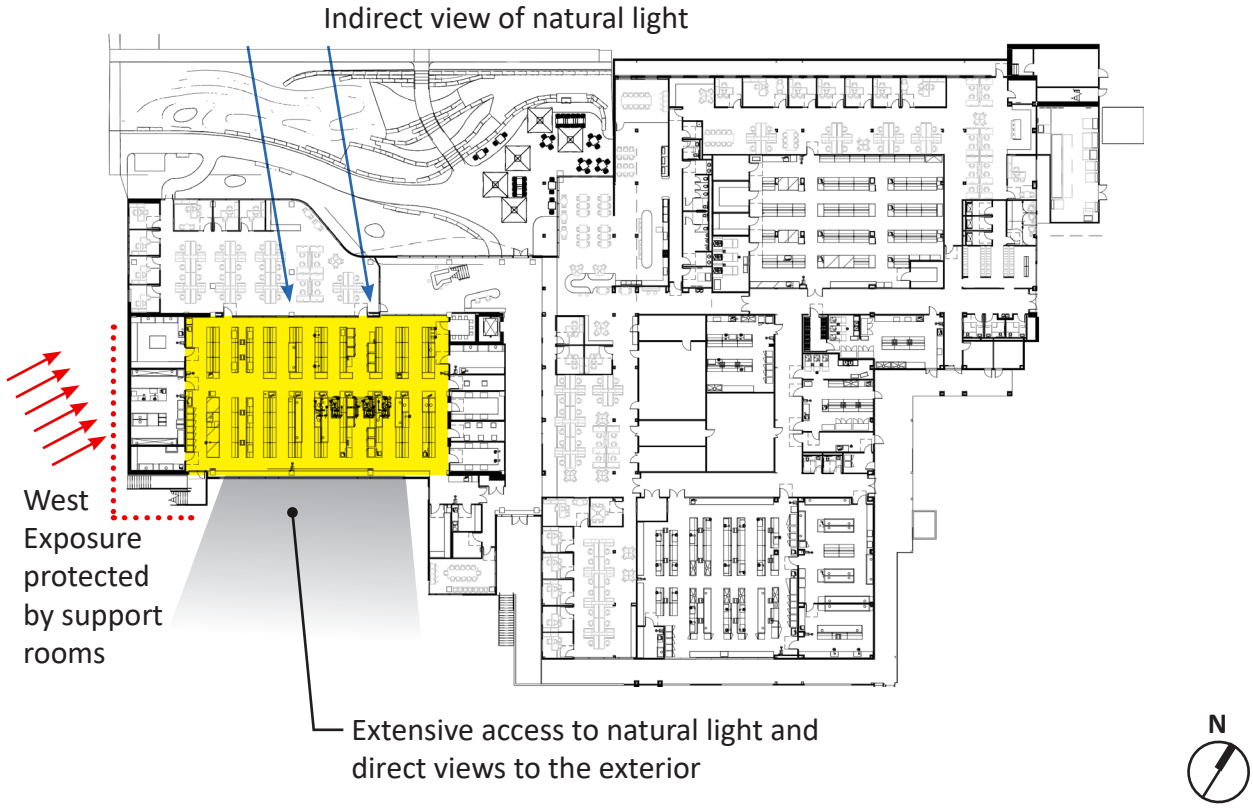
Figure 4.56



*Solar shade fins not needed for N/NW Exposure. They only result in lowering the amount of natural light.

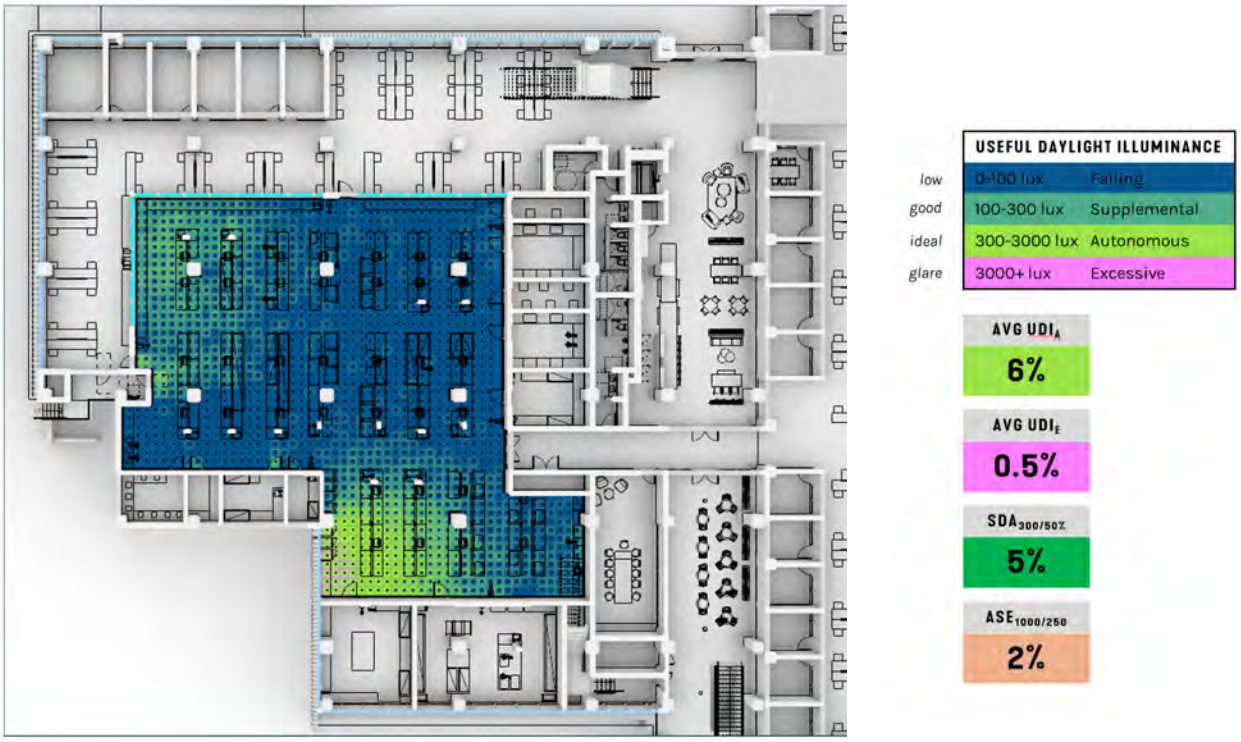
Proposed Design - Natural Light in Expansion

Figure 4.57



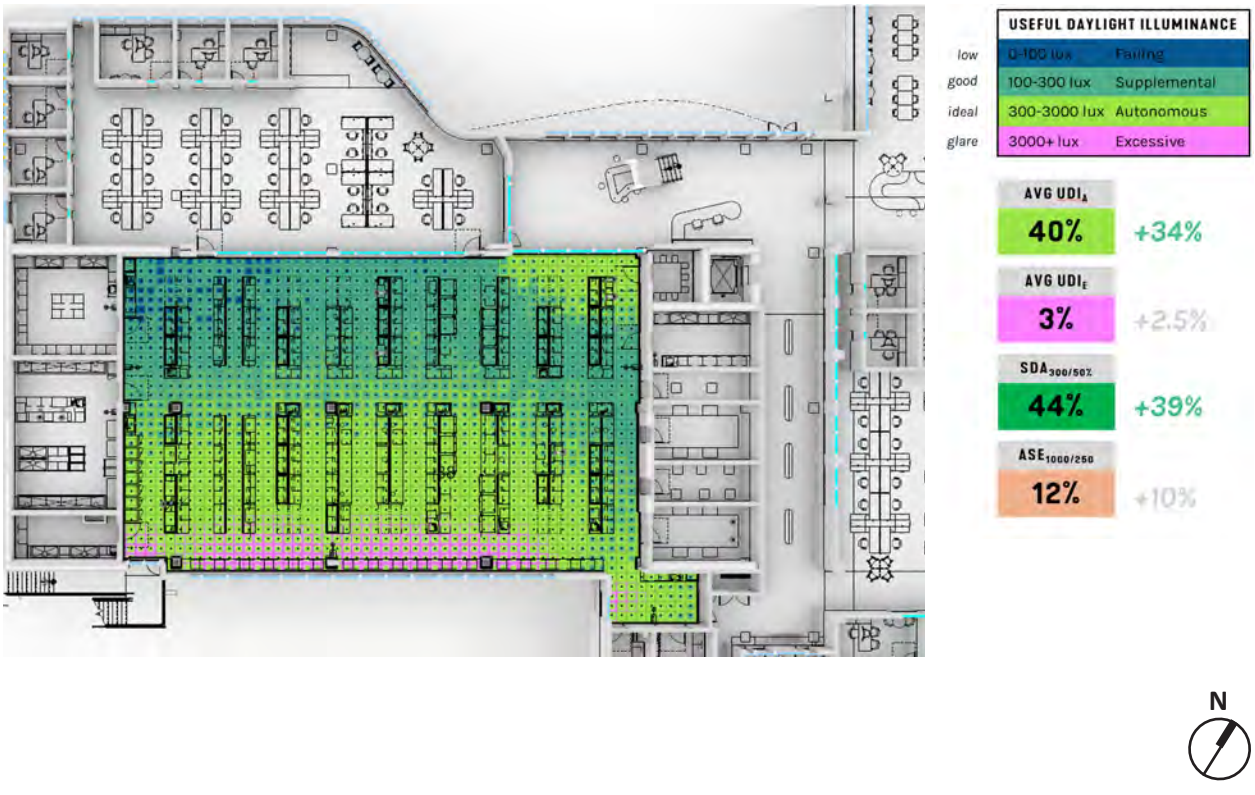
Bridging Documents - Annual Daylight

Figure 4.58



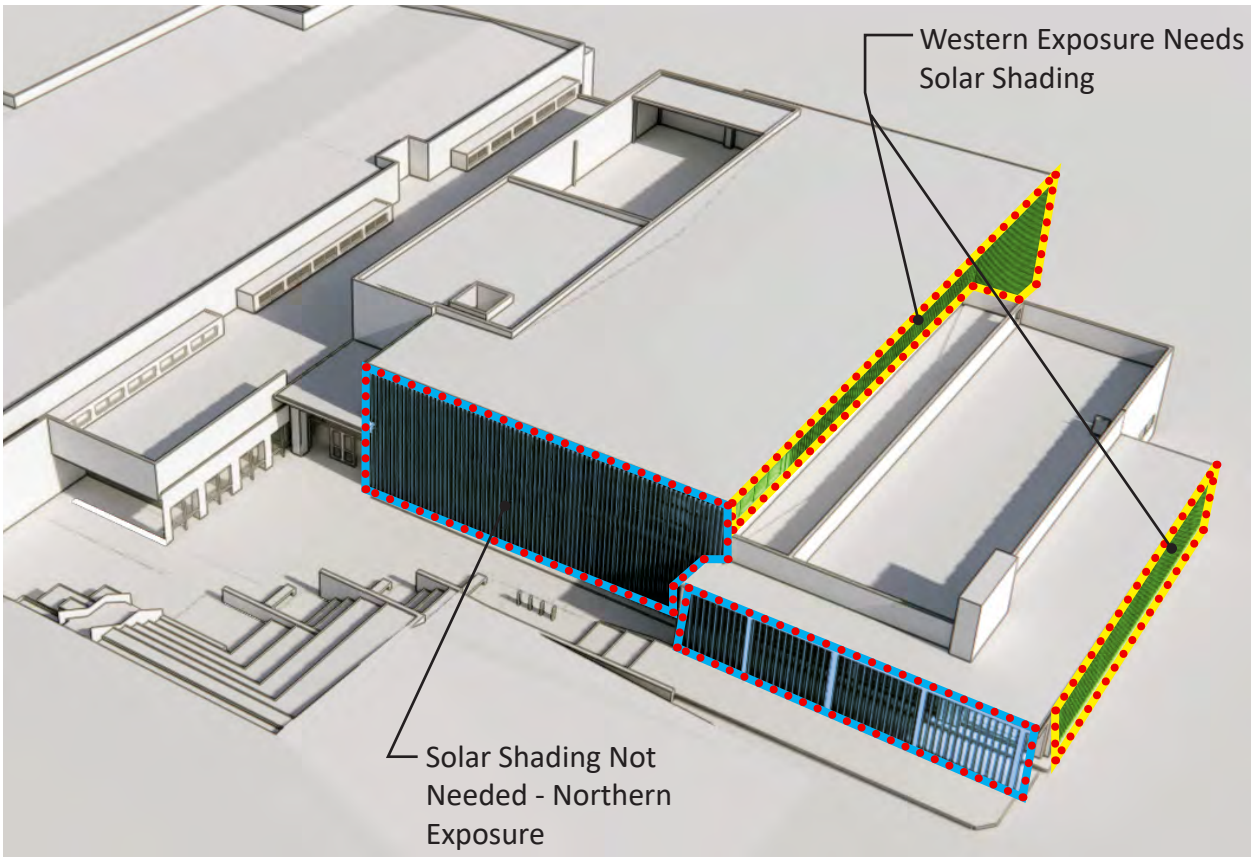
Proposed Design - Annual Daylight

Figure 4.59



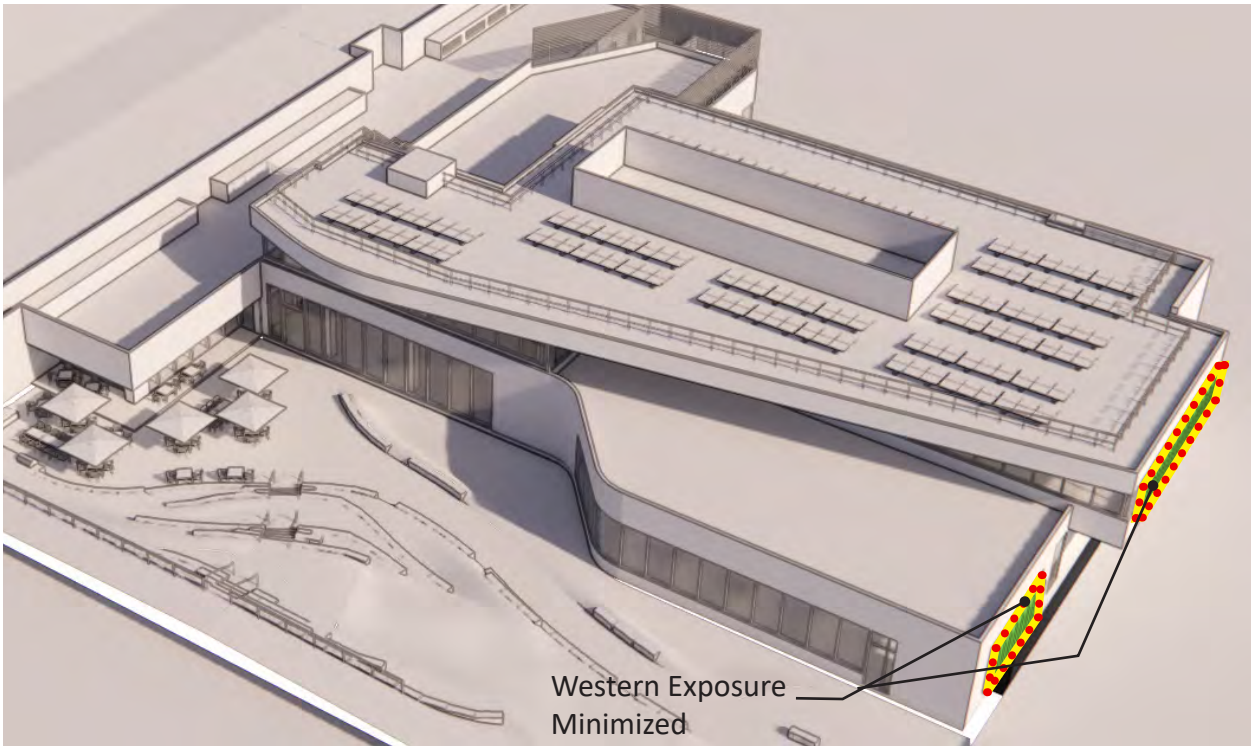
Bridging Documents - Exterior Solar Shading

Figure 4.60



Proposed Design - Passive Design & Solar Shading Alternate

Figure 4.61



8. Minimize Pile Footings

The bridging documents locate the south portion of the expansion very close to the subterranean water line. As a result, pile footings were engineered to ensure the safety of the line.

Our proposed design is able to **reduce the pile footings by more than 50%** due to its smaller footprint. See figure 4.62 below.

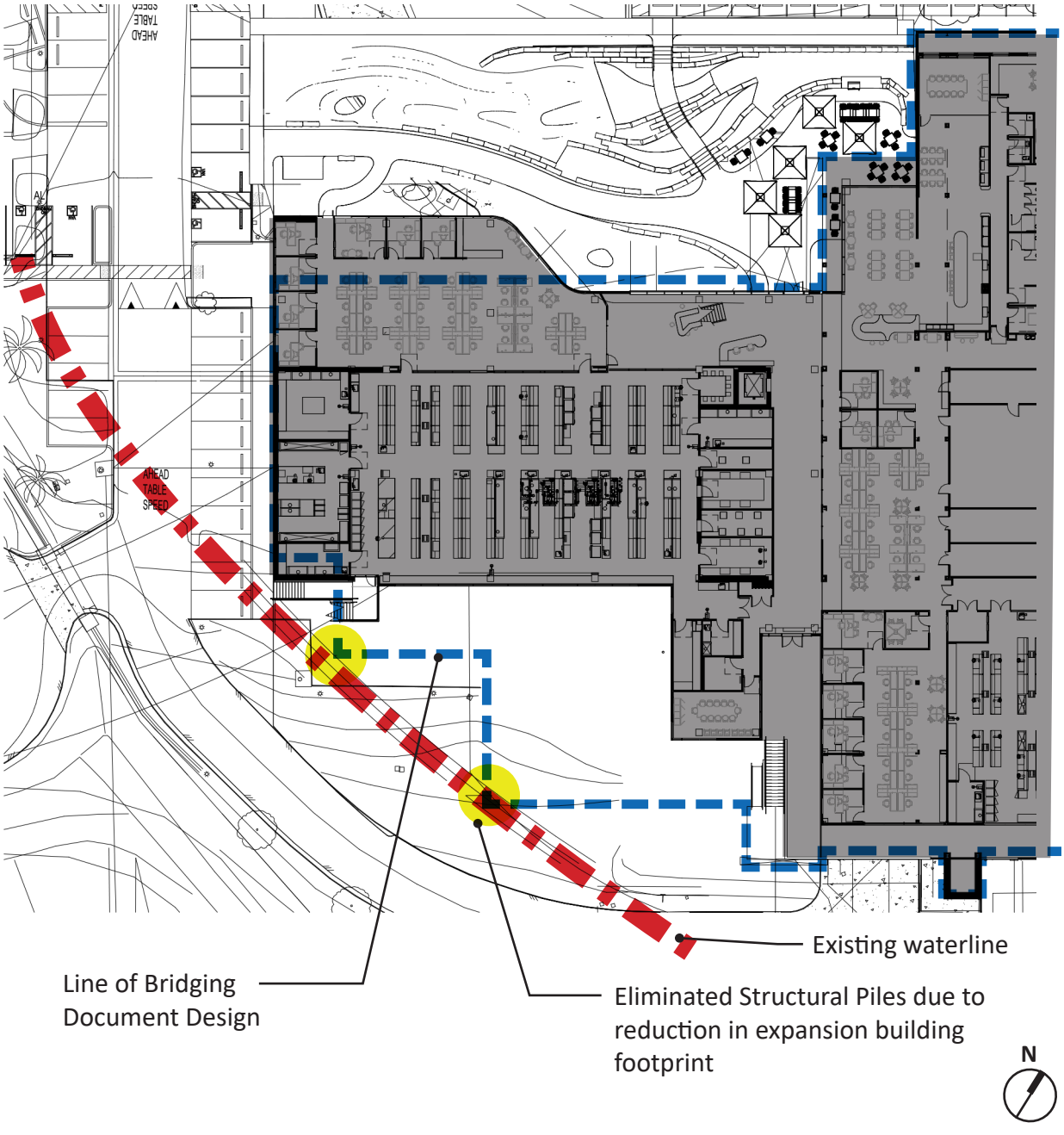
9. Reduce the Floor to Floor of Level 1

Implementing a flat plate structure as well as shear walls results in the ability to reduce the structural height measured from the floor of level 1 to the floor of level 2 without any loss of ceiling height in the interiors nor any loss of above ceiling space.

This approach uses less material, is more sustainable and saves cost while having no loss in function or quality of space.

Avoiding Costly Pile Footings

Figure 4.62



Streamline the Building Renovation

Our proposed design looks carefully at the bridging documents programs to **optimize every type of space.**

Furthermore, it enhances the laboratory layout to maximize use increasing the capacity in the open labs.

We discovered two opportunities for adjustment in the bridging documents to help in achieving the best functionality and cost value.

1. **Right size office spaces to the program**
2. **Optimize laboratory planning**

1. Excess space planned in the office areas

We have followed sheet TS 102 in the bridging documents for planning our design concept for providing the quantities of office types and spaces. We have also integrated the furniture types shown on sheets A5.102 & A5.104.

One discovery in the space planning process was was surplus space throughout the existing building areas. This afforded us the ability to reposition the cafe/kitchen such that is has direct access to the exterior and significantly better access to natural light.

This in turn allowed for a more functional and flexible open laboratory plan in inorganics.

See figures 4.63-4.66 for more detail.

2. Optimize laboratory planning

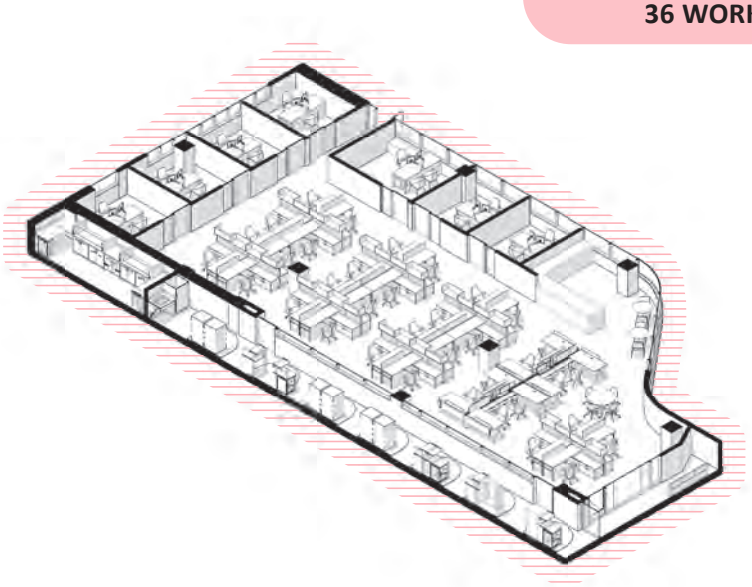
Our Team has developed a new proposed design that aligns with the vision, programming, and requirements of the Basis of Design's Bridging Documents with the areas of improvements listed below:

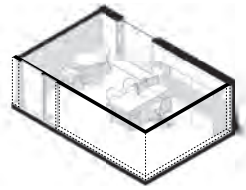
- Structural column placement of 31'-6" and a 10'-6" within the Lab Module that aligns with modern lab design which will **maximize efficiencies** within the lab.
- The design team has proposed a change in the geometry of the new building by designing a rectangular lab block that will create a more efficient design by **eliminating wasted space.** This design yields a higher net to gross and overall reduction of Gross Square Feet (GSF), while maintaining all programmatic elements listed in the Bridging Documents.
- The improved proposed design also creates efficiencies by the **addition of 150 linear feet of space** that can be used for additional casework or equipment for future growth without impacting the current layout in the Bridging Documents.
- The design team has **standardized PPE stations** at entry and exit points for every lab space previously not captured in the Bridging Documents.
- To improve the **quality of life** for occupants of the lab space, the design team has carefully studied the optimization of exterior openings to allow for the use of natural light within the lab space, while maintaining the lab program and flow requirements.

INORGANICS OFFICE SUITE

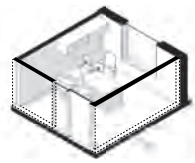
Figure 4.63

7 PRIVATE OFFICES
36 WORKSTATIONS





SENIOR OFFICE
Typical Size:12’ x 16’
Furniture System: PO-3



TYPICAL OFFICE
Typical Size:12’ x 10’
Furniture System: PO-3



TYPICAL WORKSTATIONS
Furniture System: WS-3



TYPICAL WORKSTATIONS
Furniture System: WS-7

Space	No.	Size (ASF)	Total (ASF)
Senior Office - Senior ES	1	204	**204**
Typical Office - ES III	5	120	**600**
Typical Office - DMQS ES III	1	120	**120**
Typical WS - ES II	16	80	**1,280**
Typical WS - Lab Tech	9	64	**576**
Typical WS - Future ES II	4	80	**320**
Typical WS - DMQS ES II	6	80	**480**
Typical WS - DMQS Clerical	1	64	**64**
Work Area	1	235	**235**
Total:	**44**		**3,879**

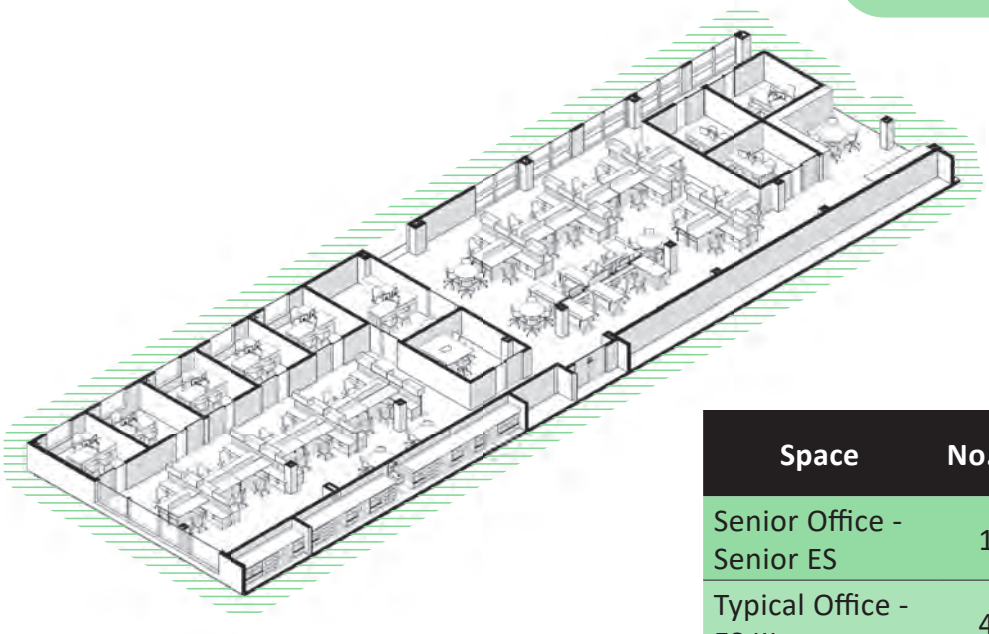
Figure 4.55

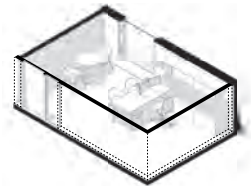
Figure 4.64

ORGANICS OFFICE SUITE

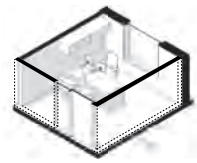
Figure x.x

9 PRIVATE OFFICES
36 WORKSTATIONS





SENIOR OFFICE
Typical Size:12’ x 16’
Furniture System: PO-3



TYPICAL OFFICE
Typical Size:12’ x 10’
Furniture System: PO-3



TYPICAL WORKSTATIONS
Furniture System: WS-3



TYPICAL WORKSTATIONS
Furniture System: WS-7

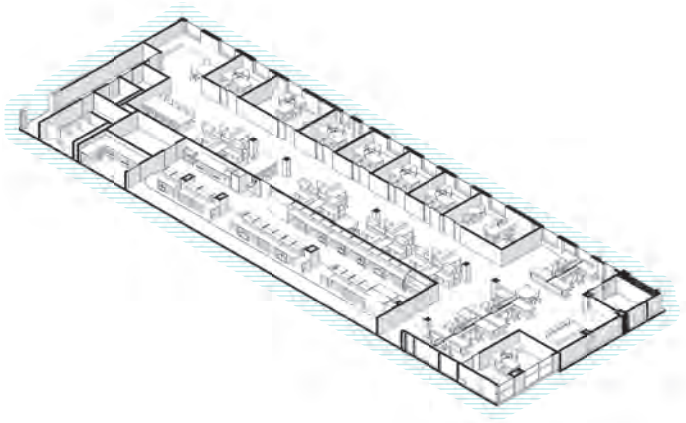
Supplemental Program Spaces

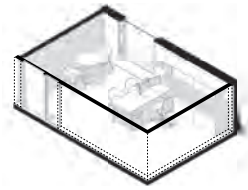
Space	No.	Size (ASF)	Total (ASF)
Senior Office - Senior ES	1	204	**204**
Typical Office - ES III	4	120	**480**
Typical Office - Future ES III	2	120	**240**
Typical Office - DMQS ES III	2	120	**240**
Typical WS - ES II	16	80	**1,280**
Typical WS - Lab Tech	3	64	**192**
Typical WS - Future ES II	5	80	**400**
Typical WS - Future Lab Tech	1	64	**64**
Typical WS - DMQS ES II	8	80	**640**
Typical WS - DMQS Clerical	2	64	**128**
Work Area	1	250	**250**
Typical WS	1	64	**64**
Small Conference Rm	1	140	**140**
Total:	**47**		**4,332**

Figure 4.65

BIOLOGY / PROCESS CONTROL SATELLITE LABS OFFICE SUITE

8 PRIVATE OFFICES
30 WORKSTATIONS





SENIOR OFFICE
Typical Size:12’ x 16’
Furniture System: PO-3



TYPICAL OFFICE
Typical Size:12’ x 10’
Furniture System: PO-3



TYPICAL WORKSTATIONS
Furniture System: WS-3



TYPICAL WORKSTATIONS
Furniture System: WS-7

Supplemental Program Spaces

Biology

Space	No.	Size (ASF)	Total (ASF)
Senior Office - Senior ES	2	204	**408**
Typical Office - ES III	3	120	**360**
Typical Office - Future ES III	1	120	**120**
Typical Office - DMQS ES III	1	120	**120**
Typical WS - ES II	8	80	**640**
Typical WS - Lab Tech	8	64	**512**
Typical WS - Intern	1	64	**64**
Typical WS - Future ES II	6	80	**480**
Typical WS - DMQS ES II	2	80	**160**
Work Area	1	210	**210**
Work Area	1	220	**220**
Typical WS	1	64	**64**
Total:	**35**		**3,358**

Process Control Satellite Labs

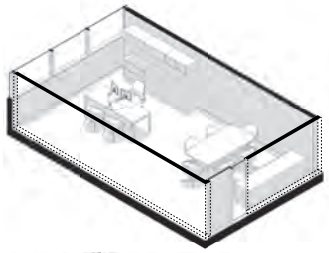
Space	No.	Size (ASF)	Total (ASF)
Senior Office - Senior ES	1	204	**204**
Typical WS - ES III	1	64	**64**
Typical WS - ES III	1	64	**64**
Typical WS - Lab Tech	2	64	**128**
Total:	**5**		**460**

Figure 4.66

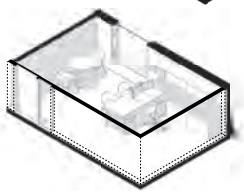
MANAGEMENT/ABS / DMQS OFFICE SUITE

12 PRIVATE OFFICES
34 WORKSTATIONS

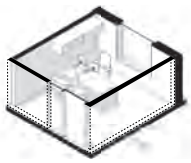




DIRECTOR OFFICE
Typical Size:12’ x 20’
Furniture System: PO-3



SENIOR OFFICE
Typical Size:12’ x 16’
Furniture System: PO-3



TYPICAL OFFICE
Typical Size:12’ x 10’
Furniture System: PO-3



TYPICAL WORKSTATIONS
Furniture System: WS-3



TYPICAL WORKSTATIONS
Furniture System: WS-7

Supplemental Program Spaces

Management/ABS

Space	No.	Size (ASF)	Total (ASF)
Director Offices	3	400	**1,200**
Senior Office - Visiting Staff	1	204	**204**
Typical WS - Account Clerk	1	64	**64**
Typical WS - Visiting Staff	1	80	**80**
Receptionist	1	64	**64**
Large Conference Rm	1	480	**480**
Small Conference Rm	2	180	**360**
Work Area	1	610	**610**
Storage	1	230	**230**
Storage	1	90	**90**
Typical WS	1	64	**64**
Total:	**14**		**3,446**

Data Management Quality Services

Space	No.	Size (ASF)	Total (ASF)
Senior Office - Senior ES	1	240	**240**
Typical Office - ES III	4	120	**480**
Typical Office - Admin Aide II	1	120	**120**
Typical Office - Future ES III	2	120	**240**
Typical WS - ES II	20	80	**1,600**
Typical WS - Clerical Assist.	1	64	**64**
Typical WS - Office Support	1	64	**64**
Typical WS - Future ES II	9	80	**720**
Work Area	1	620	**620**
Total:	**40**		**4,148**

Interconnect the Common Spaces

confluence - *noun*: is a **flowing together** or meeting point, commonly used in geography for where rivers join, but also for the merging of ideas, strategies, or events, creating a **combined richer whole**

Cafe/Kitchen & Common Spaces

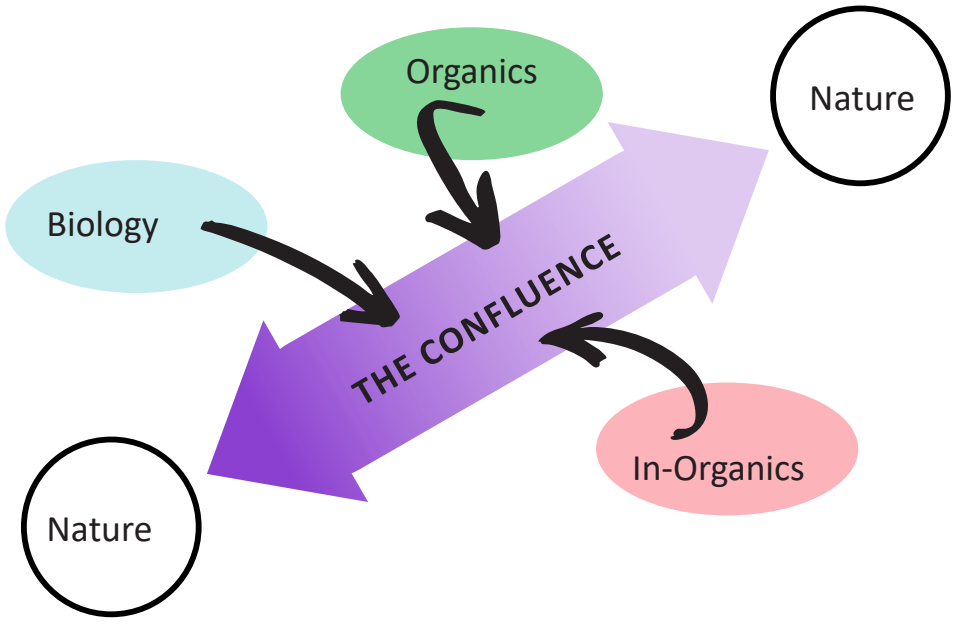
At the heart of our design concept is the desire to interconnect all of the staff through the common spaces in order to foster a healthy workplace. The intent is to create a sequence of spaces that bring people together as a community for collaboration, social interaction and respite.

We envision this space similar to a confluence where waters merge. Departments are interconnected through the common spaces of the building which is ultimately extends out into the landscape and site with views and connection to nature.

The bridging documents located the cafe/kitchen space centrally, however it resulted in an insular space that would have limited natural light or direct access to uncovered outdoor space. The outdoor space drawn in the bridging documents is covered and enclosed on all sides. See Figure xx.

Our proposal locates the cafe/kitchen in a place where it has **direct access to the outdoors** and landscape.

This approach makes increases it's flexibility for both day to day use as well as larger gatherings. **Activities can extend into the landscape**. Views to the entry garden promote a **biophilic environment** for staff and visitor. This also strengthens the building's sense of entry by creating a welcoming and active indoor/ outdoor space adjacent to the front door.

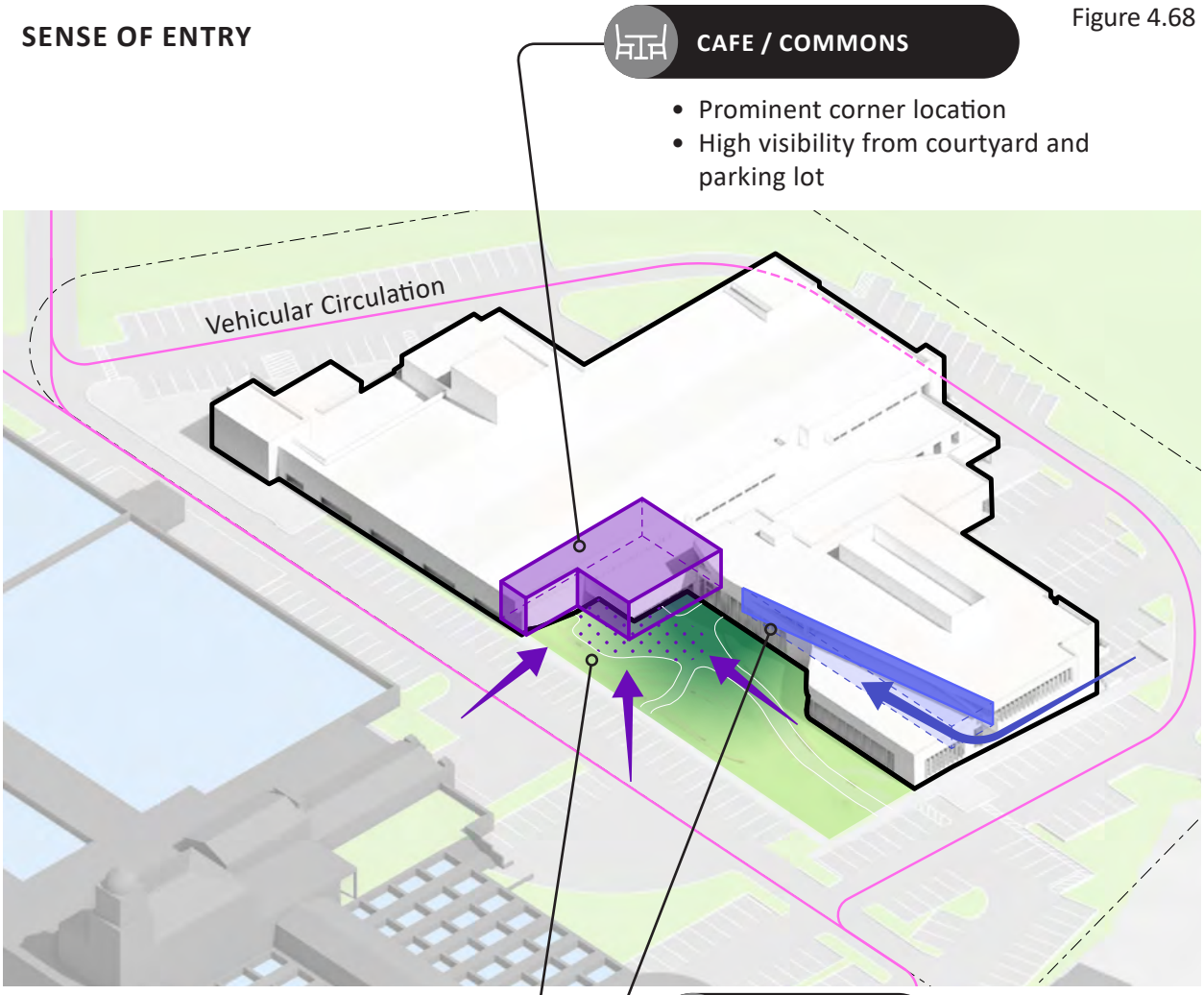


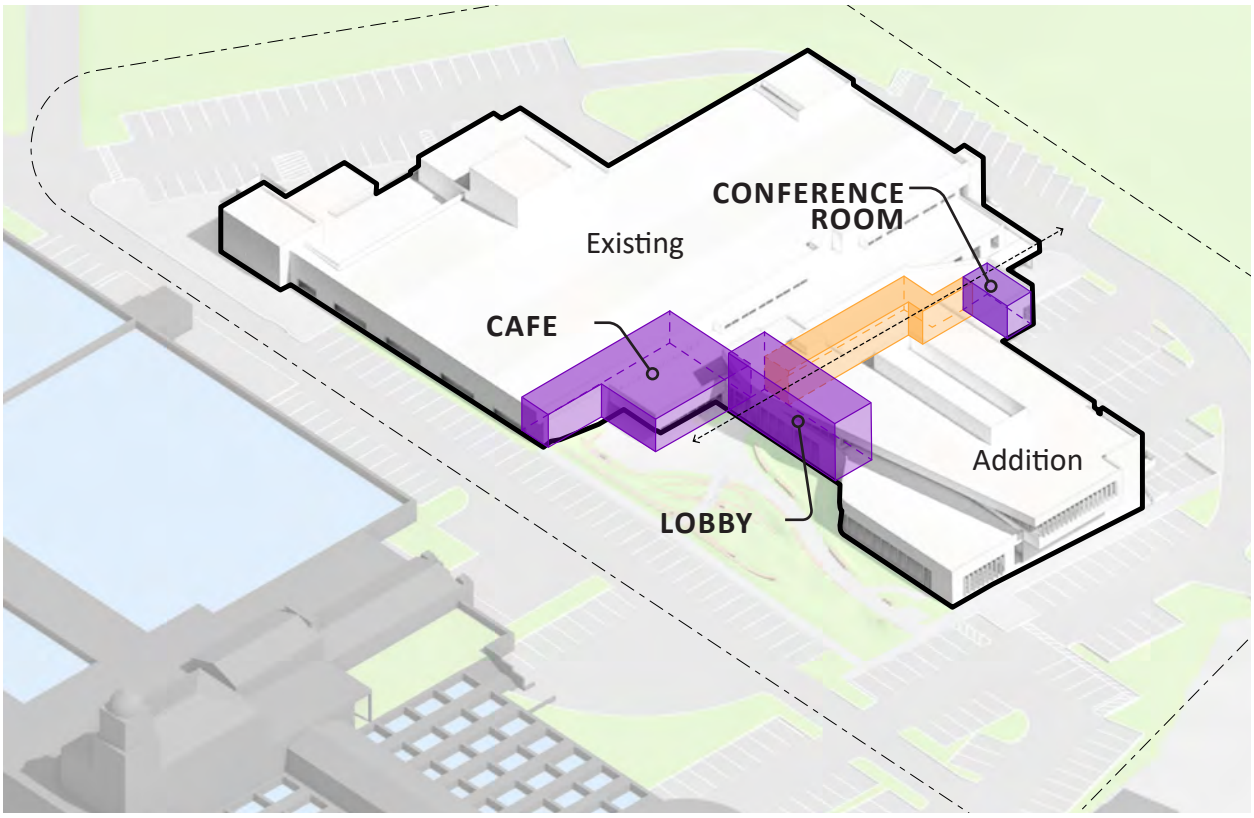
ADJACENCIES

Figure 4.67

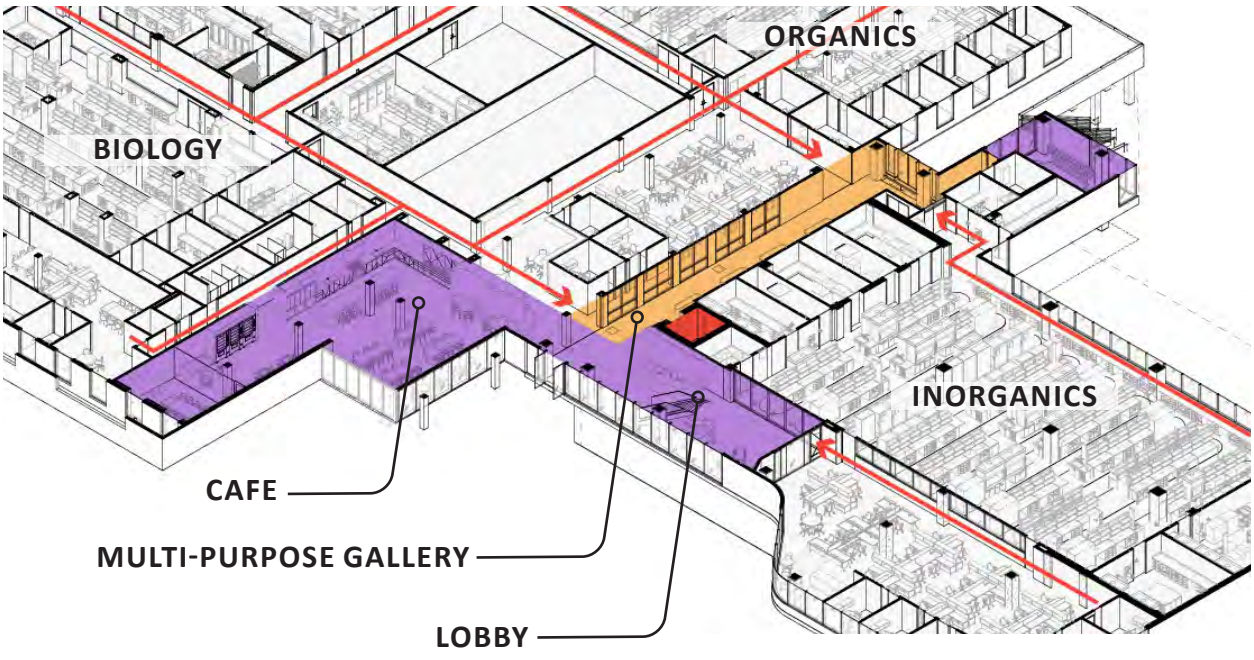
SENSE OF ENTRY

Figure 4.68





Common Spaces Concept Diagram Figure 4.69



Axonometric of Common Spaces Figure 4.70

Bridging Documents - Cafe/Kitchen

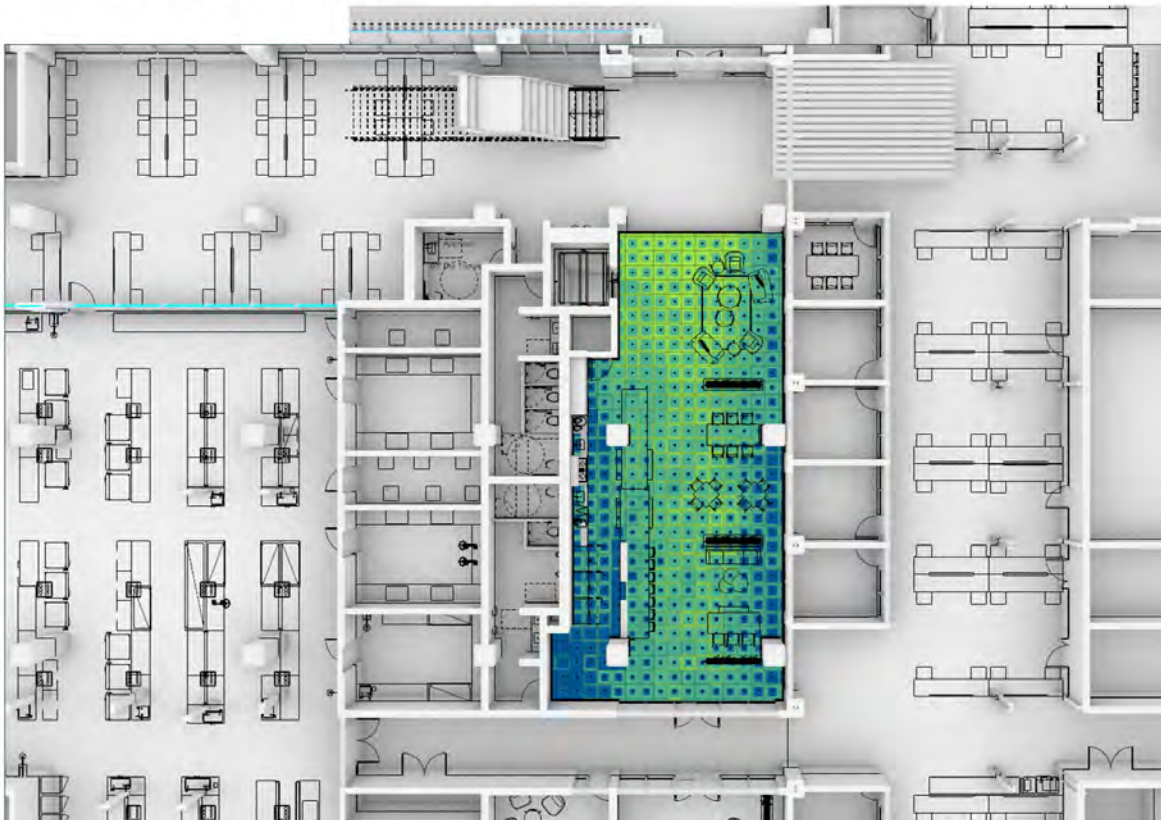
Figure 4.71



Figure 4.72

ANNUAL DAYLIGHT

CAFÉ – BRIDGING DOCUMENTS



USEFUL DAYLIGHT ILLUMINANCE		
low	0-100 lux	Failing
good	100-300 lux	Supplemental
ideal	300-3000 lux	Autonomous
glare	3000+ lux	Excessive

AVG UDI_A
12%

AVG UDI_E
0.5%

$SDA_{300/50\%}$
2%

$ASE_{1000/250}$
0%

Glazing VLT Values
Exterior 50%
Interior 88%



Proposed Common Spaces

Figure 4.73

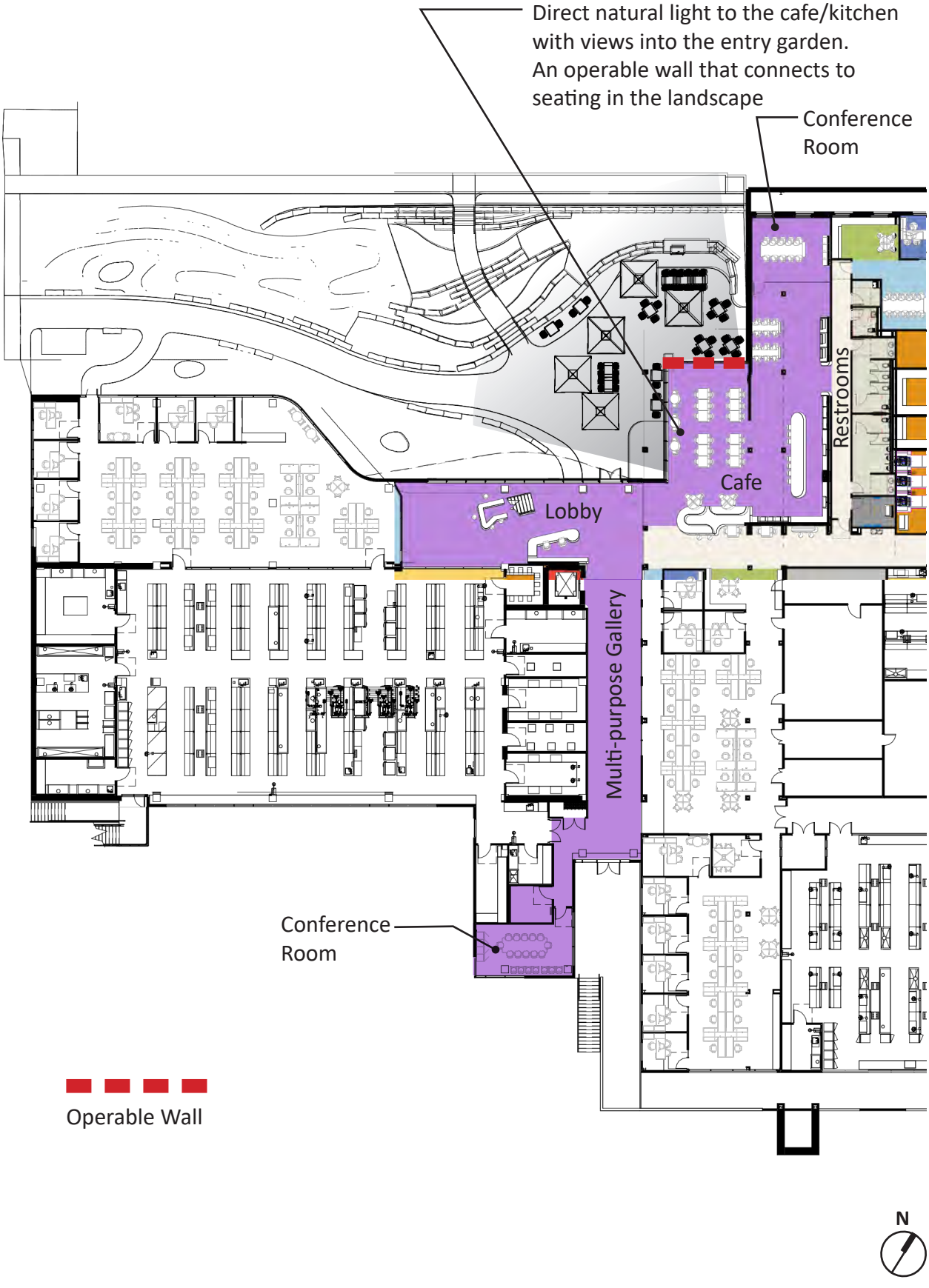
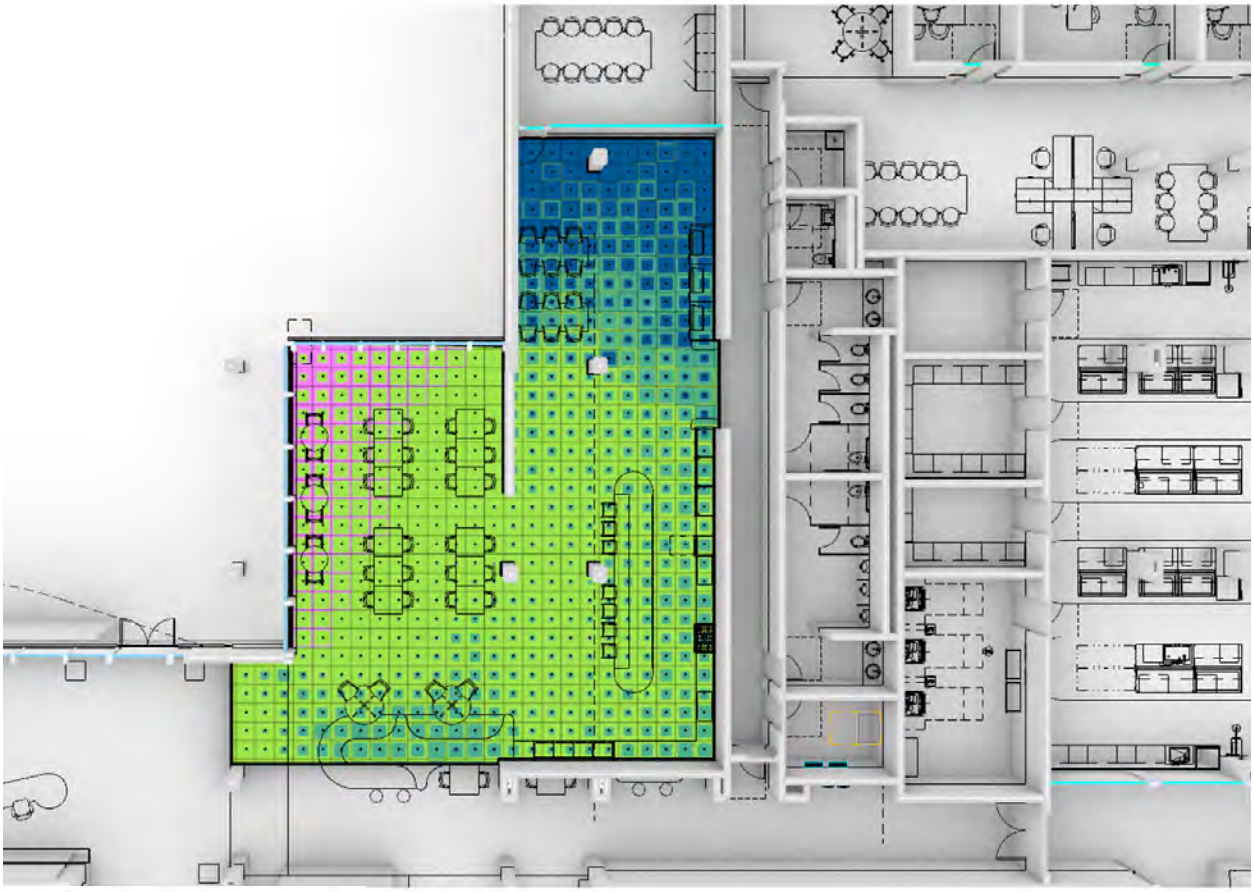


Figure 4.74

ANNUAL DAYLIGHT

CAFÉ – PROPOSED DESIGN



USEFUL DAYLIGHT ILLUMINANCE		
low	0-100 lux	Failing
good	100-300 lux	Supplemental
ideal	300-3000 lux	Autonomous
glare	3000+ lux	Excessive

AVG UDI_A	50%	+38%
AVG UDI_E	4%	+3.5%
$SDA_{300/50\%}$	57%	+55%
$ASE_{1000/250}$	8%	+8%

Glazing VLT Values
Exterior 50%
Interior 88%



4.1.5. Describe Design-Builder's proposed plan for new HVAC and electrical equipment.

The new HVAC system proposed for the project builds on the all-electric systems described in the bridging documents while providing enhancements that deliver a lower overall life-cycle cost for the City of San Diego. For the MEP systems, our design/build team has been extremely focused on enhancements that lower energy and water usage, lower maintenance costs, and improve reliability. The most significant enhancement proposed for the HVAC system is the upgrading of the chilled water system from a hybrid system utilizing water-cooled chillers combined with supplemental air-source heat recovery heat pump chillers to a completely air-source 4-pipe heat recovery heat pump system.

The significant benefits of this enhancement to the bridging design chilled water system are:

- **Greater Redundancy & Reliability**
- **Improved Simplicity of Controls and Operations**
- **Reduced Footprint of Mechanical Area**
- **Lower System Maintenance Costs**
- **Improved Energy Efficiency**
- **Lower Water Consumption (more than 1 million gallons/year saved!)**

The system's approach for the heating hot water system will remain the same, with all heating hot water coming from the air-source heat recovery heat pump modules. The benefit of the proposed chilled water solution is that there will be significantly more heat pump modules that can be utilized as a heating system backup, again improving overall system reliability and providing flexibility for future changes to the HVAC system. Furthermore, the additional heat pump modules create the opportunity for energy recovery to preheat the domestic and industrial hot water systems, further improving energy efficiency.

The HVAC air system for the laboratories will remain the same as the bridging design documents, with three 100% outside air rooftop air handling units serving the laboratory program spaces by phase, matched with manifolded laboratory exhaust systems within each phase. The significant change to these AHU systems is the upgrading of the Constant Airflow Supply Valves (CAV's) to Variable Airflow Supply Valves (VAV's) serving the labs to allow the Fume Hood Exhaust Air Valves (FEV's) and General Exhaust Air Valves (GEX's) to be modulated and set back and reduced during unoccupied hours and when fume hoods are closed, thereby providing significant energy savings.

Understanding the potential environmental health & safety impacts to occupants and visitors, we will include mathematical dispersion modeling and analysis of all laboratory exhaust stacks, to provide quantitative recommendations and design solutions for proper separation of these exhaust discharge sources from air handling unit air intakes, occupied zones around the building, as well as any door & window openings.

For the HVAC air system for the office areas, our Design/Build team has proposed a creative system to eliminate the burdensome above-ceiling filter/motor maintenance required throughout the building associated with the proposed 4-Pipe above-ceiling fan coil system.

The three systems studied and evaluated to replace the proposed 4-Pipe above-ceiling fan coil system were:

- **Option 1:** Rooftop VAV Air Handling Units with VAV shutoff boxes with hot water reheat for space zone temperature control
- **Option 2:** Rooftop VAV Air Handling Units with Series Fan-Powered VAV boxes with hot water reheat for space zone temperature control
- **Option 3:** Chilled Beams for space zone temperature control, and 100% OA AHU for demand-controlled ventilation to chilled beams
- **Bridging Design:** 4-Pipe Ducted Above-Ceiling Fan Coil Units for space zone control, and 100% OA AHU for demand-controlled ventilation to FCU's

Based on our evaluation of the energy costs and maintenance differences, as well as the overall life cycle costs of the above options, our Design/Build team is utilizing Option 3, Chilled Beams throughout for space temperature control. Chilled beams are energy-efficient systems that use HVAC coils mounted near the ceiling to provide cooling (and heating) through low-velocity air movement. Ventilation air is supplied through the beam to increase airflow, but there are no fans or moving parts at the beam itself. They help maintain comfortable indoor temperatures with reduced energy consumption compared to traditional forced-air systems.

Additionally, whereas the bridging design proposed separate DOAS units for the office ventilation, our Design/Build team will supply ventilation to the chilled beams from the 100% OA AHU serving the laboratories. This reduces the amount of equipment requiring maintenance on the roof.

Overall, the Chilled Beam system provides the following advantages and enhancements to the bridging design:

- **Lower Energy Costs**
- **Lower Maintenance Costs**
- **Quieter System Overall**
- **Increased Levels of Temperature Control**
- **Improved Air Quality in the Office Spaces**



Example installation of a chilled beam

Figure 4.75

The Electrical system design for the new building and facility improvements builds on the design approach proposed in the bridging documents with emphasis on minimizing power shutdown duration, careful planning to avoid damage to existing underground utilities and close coordination with City staff to ensure that City standards are incorporated. The electrical systems will establish uniformity of design based on City standards, best overall reliability, serviceability, flexibility, and robust electrical systems. All electrical equipment will be provided with 25% additional capacity above calculated loads and 25% spare breaker space, and the Standby generator will be provided with 10% additional kW capacity above the calculated load to meet the City standards and guidelines.

The electrical design will provide electrical systems that are energy-efficient, environmentally friendly, and easily maintainable. Strategies will be employed to conserve energy in accordance with the minimum LEED Silver requirement and supporting the stretch goals of higher LEED certification targets.

The lighting design for the new building and facility improvements project builds upon the foundational concepts outlined in the bridging documents, refining and enhancing the preliminary vision to meet performance, sustainability, and user experience goals. Our approach will maintain the integrity of the initial layouts while introducing thoughtful improvements to further support the lab's functional needs and developed architectural character. The lighting design will prioritize energy efficiency, visual comfort, and flexibility, with a layered lighting strategy that balances ambient illumination, task lighting, and accent features. Daylight integration and lighting controls will further optimize performance and reduce energy consumption. The design will preserve the intent of the original concept, using it as a springboard to deliver a cohesive, high-performing lighting solution that supports the lab's mission and fosters a productive, well-lit environment.

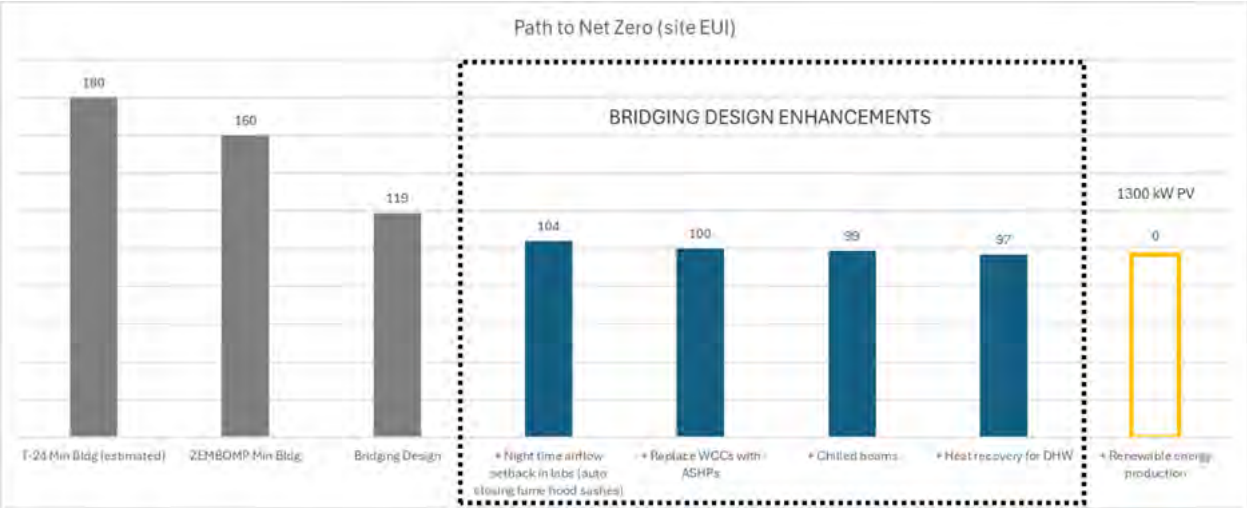


Figure 4.76

4.1.6. Describe the Design-Builder's plan to meet the requirements for LEED Certification, and the ZEMBOP requirements.

Our team's proposed design exceeds the LEED Silver Certification and LEED Zero Energy targets and achieves the ZEMBOP requirements. Beginning with the bridging documents, we have validated a pathway for achieving LEED v4.1 BD+C Gold certification.

SmithGroup's IMPACT (Integrated, Multidisciplinary, Performance Analytics and Climate-Action Team) is embedded into the design process to ensure all possible opportunities for sustainable design strategies are pursued and validated. This integrated design approach maximizes the opportunities for LEED and ZEMBOP requirements to fit seamlessly within the project design, budget, and schedule.

Early energy modeling from our IMPACT team has maximized rooftop PV to achieve ZEMBOP requirements, along with efficient systems and smart building envelope design. This high performance from energy systems results in maximizing the LEED credits for energy efficiency, renewable energy, and green power credits. The LEED credits in the Energy & Atmosphere category contribute more than a third of the total credits required to achieve LEED Gold, exceeding the LEED Silver goal for the project.

Upon award of the project, our IMPACT team will lead regular coordination efforts to ensure these critical goals are integrated into the design development and construction. As we have demonstrated on hundreds of previous LEED and Net Zero Energy projects, this integrated process ensures that sustainability targets can be met and exceeded.

4.1.7. Design-Builder shall provide the City with a 3D model of its proposed design. The REVIT files shall be released to proposers upon signing the City's waiver.

Our team's proposed design was developed using the **Autodesk Revit 2025** platform, integrating all design disciplines including MEP engineering, landscape architecture, and civil engineering. We have also produced a set of schematic design document deliverables that complement the 3D model provided, and clearly define our concepts that improve, optimize, and deliver an innovative design which is completely respectful of work already completed as part of the bridging documents effort. Our goal was to seek opportunities for optimization, while maintaining the fundamental program elements, adjacencies, flows, provide a solution that is overall less costly to the City of San Diego, and is inspiring to all those that will occupy and visit this new environment.

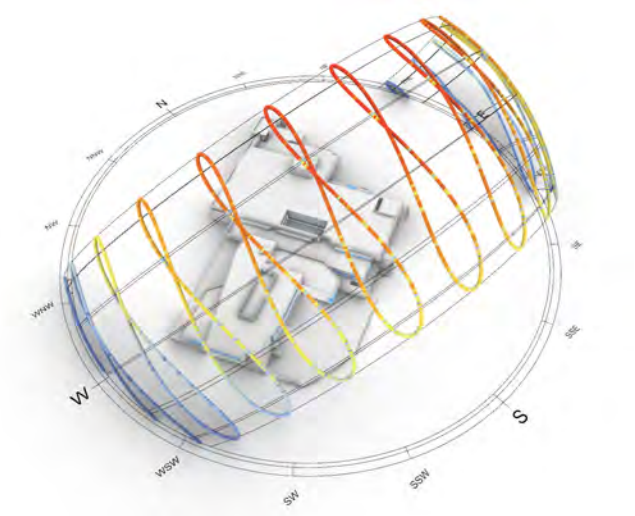
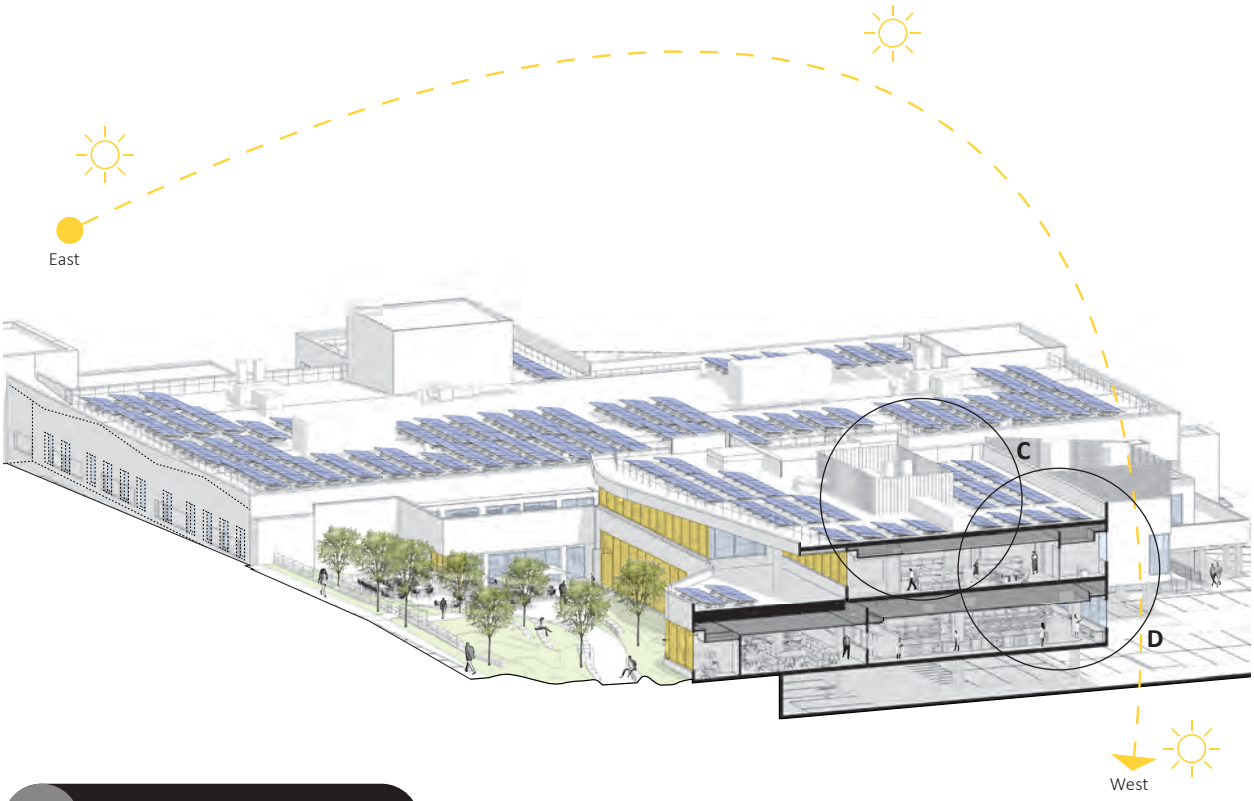
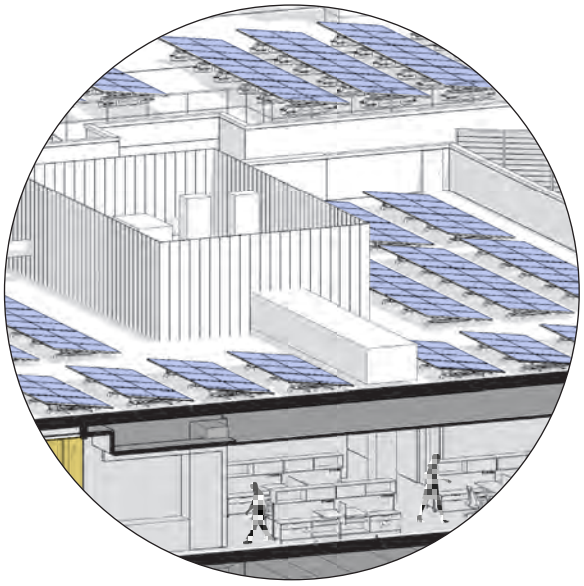


Figure 4.77

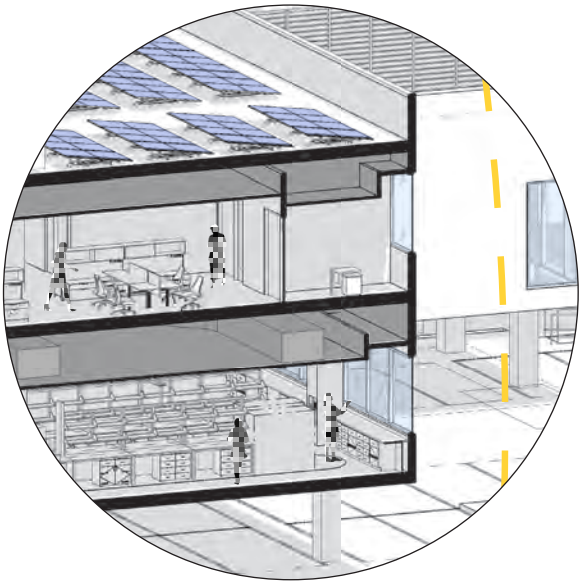


SOUND QUALITY



C

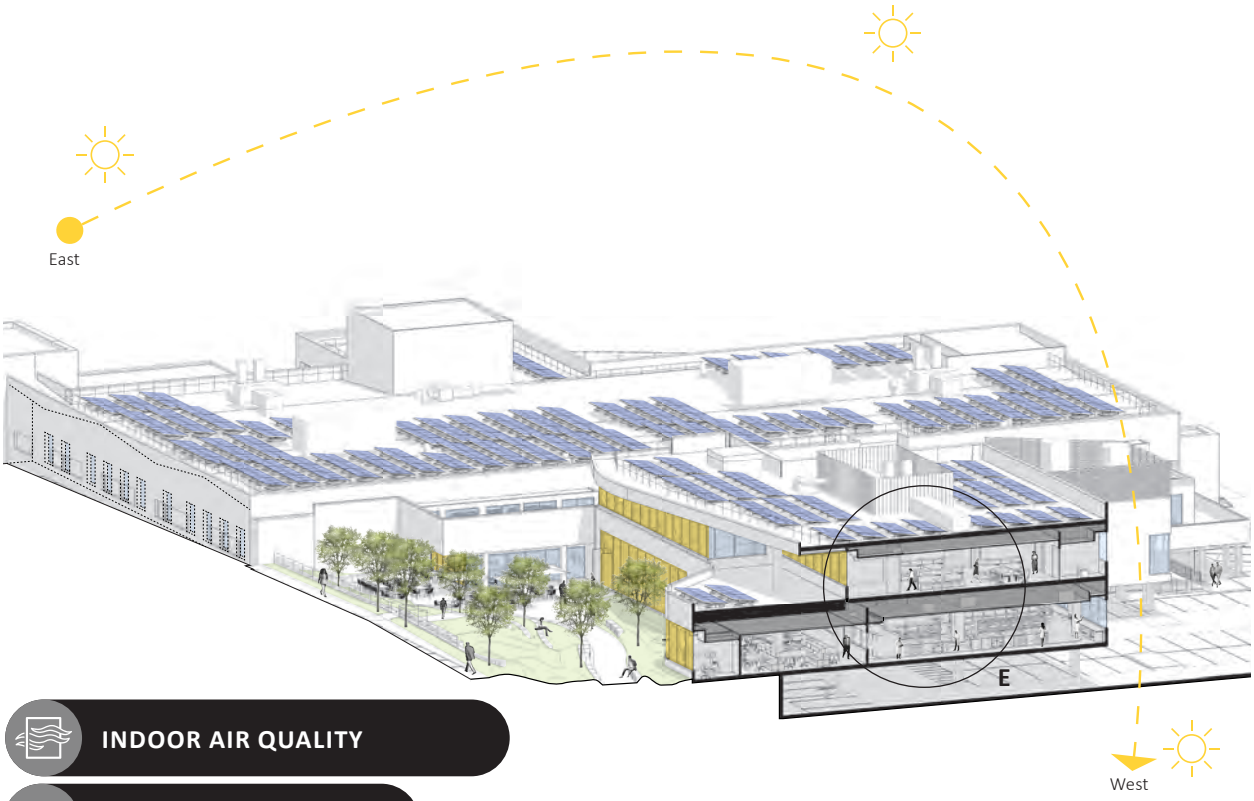
Roof mounted equipment will have vibration isolators



D

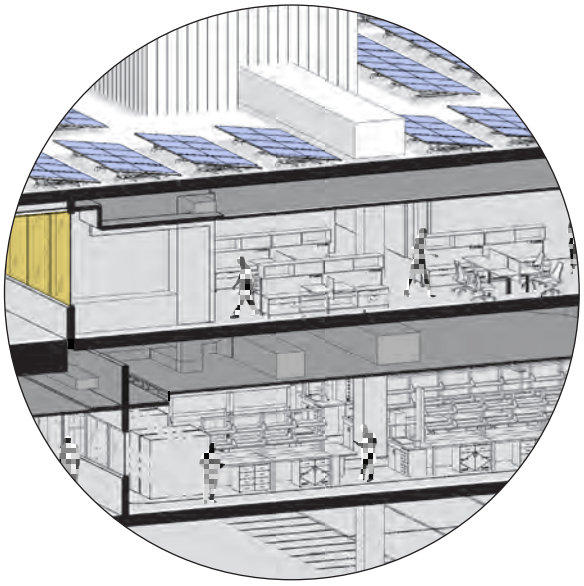
STC and NRC rated partitions, ceilings, floorings, openings, and finishes to provide an improved acoustic environment

Figure 4.78



INDOOR AIR QUALITY

HVAC STRATEGY

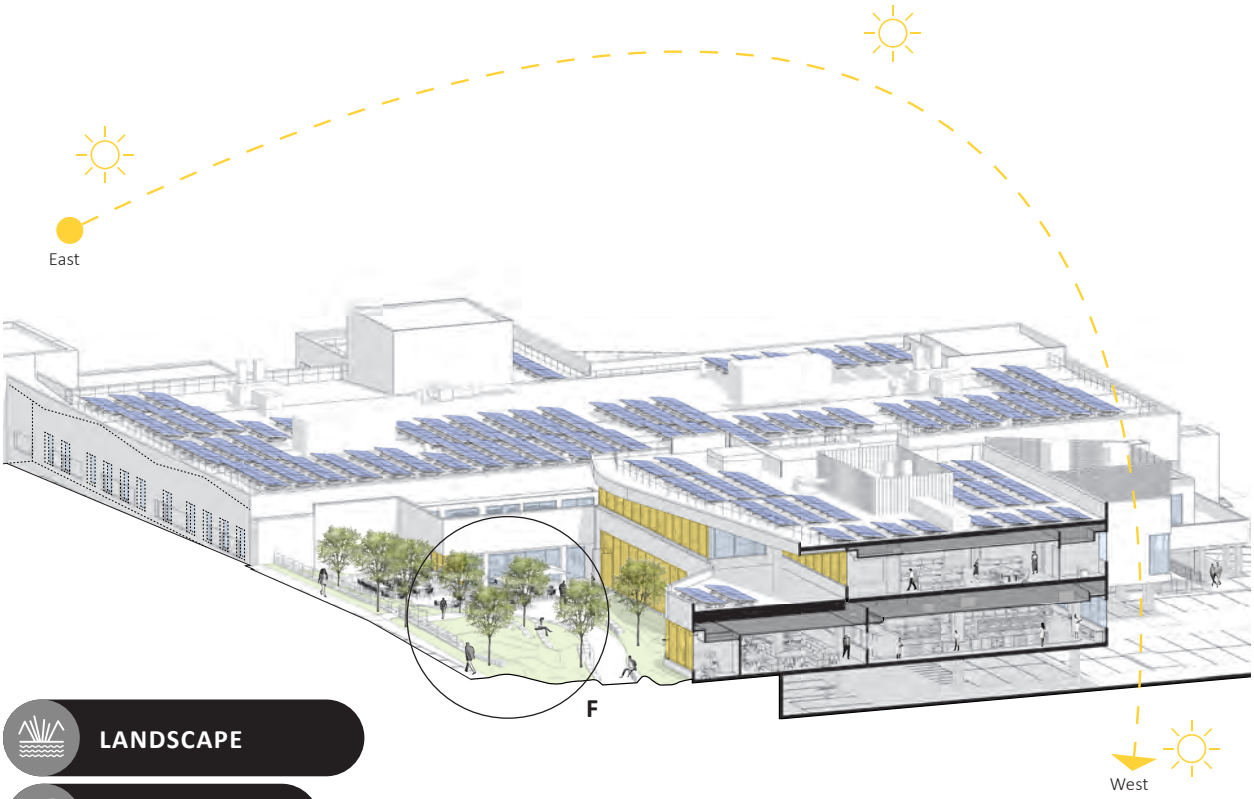


E

- *Chilled beams are an energy-efficient alternative to traditional air systems that are proposed at certain existing spaces*
- *VAV air handling systems*
- *Chilled water system enhancement*
- *Indoor air quality control*

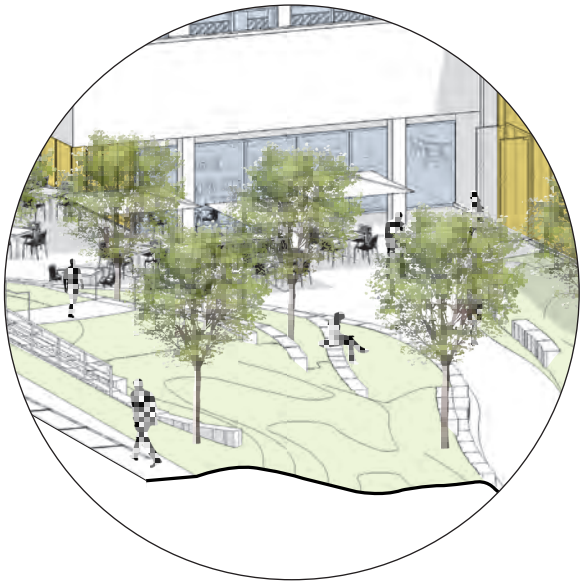
Figure 4.79

SUSTAINABILITY & WELLNESS



LANDSCAPE

BIOPHILIA



F

- *Water efficient irrigation / drip irrigation*
- *Native/adaptive drought tolerant planting*
- *Maximize tree canopy shade to combat heat island effect*
- *Introduction of pollinator planting for habitat*
- Views to outdoor landscapes

Figure 4.80

LEED PROJECT CHECKLIST

LEED v4 for BD+C: New Construction and Major Renovation
Project Checklist

Project Name: SD Alvarado Lab
Date: Oct-25

Y	?	N				
1			d	Credit 1	Integrative Process	1

Y	?	N			Location and Transportation	16
			d	Credit 1	LEED for Neighborhood Development Location	16
1			d	Credit 2	Sensitive Land Protection	1
1		1	d	Credit 3	High Priority Site	2
2		3	d	Credit 4	Surrounding Density and Diverse Uses	5
1		4	d	Credit 5	Access to Quality Transit	5
1			d	Credit 6	Bicycle Facilities (v4.1)	1
		1	d	Credit 7	Reduced Parking Footprint	1
1			d	Credit 8	Green Vehicles	1

Y	?	N			Sustainable Sites	10
Y			c	Prereq 1	Construction Activity Pollution Prevention	Required
1			d	Credit 1	Site Assessment	1
		2	d	Credit 2	Site Development - Protect or Restore Habitat (V4.1)	2
		1	d	Credit 3	Open Space (V4.1)	1
	3		d	Credit 4	Rainwater Management	3
2			d	Credit 5	Heat Island Reduction	2
1			d	Credit 6	Light Pollution Reduction	1

Y	?	N			Water Efficiency	11
Y			d	Prereq 1	Outdoor Water Use Reduction	Required
Y			d	Prereq 2	Indoor Water Use Reduction	Required
Y			d	Prereq 3	Building-Level Water Metering	Required
1	1		d	Credit 1	Outdoor Water Use Reduction	2
2	1	3	d	Credit 2	Indoor Water Use Reduction	6
1	1		d	Credit 3	Cooling Tower Water Use	2
	1		d	Credit 4	Water Metering	1

Y	?	N			Energy and Atmosphere	33
Y			c	Prereq 1	Fundamental Commissioning and Verification	Required
Y			d	Prereq 2	Minimum Energy Performance	Required
Y			d	Prereq 3	Building-Level Energy Metering	Required
Y			d	Prereq 4	Fundamental Refrigerant Management	Required
4		2	c	Credit 1	Enhanced Commissioning	6
18			d	Credit 2	Optimize Energy Performance	18
		1	d	Credit 3	Advanced Energy Metering	1
		2	d	Credit 4	Demand Response	2
3			d	Credit 5	Renewable Energy Production (V4.1)	3
1			d	Credit 6	Enhanced Refrigerant Management	1
2			c	Credit 7	Green Power and Carbon Offsets (v4.1)	2

Y	?	N			Materials and Resources	13
Y			d	Prereq 1	Storage and Collection of Recyclables	Required
Y			c	Prereq 2	Construction and Demolition Waste Management Planning	Required
2		3	d	Credit 1	Building Life-Cycle Impact Reduction	5
2			c	Credit 2	Building Product Disclosure and Optimization - Environmental Product Declarations (V4.1)	2
1	1		c	Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1	1		c	Credit 4	Building Product Disclosure and Optimization - Material Ingredients (V4.1)	2
2			c	Credit 5	Construction and Demolition Waste Management	2

Y	?	N			Indoor Environmental Quality	16
Y			d	Prereq 1	Minimum Indoor Air Quality Performance	Required
Y			d	Prereq 2	Environmental Tobacco Smoke Control	Required
1		1	d	Credit 1	Enhanced Indoor Air Quality Strategies	2
2	1		c	Credit 2	Low-Emitting Materials (LEED v4.1)	3
1			c	Credit 3	Construction Indoor Air Quality Management Plan	1
	1	1	c	Credit 4	Indoor Air Quality Assessment	2
		1	d	Credit 5	Thermal Comfort	1
1		1	d	Credit 6	Interior Lighting	2
		3	d	Credit 7	Daylight	3
		1	d	Credit 8	Quality Views	1
		1	d	Credit 9	Acoustic Performance	1

Y	?	N			Innovation	6
1			d	Credit 1.3	Innovation: Purchasing - Lamps	1
1			d	Credit 1.6	EP: EPD's	1
1			c	Credit 1.7	EP: Energy Performance	1
1			d	Credit 1.8	Green Building Education	1
1			d	Credit 1.9	Pilot: Prevention Through Design	1
1			d	Credit 1.11	LEED Accredited Professional	1

Y	?	N			Regional Priority	4
1			d	Credit 1.1	Regional Priority: Optimize Energy Performance (Threshold=10)	1
		1	d	Credit 1.2	Regional Priority: Surrounding Density & Diverse Uses (Threshold=5)	1
		1	d	Credit 1.3	Regional Priority: Access to Quality Transit (Threshold=3)	1
		1	d	Credit 1.4	Regional Priority: Reduced Parking Footprint (Threshold=1)	1
1			d	Credit 1.5	Regional Priority: Rainwater Management (Threshold=2)	1
		1	d	Credit 1.6	Regional Priority: Indoor Water Use Reduction (Threshold=4)	1

Y	?	N			TOTALS	Possible Points: 110
65	11	34			Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110	

Commitment to The City of San Diego's Project Values

Hensel Phelps has aligned its partnering approach with The City of San Diego's core values to ensure a collaborative and impactful project delivery. To support operational continuity, a dedicated focus group will maintain laboratory operations throughout construction. In pursuit of high standards and certifications, Hensel Phelps is engaging in specialized quality assurance efforts to efficiently achieve ELAP certification. Addressing the City's zero emissions goal, sustainability workshops are being conducted to contribute toward the 2035 target of eliminating greenhouse gas emissions. For local workforce participation, the team is partnering with SLBE/ELBE firms in a structured manner to exceed the 3.4% inclusion benchmark. Finally, to uphold effective communication, regular updates will be provided to stakeholders regarding laboratory functionality and any potential disruptions. This comprehensive response demonstrates Hensel Phelps' commitment to aligning with the City's strategic priorities.

Delivering on the City's Vision

Hensel Phelps is committed to delivering the Alvarado Laboratory Improvements Project in full alignment with the City's vision and requirements. Through a transparent, inclusive partnering process—led by certified facilitators and proven strategies—we foster a collaborative environment where all stakeholders, including the City, are engaged, informed, and empowered. This approach ensures that City input is integrated throughout every phase of the project, resulting in a "world-class" laboratory that meets or exceeds functional, operational, and sustainability goals, all while maintaining essential services during construction.



DC Water Headquarters

Outdoor Terrace and Gathering Space



5. Construction Plan

5. Construction Plan

5.1 Describe the proposed construction plan for this Project, including the following, at a minimum:

5.1.1. Construction approach and methods: Explain the Design-Builder's approach to the sequencing of the project as a whole. Include information on the overall approach and methods to the construction.

5.1.2. Plan for operation of facility during construction: Describe how Design Builder will allow for client operations to continue throughout construction, including temporary housing of staff, and/or staff and equipment relocation.

5.1.3. Plan for phasing of construction activities

DELIVERING WORLD-CLASS LABS WITH CERTAINTY & WITHOUT INTERRUPTION

Every day this laboratory runs, it protects San Diego's drinking water and, with it, the health and safety of its residents. That responsibility cannot lapse for construction, and neither will our focus on keeping the lab fully operational throughout the course of the project.

From the outset of this procurement, we have immersed ourselves in how you operate: how samples move, how certifications occur, and where processes cannot afford to breakdown. That knowledge, combined with our design-build's collective lab expertise—shapes a construction plan that reduces internal moves, limits operational overlap, and simplifies the entire sequence into three clear, safe, and separate stages. The result is a path that respects the people doing the work just as much as the work itself.

Reducing Operational Disruptions

We recognize that testing, reporting, and recertification must continue, which is why **we have reshaped the renovation work sequence from three stages of interim and permanent moves to two**. This shift minimizes disruption to critical operations by reducing staff and equipment moves and creating clear, protected boundaries between active and inactive lab areas. Our approach:

- Consolidates relocations and eliminates unnecessary interim moves;
- Geographically isolates work zones to protect active analytical programs; and
- Simplifies the original intricate move plan into a clearer, safer sequence.



ELIMINATING TWO STEPS

INCLUDED IN PAGE COUNT

Supporting Continuity From Certifications to Workflows

Our construction plan enables parallel operations between existing and new spaces while certifications occur. This reduces downtime and shortens the overall turnover process by:

- Maintaining ongoing testing programs while new spaces undergo certification;
- Coordinating overlapping activities to streamline the ELAP certification process and ensure multiple areas progress simultaneously

The net result of this revised plan removes roughly a year of phase-related turnover that the original plan would require, while complying with the City's stipulated 1,180 working days.*

**Please see our schedule section for a more in-depth breakdown of working days.*

Building for Efficiency, Safety, and Fiscal Responsibility

The strategies below ensure continuous laboratory operations, reduce unnecessary phase transitions, and support an efficient, predictable, and well-controlled delivery.

UPFRONT PLANNING & ELIMINATION OF UNFORESEENS

Upon Notice to Proceed, we will start with a comprehensive investigation of existing laboratory conditions. This allows our MEPF design team to accurately model systems and verify testing workflows so that we can plan to protect in-place systems and maintain operational spaces at all times.

ROBUST PROCESS FOR SAFE DEMOLITION

Through our years of experience working on active airports, hospitals, and educational campuses, we have developed a detailed demolition process to ensure continuity and mitigate unforeseen interruptions.

First, all systems that remain live will be flagged by the responsible trade. From there, any systems to be demolished will be safed-off/disconnected by the responsible trade, and lock-out tag-out procedures will be followed as needed. We then require all trades conducting demolition fill out a "Right to Demo" form identifying the utility and any adjacent utilities to obtain approvals from the MEP foreman as well as the Hensel Phelps superintendent prior to start of work. This process ensures no mistakes during demolition.

PERIMETER/CONTAINMENT INSPECTIONS & PROTOCOLS

We implement rigorous daily inspections and specialized protocols for all of our laboratory projects, prioritizing containment, safety, and continuous monitoring. Core tactics include:

- **Environmental Control Assessments:** Identifies hazards in the planning stages and integrates them into the project.
- **Containment Strategies:** Includes physical barriers, monitoring, filtration and air systems, and controlled access.
- **HVAC Protection:** Follows SMACNA standards and job-specific, developed Indoor Air Quality Plan to seal ducts and prevent contamination
- **Site-Specific Training:** Reinforces infection control protocols for all personnel, ensuring safety and uninterrupted operations.
- **Perimeter/Containment:** Daily safety inspections confirm barricade integrity, secure access points, and clear public paths. Reports are reviewed in project meetings to ensure compliance with the Accident Prevention Plan (APP). Urgent issues are raised to supervisors for immediate correction.
- **Public Hazard Analysis (PHA):** Conducted for all work scopes and reviewed with trade partners before each phase. Daily audits verify site security and public safety measures, including signage, traffic control, and access adjustments.

COMMUNICATION

We will conduct weekly touch points to discuss upcoming activities and any improvements that can be made throughout the project. Weekly look-ahead schedules will be shared with all stakeholders, and our team will coordinate and provide advance notification of any potentially disruptive activities. A dedicated project liaison will serve as the primary point of contact for laboratory staff, ensuring immediate response to operational concerns.

New Renovation Move Plan

Following the construction of the new laboratory building, we will implement a precise renovation move plan to ensure continuity of operations.

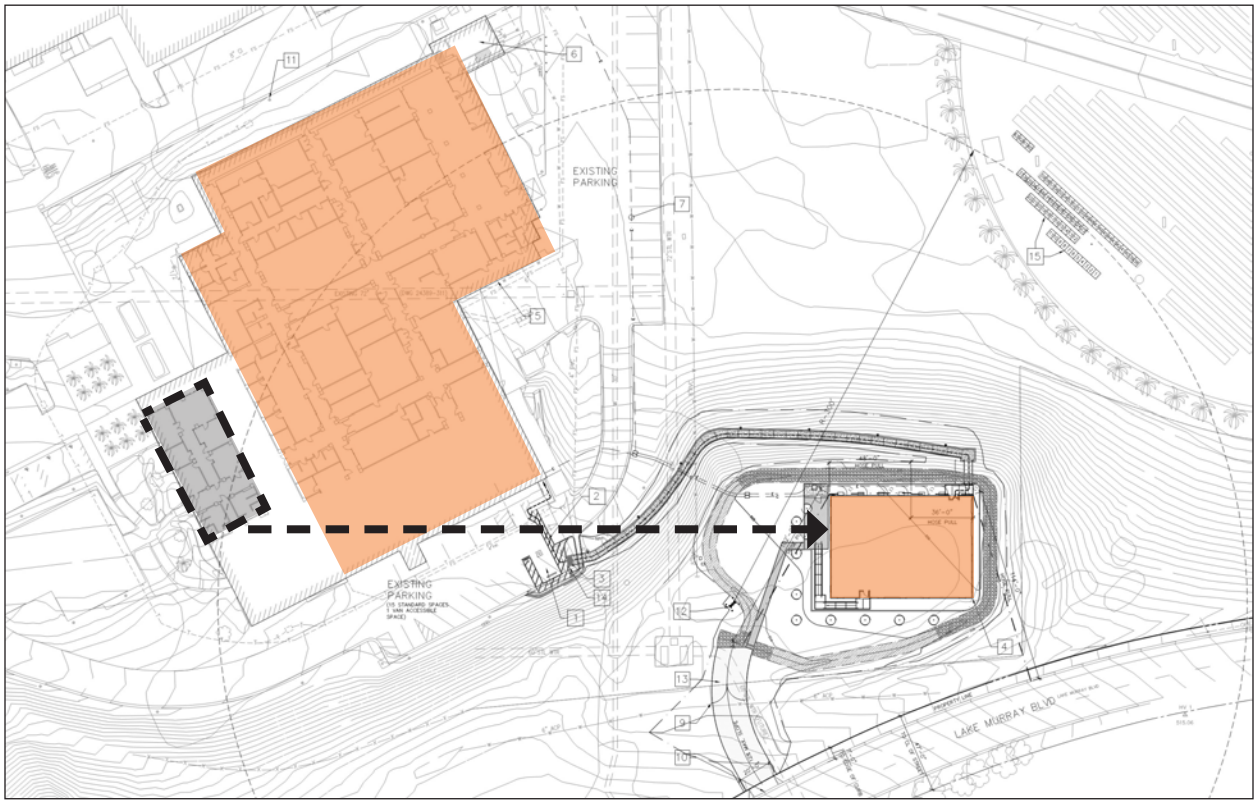
Prior to any relocations proposed in our two-stage renovation strategy, we will work closely with laboratory management to develop a detailed staff and equipment relocation plan that aligns precisely with all construction phasing and minimizes disruption to existing operations. Once all parties are aligned, we will communicate this plan to all stakeholders, allowing ample preparation time for laboratory staff.

An important part of our overall strategy is how we are addressing ELAP certification. Addendum 3, response A26, indicated a 4 step ELAP process with a duration range of four to five months where both old and new lab need to be operating. Addendum 8, response A8, indicated this is only an estimate and Design Build team can propose actual sequence. Leveraging our team's expertise, we strategically sequenced the process to meet the construction timeline. To achieve this, we maintained a one-month duration for each step while overlapping minor construction activities and implementing staggered start dates for each phase, except for the final assessment. We feel comfortable doing this due to the nature of construction activities that it will overlap with. These activities include owner furnishings, which is a part of the first step of ELAP (set up new lab), commissioning which will not affect testing, and punchlist activities which we can coordinate around step 2 of the ELAP process (IDOCs). There is no overlap with step 4 (assessment / report / application). In order to make the staggered starts within the ELAP process work we will ensure enough of the lab is setup within the first two weeks to start the IDOC process. We understand there are many Fields of Accreditation required and they can be started without the entire lab space moved into. This would be similar to the PT study which can be performed as soon as IDOCs for the specific Field of Accreditation are complete. There is no overlap from the PT study to the assessment as we will need all PT's complete prior to proceeding with the assessment. In addition, we believe we can beat the timeline provided for setting up the new lab but have kept it as given to be discussed further upon award. Detailed preplanning with all stakeholders will be necessary to achieve this.

Key to reducing the renovation plan from three primary stages to two will be supplementing the glass wash. This will enable us to absorb the last move into the first stage. This is detailed in the following pages with a step-by-step plan for construction and moves, including graphics.

Our plan includes one Substantial Completion at end of the project and a Beneficial Use milestone for each phase. In order to be successful for individual phases, we will need to coordinate a collaborative punch list process that will overlap with ELAP and Commissioning activities.

Step 1- MOVE Admin to Modular Office & Demo



PROGRAM KEY

- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

CONSTRUCTION ACTIVITY KEY

- Construction Zone
- Active Operational Zone

OTHER KEY

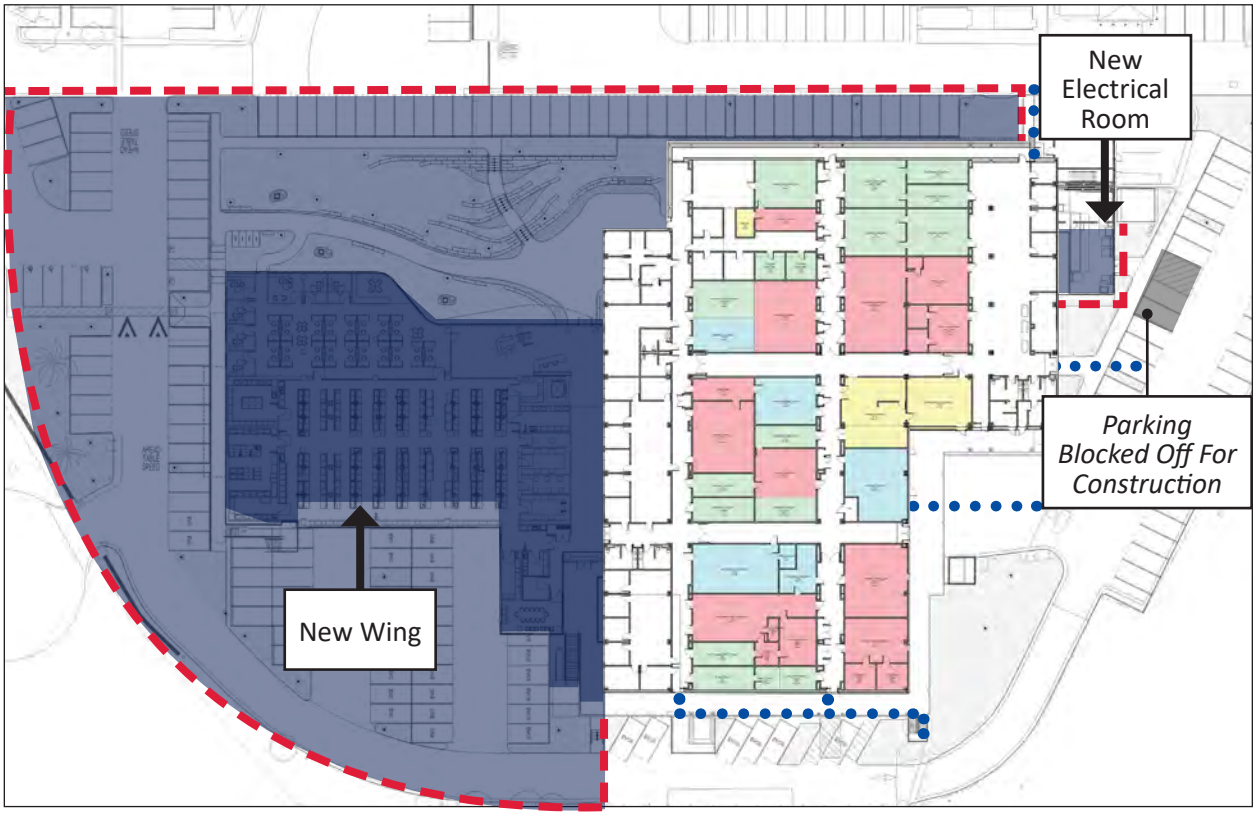
- Construction Fencing
- Lab Personnel Ingress/Egress
- Move

In conformance with the solicitation requirements, we will start immediately with the Trailer Building, creating the essential swing space for administrative staff. During this move, we will also perform the following make-ready activities, as it is a critical period for early information gathering. These activities include:

- **Hazardous Materials Assessments:** Validating the report provided and creating a plan for abatement ahead of the start of work
- **Site Potholing:** Identifying exact utility locations, not only preventing future potential outages, but also informing the design to avoid last minute RFI's
- **Existing Lab Investigations:** Laser scanning the entire above ceiling space in addition to collecting in-person observations by key trades/designers to inform the final design and BIM coordination for the renovation scope as well as confirm all temporary needs are met with no potential utility clashes or outages

This initial move, make-ready and demo stage is crucial for our team's primary goal of maintaining seamless existing lab operations with no interruptions for staff.

Step 2 - Demo Old Admin/Build New Wing



PROGRAM KEY
- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

CONSTRUCTION ACTIVITY KEY
- Construction Zone

OTHER KEY
- Construction Fencing
- Lab Personnel Ingress/Egress

Once the temporary facilities are operational, Phase 1 will officially commence, focusing on constructing the new laboratory building with its underlying parking structure. Additional components of Phase 1 include:

- Building the new electric room on the east side of the existing lab, so that it is prepared to support the renovation work in Phase 2 with no power interruptions
- Procuring long lead equipment to support Phase 2
- Coordinating a three-part upgrade to the existing 72” water line
  - Shutdown #1 will include installation of both new valves. We have confirmed with our installers that we can install both valves in one 24 hour period. Since both shutdowns are from Earl Thomas to East Clearwell, there would be no impact to the plan other than eliminating one shutdown. This will minimize the work by City Forces required to drain and refill. This work will take place during the recommended winter/spring season 2027/2028.
  - Shutdown #2 will include pipeline investigation. This work will take place during the recommended winter/spring season 2027/2028 but be spaced out from valve installation work.
  - Shutdown #3 will include install manway and liner, as needed. This work will take place during the recommended winter/spring season 2028/2029.

Step 3A - MOVE Laboratory From South (Inorganics)



PROGRAM KEY

- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

CONSTRUCTION ACTIVITY KEY

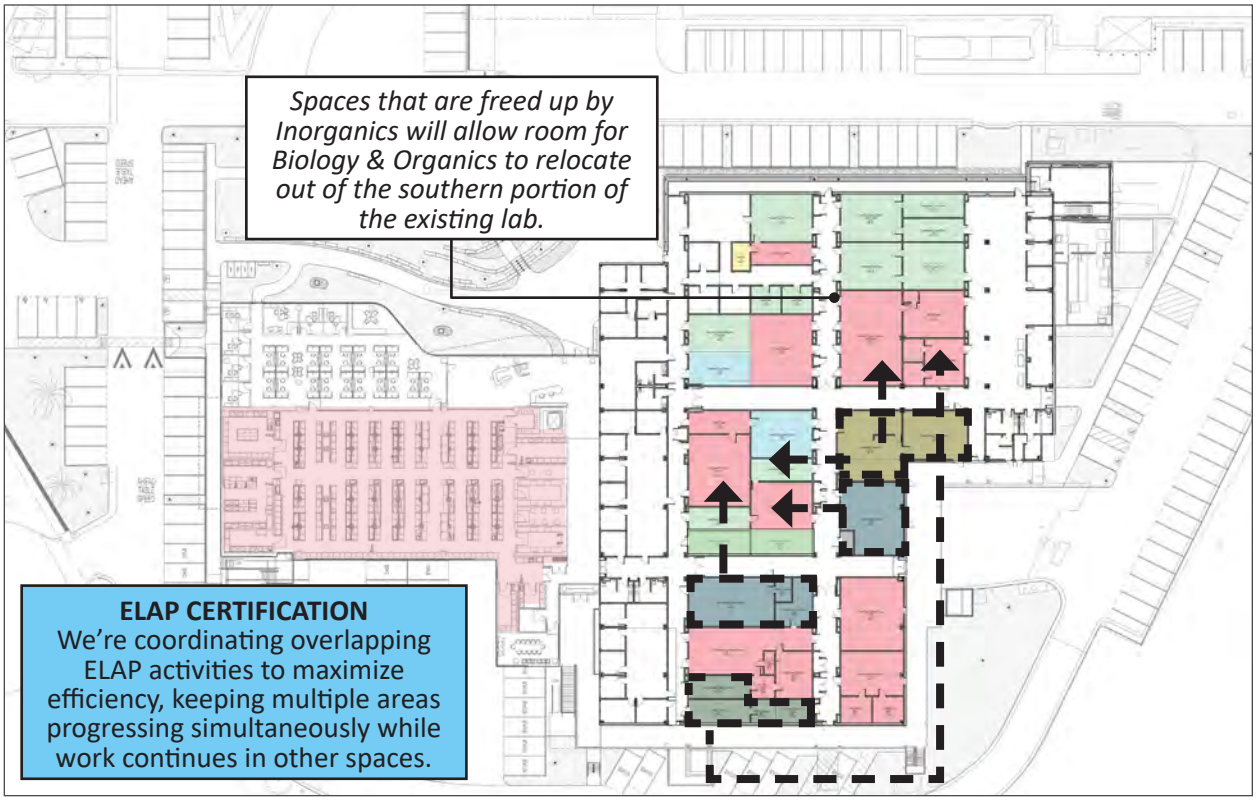
- Construction Zone

OTHER KEY

- Construction Fencing
- Lab Personnel Ingress/Egress
- Move

Upon completion of new laboratory building and ELAP certification, the Inorganics group will transition into the newly constructed laboratory.

Step 3B - MOVE Laboratory From South (Glasswash/Sample/Organics/Bio)



PROGRAM KEY
- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

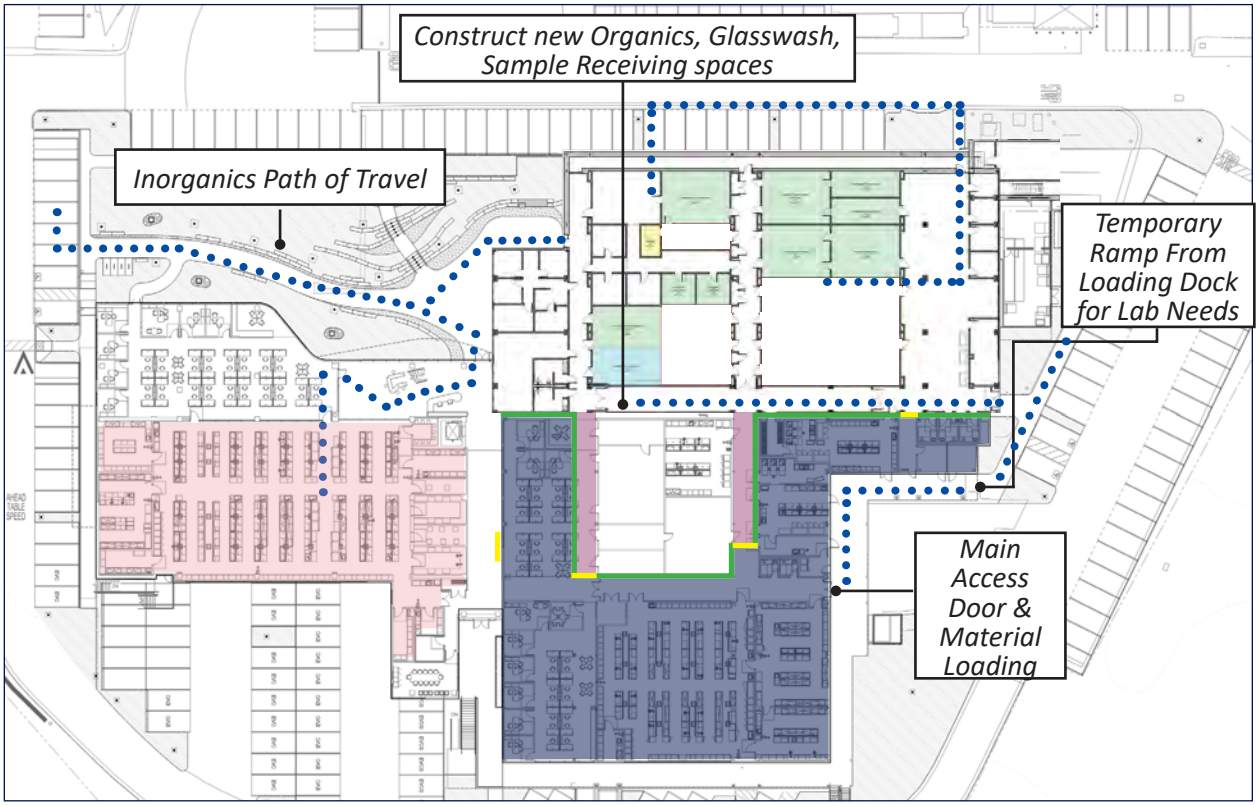
CONSTRUCTION ACTIVITY KEY
- Construction Zone

OTHER KEY
- Construction Fencing
- Lab Personnel Ingress/Egress
- Move

After inorganics is relocated, Biology and Organics will relocate from the south section to the north half of the existing laboratory.

As part of the phasing strategy, the design team has developed a temporary solution that provides adequate and uninterrupted glass wash capabilities during the construction phase of the glass wash and sample receiving area. The design team is proposing to provide undercounter glasswashers positioned directly adjacent to existing sinks utilizing existing utilities, allowing for quick connection to water, drainage, and electrical service. The undercounter glass wash units will provide similar load capacities and cycle times as the standing units that will be provided in the final phase. Once the glass wash area is completed for final move-in the undercounter glass washers can be removed or remain as a redundancy option for users. This strategy is not only cost effective but will minimize disruption and speed up the timeline as the entire glass wash and sample receiving area can be all completed in a single phase.

Step 4 - Construct New Organics & Glass Wash/Sample Receiving



PROGRAM KEY

- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

CONSTRUCTION ACTIVITY KEY

- Construction Zone
- Off-Hour Work Area

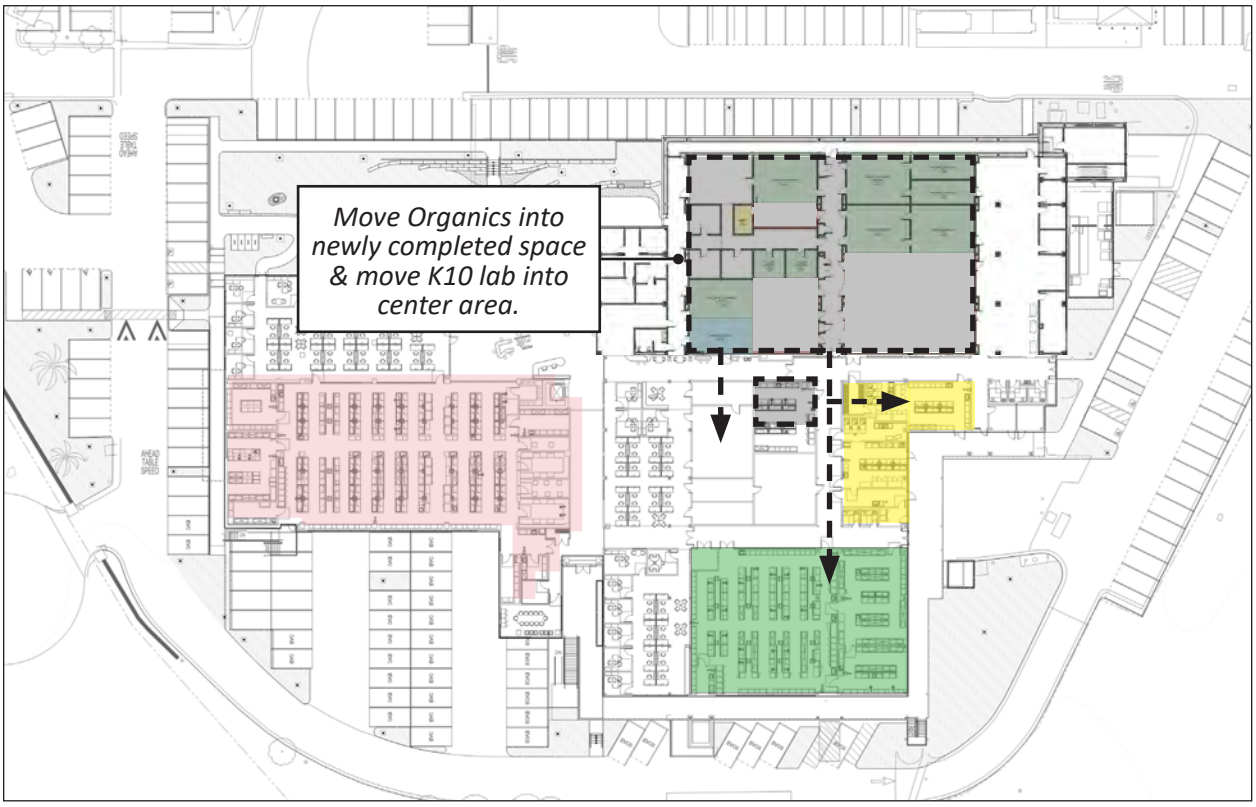
OTHER KEY

- Construction Fencing
- Lab Personnel Ingress/Egress
- Move
- Isolation Barrier
- Existing Wall to Remain

After all necessary laboratory relocations, Phase 2 south renovation will commence. With substantial preplanning and the completion of all necessary work upfront, we will ensure construction runs smoothly and minimizes impacts to lab operations for the remainder of the project.

Operational continuity is paramount, and we seek to be a good neighbor by mitigating any disruptions as we cycle through your space. Barriers and monitoring between construction and lab spaces will be implemented. In addition, we will provide dedicated access routes for laboratory staff that are separate from construction personnel, along with clear signage throughout the campus.

Step 5 - MOVE Laboratory From North



PROGRAM KEY

- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

CONSTRUCTION ACTIVITY KEY

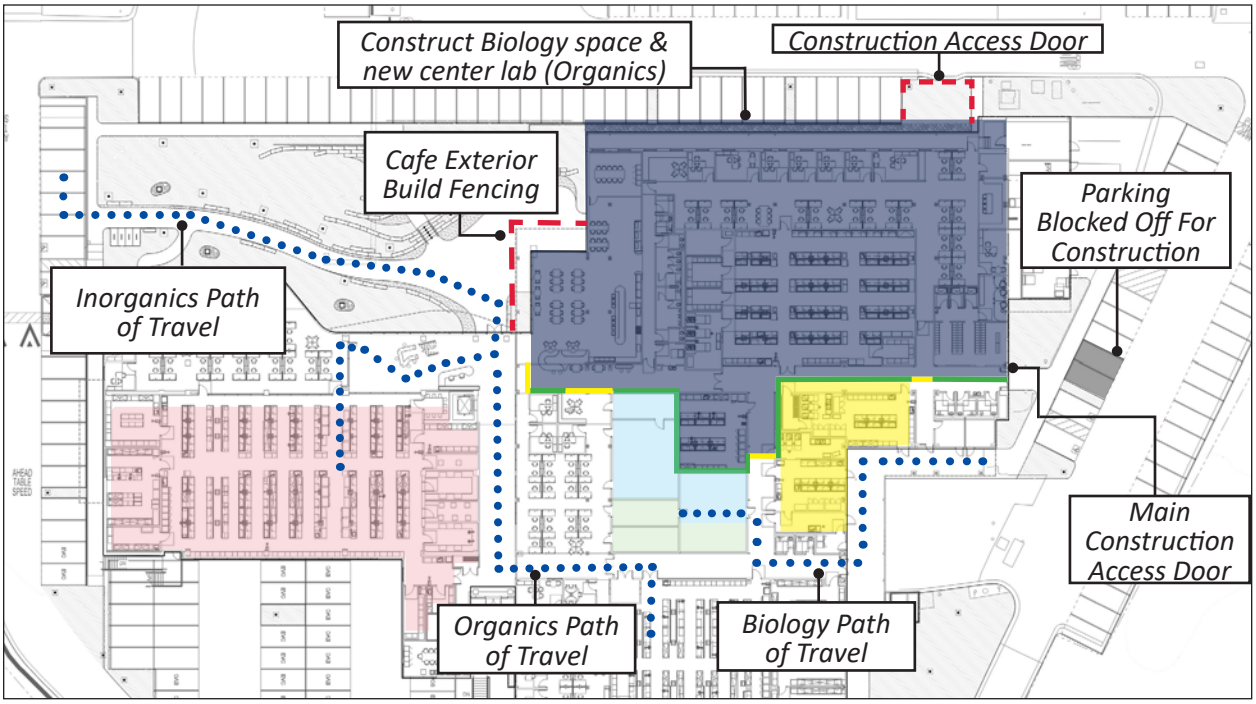
- Construction Zone

OTHER KEY

- Construction Fencing
- Lab Personnel Ingress/Egress
- Move

Organics and Glasswash/Sample Receiving will transition to the newly renovated space within the existing laboratory, while Biology will be reorganized to the central section of the existing lab.

Step 6 - Construction of Biology & New Center Lab (Organics)



PROGRAM KEY

- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

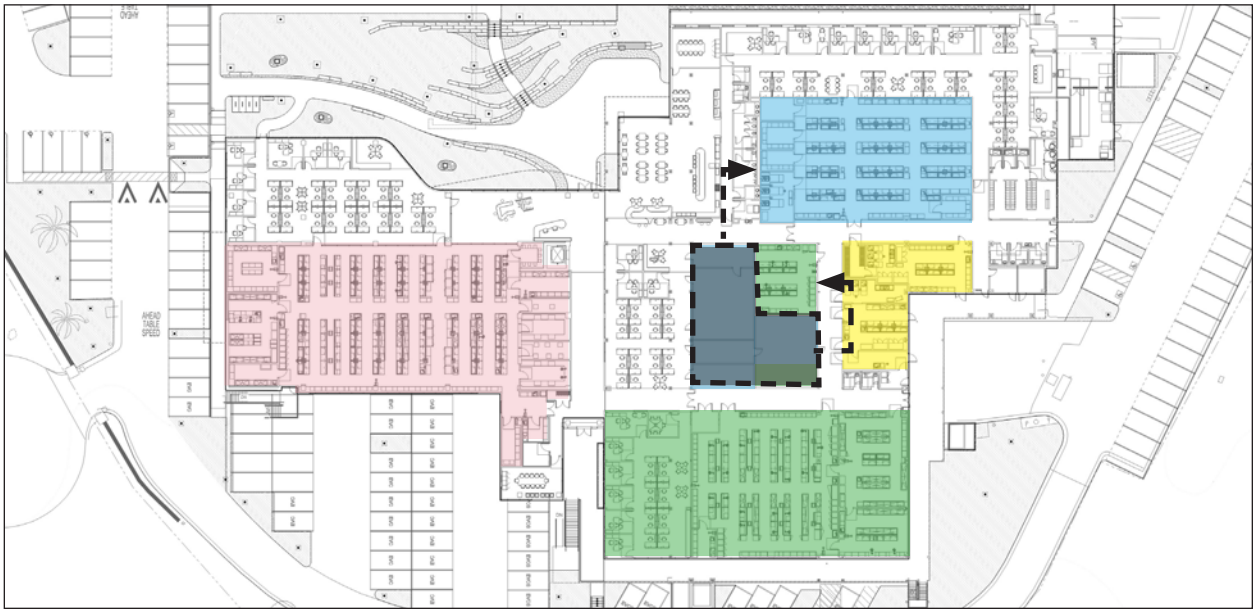
CONSTRUCTION ACTIVITY KEY

- Construction Zone

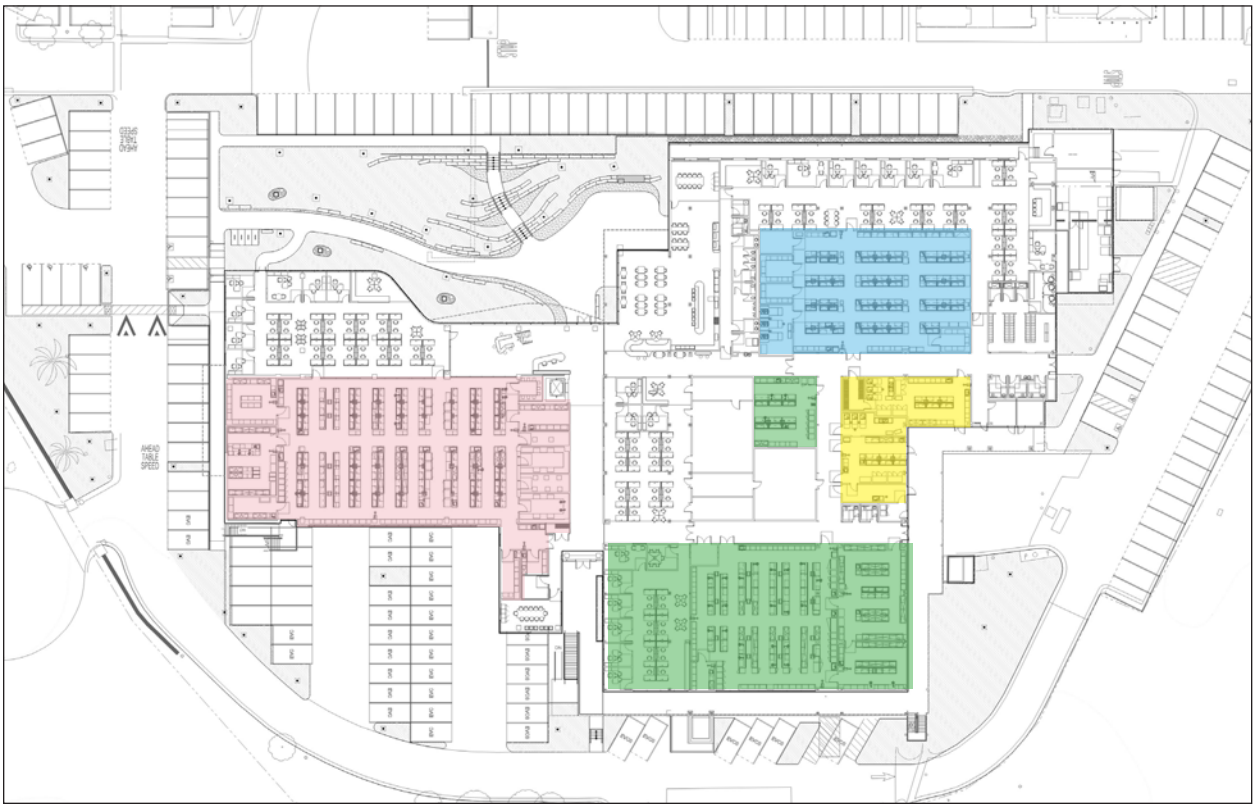
OTHER KEY

- Construction Fencing
- Lab Personnel Ingress/Egress
- Move
- Isolation Barrier
- Existing Wall to Remain

Step 7 - MOVE Biology North & Organics to Center



Step 8 - Remove Remaining Barriers & Open Cafeteria



PROGRAM KEY

- AWQL - Biology Lab
- AWQL - Inorganics Lab
- AWQL - Organics Lab
- AWQL - Shared

CONSTRUCTION ACTIVITY KEY

- Construction Zone

OTHER KEY

- Construction Fencing
- Lab Personnel Ingress/Egress
- Move

With this final step, we will turn over a revitalized campus to Alvarado Laboratory that will serve the City of San Diego for years to come. Not only will you be left with a fully ELAP certified, state-of-the-art facility, but your staff will also be able to enjoy new and renovated laboratory spaces that support the valuable work they're doing for the community. This will all be delivered on time and with the certainty that this critical work will not experience a lapse during the entirety of the construction process.



A view of our site logistics plan from the cmBuilder software during Phase 1.

To minimize cost and maximize labor efficiency, we plan to use the dirt lot directly east of the existing lab for our trailer and laydown area. This also ensures our construction team remains available without obstructing project progress. We plan to utilize this lot and other on-site locations (to be coordinated with the city) for all craft parking needs. See the above graphic from our 3D software (similar to Synchro) showing the site after completion of the Laboratory support trailers.

5.1.4 General plan for functional testing and start-up.

Our functional testing and start-up plan for the Alvarado Laboratory Improvements project encompasses a systematic approach to ensure all building systems and equipment perform as designed and meet the City's operational requirements. This process begins long before testing actually commences, with thorough preparation and coordination.

During the pre-testing phase, our commissioning team will work closely with laboratory end users to develop detailed testing protocols that address the specific requirements of a water quality laboratory. These protocols will incorporate ELAP certification standards, LEED commissioning requirements, and the City's operational parameters. All testing plans will be submitted for City review and approval well in advance of implementation. Our team will conduct comprehensive pre-testing inspections and punch lists to ensure all systems are properly installed and ready for testing.

The testing sequence follows a logical progression from individual components to fully integrated systems. We begin with testing individual pieces of equipment to verify proper installation and basic functionality. Once component testing is complete, we proceed to integrated systems testing, where multiple components are tested together to ensure proper interaction. Performance verification under various operating conditions follows, including load testing to simulate peak demand scenarios. User acceptance testing represents the final stage, where laboratory staff verify that systems meet their operational needs.

Laboratory-specific testing is a critical component of our plan. This includes specialized testing for laboratory equipment and systems such as fume hoods, biosafety cabinets, gas distribution systems, and specialized water treatment equipment. Our team will verify compliance with ELAP requirements through rigorous air quality and particulate testing, pressure relationship verification between spaces, fume hood performance testing, and specialized gas system verification at each phase. These tests will be

conducted by certified technicians with specific experience in laboratory environments.

Documentation and training form the final component of our functional testing and start-up plan. We will provide comprehensive testing reports documenting all test results, complete as-built documentation for all systems, and detailed operations and maintenance manuals. User training will be conducted for all systems, with sessions tailored to different staff roles and responsibilities. Video recording of training sessions will be provided for future reference and training of new staff.

Through this comprehensive approach to functional testing and start-up, we will ensure that the Alvarado Laboratory Improvements project meets all performance requirements and provides the world-class facility the City envisions.

5.1.5 Proposed Safety Program

A Culture of Excellence & Accountability

Hensel Phelps has one of the industry's best safety records, consistently recognized by leading clients and organizations. This achievement is especially notable given the company self-performs an average of 7.7 million work hours annually. With a current interstate Experience Modification Rate (EMR) of 0.63, Hensel Phelps stands among the safest builders in the nation.

Safety is not just a priority—it is a core value embedded in every aspect of operations. For the Alvarado Laboratory Improvements project, this commitment is reflected in a comprehensive, site-specific safety program tailored to the unique challenges of working in an active laboratory environment. The plan includes procedures for mitigating chemical exposure risks and protocols for working near sensitive equipment to protect both construction personnel and laboratory staff.

To ensure safety excellence, Hensel Phelps has established ambitious yet achievable targets:

- **Zero lost-time incidents**
- **Total Recordable Incident Rate (TRIR) below 1.0**
- **100% compliance with safety requirements**
- **100% attendance at safety meetings**

These metrics are tracked and reported regularly to demonstrate our unwavering commitment to safety and continuous improvement.

Safety leadership begins at the executive level and permeates every layer of the organization. Supervisors are held accountable for safety just as they are for managing cost, schedule, and quality. Daily safety huddles, weekly stand-downs, and executive safety walks reinforce awareness and demonstrate leadership's active engagement.

Driving safe behavior is key to incident prevention. Positive recognition and a focus on correct practices foster an atmosphere where craftspeople support one another across trade lines—a hallmark of a proactive safety culture.

The backbone of Hensel Phelps' safety approach is a continuously refined program focused on accident prevention through education, pre-planning, and personal accountability. Every project begins with a site-specific Safety & Health Plan based on OSHA standards, complemented by an Accident Prevention Plan and Activity Hazard Analysis (AHA) for each definable feature of work. All personnel must complete a site-specific orientation before beginning work, with additional specialized training for laboratory construction, hazardous materials handling, and confined space entry.

The proprietary Safety Accountability For Everyone (SAFE) Program is central to Hensel Phelps' safety culture. It promotes proactive observation and correction of unsafe behaviors while recognizing safe practices. Observations are logged in a database that generates actionable reports, enabling leadership to manage safety proactively and share lessons learned across jobsites nationwide. Each near-miss is investigated to strengthen performance and anticipate future risks.

Site-specific planning, orientation, and AHAs are foundational to every project. These tools establish minimum expectations and educate workers on general and operation-specific safety rules.

Monitoring and enforcement are rigorous. Regular audits and inspections identify hazards before incidents occur. The near-miss reporting program encourages open communication without fear of reprisal, and a substance abuse testing program

ensures personnel are fit for duty. A safety incentive program rewards outstanding performance, while a progressive discipline system addresses violations.

Training is continuous and comprehensive. Each staff member receives a minimum of 24 hours of safety training annually, including trainings for Fall Protection, Trenching, Confined Space, Scaffold, Lockout/Tagout (LOTO- prevents equipment from being restarted during maintenance to protect workers from hazardous energy), and more. Refresher training ensures knowledge remains current, and trade partners are equally engaged.

Hensel Phelps empowers craft personnel through the Craft Awareness and Recognition in Safety (CARES) Program, fostering collaboration between trades and management by creating a culture where everyone has a voice. Craft are taking care of craft, in partnership with management, through ownership, communication and prevention to achieve Hensel Phelps' goal of zero accidents.

Planning, training, and education are key to a safe workplace—but follow-through is critical. Unsafe behaviors or conditions are analyzed for root causes, and safety plans are adjusted based on lessons learned and industry changes. Training employees and trade partners is a cornerstone of the safety culture.

Hensel Phelps' approach is simple yet powerful: "No job is so important or urgent that it cannot be performed the safe way." The goal on every project is ZERO accidents—and through planning, training, accountability, and measurable performance targets, that goal is consistently achieved.

Through this comprehensive safety program, Hensel Phelps protects the well-being of both construction personnel and laboratory staff while ensuring the successful completion of this important project.

For the full safety program, refer to the appendix.

5.1.6 Proposed Emergency Response Plan

Our emergency response plan for the Alvarado Laboratory Improvements project addresses the unique challenges associated with construction in an active laboratory environment. This comprehensive plan ensures rapid and effective response to potential emergencies while maintaining the safety of all personnel and protecting sensitive laboratory operations.

If an event requires evacuation of the project, Hensel Phelps will use air horns to notify personnel of the emergency. Continuous air horn blasts will notify project personnel to report to the assembly area located on the North side of the project near the road. Designated personnel will do a head count of all personnel to assure all employees are accounted for. If the head count determines that any are missing, that information is immediately reported to the Superintendent. This information will be communicated to the Crisis Team Leader and the Crisis Management Plan will be implemented. We will also ensure that all stakeholders receive timely and accurate information during and after an emergency. This plan will be periodically updated as different phases of the job progress.

In addition to the emergency procedures listed above, we will have detailed emergency shutdown procedures for all systems, specific containment procedures for chemical spills, a hazardous material management plan, and established coordination protocols with local emergency services. Emergency drills and simulations will ensure all personnel understand their roles and responsibilities during an emergency. These drills will be coordinated with laboratory management to minimize disruption to operations while maintaining preparedness.

All emergencies will be followed up with incident reporting, and comprehensive post-incident investigation procedures. As part of the post incident investigation, lessons learned will be identified and shared to improve future responses.

Through this comprehensive emergency response plan, we will ensure the safety of all personnel while protecting the City's valuable laboratory assets and maintaining operational continuity to the greatest extent possible.

5.1.7 Proposed construction schedule: Describe the Design-Builder's resource management of the work inclusive of staffing and work hours.

We will provide dedicated staffing throughout all project phases. Our team will adhere to the working hours specified in the solicitation documents, with the exception of limited off-hours work in corridors during the renovation scope. Please refer to Figure 1 for the projected crew hour graph on the following page.

5.1.8 Provide a schedule that shows the tasks, durations, resources (number of crews), and crew work hours projected to complete the work. Identify the critical path. Include in the schedule phasing plan of shutdowns activities.

Refer to the schedule at the end of this section.

5.1.9 Provide plan(s) of recovery if schedule/time loss during design and construction phase. In this module, explain all measures intended to be employed to complete the project on time.

Hensel Phelps employs a comprehensive, proactive approach to schedule recovery and mitigation of time loss during both the design and construction phases. Our plans of recovery are rooted in early identification of risks, collaborative planning, and the use of proven management tools and processes to ensure the project is completed on time. The following outlines our measures and mitigation strategies:

SCHEDULE RECOVERY & MITIGATION MEASURES

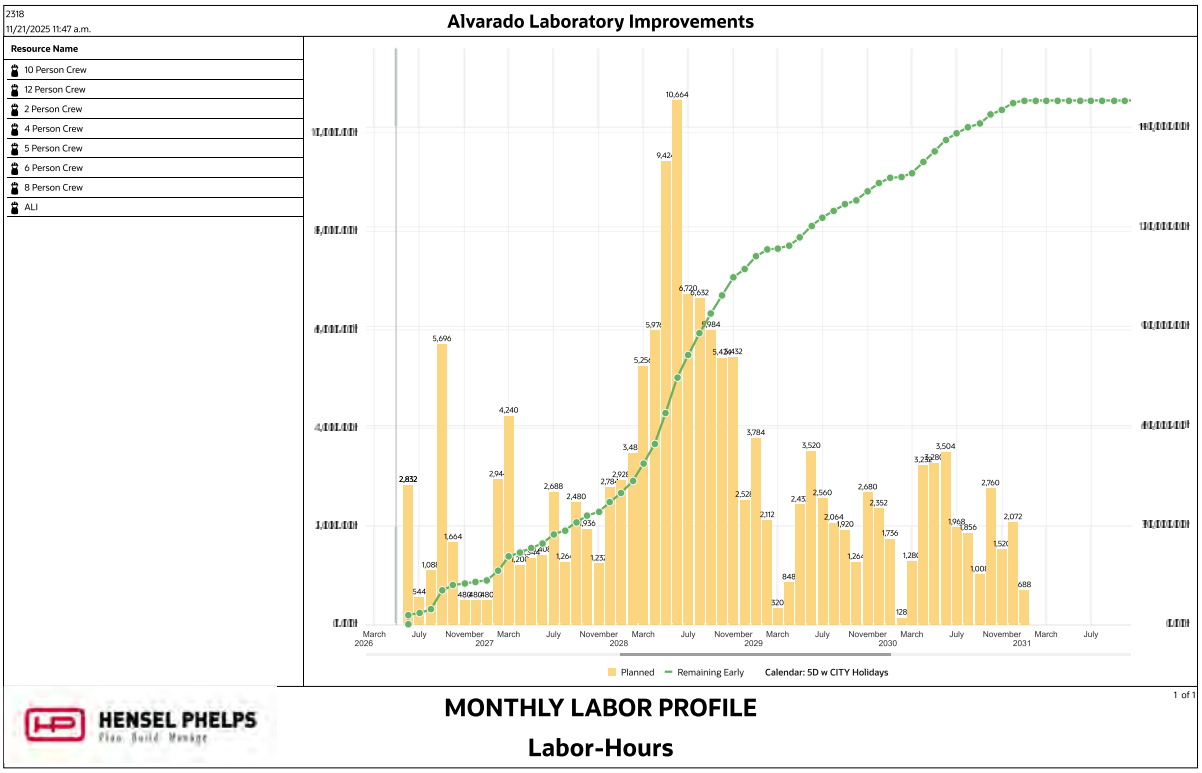
- **Integrated Master Schedule (IMS):** We develop a detailed, collaborative IMS that includes all design, procurement, and construction activities. This schedule is updated regularly and serves as the baseline for tracking progress and identifying potential delays early.
- **Regular Schedule Updates and Look-Ahead Planning:** The CPM Master Schedule is updated monthly (or more frequently if needed) and distributed to all stakeholders. We utilize 90-Day Look Ahead Schedules, 4-Week Rolling Schedules, and Short Interval Production Schedules (SIPS) to monitor progress and anticipate issues before they impact the critical path.
- **Collaborative Problem Solving:** When a delay is identified, we immediately convene meetings with all relevant stakeholders, including trade partners, to analyze the root cause and develop a recovery plan. This may include re-sequencing work, increasing work hours, adding additional crews, or supplementing resources.
- **Lean Construction Practices:** We employ Lean principles such as Pull Planning, Daily Huddles, and Weekly Work Plans to ensure efficient workflow, enhance communication, and quickly address any schedule variances. These practices foster accountability and allow for real-time corrective action.
- **Resource Management:** We leverage strong relationships with the trade partner community to ensure adequate staffing and material availability, even in high-demand markets. This proactive approach helps mitigate risks associated with labor or material shortages.
- **Time Impact Analysis (TIA):** For any significant schedule impact, we perform a TIA to assess the effect on the critical path and develop a targeted mitigation strategy. This analysis is communicated to all stakeholders and incorporated into the updated schedule.

Summary of Recovery Actions:

- Resequencing work to offset delays
- Adding additional shift work or crews
- Supplementing trade partners if needed
- Increasing work hours or days
- Immediate communication and collaborative decision-making
- Continuous monitoring and adjustment of the schedule

By implementing these measures, Hensel Phelps ensures that any schedule or time loss during the design and construction phases is promptly addressed, and the project is delivered on time.

Figure 1: Project Crew Hour



5.1.10 Accelerated schedule – Creative means and methods and/or construction sequencing that demonstrate possible completion ahead of contractual timeline.

As detailed above, proposed creative solutions to the schedule constraints include an overlapping and staggered ELAP approach, as well as temporarily integrating Glass Wash and Sample Receiving into the labs to reduce phasing and disruption.

During the pursuit, our Design-Build Team considered two schedule-acceleration strategies not included in the baseline: relocating the lab to an off-site facility or using temporary on-site trailers. While each poses challenges and costs, potential time savings could improve the schedule.

5.1.11 Environmental Efforts - Describe the Design-Builders coordination efforts respective to Environmental monitoring during construction, Dust Control, avoiding cross-contamination, and Storm Water Pollution Prevention Plan implementation.

Hensel Phelps employs a comprehensive approach to environmental monitoring, dust control, cross-contamination prevention, and Storm Water Pollution Prevention Plan implementation that directly supports the City of San Diego's valued outcomes for the Alvarado Laboratory Improvements project. In conformance with the solicitation and our company's standard practices, we will be incorporating a biologist, industrial hygienist, environmental engineer and Qualified SWPPP Developer/Practitioner into our team. Each of these team members would be integrated into not only implementation and site monitoring, but also upfront planning. They will ensure the safety of all personnel inside and outside the project fence and maintain compliance with environmental and SWPPP requirements.

Storm Water Pollution Prevention & Environmental Monitoring

Aligning with the City's commitment to sustainability and water conservation, Hensel Phelps implements robust storm water management practices:

- **Comprehensive SWPPP Implementation:** Our project-specific SWPPP incorporates all required BMPs, supporting the City's goal of limiting natural water flow disruption and protecting water quality.
- **Strategic BMP Deployment:** Installation of erosion and sediment control measures (straw wattles, silt fences, stabilized construction entrances with rattle plates) prior to grading activities and rainy season, ensuring compliance with the City's environmental regulations.
- **Rigorous Inspection Protocol:** Pre- and post-rain event inspections of all BMPs with detailed documentation, supporting the City's emphasis on quality assurance and regulatory compliance.
- **Native Vegetation Restoration:** Prompt replanting with drought-resistant native vegetation, aligning with the City's water conservation goals (20% reduction in water use) and sustainable building measures.

Dust Control Aligned with City Priorities

Supporting the City's concerns about environmental damage and operational continuity of the existing laboratory, our dust control measures include:

- **Continuous Moisture Management:** Water application during earth-moving and grading activities to prevent dust migration that could impact the operational laboratory facility.
- **Advanced Equipment Techniques:** Use of vacuum attachments and water spray systems on equipment operated by our grading subcontractor during main activities.
- **Strategic Planning:** Limiting on-site equipment to only what is necessary, supporting the City's energy efficiency and emissions reduction goals.
- **Protection of Sensitive Areas:** Implementation of specific measures to protect adjacent air intakes, ensuring the existing facility remains operational throughout construction without compromise to indoor air quality or ELAP accreditation standards.
- **Rigorous Cleaning Protocols:** Establishment of truck cleaning stations and regular street sweeping during hauling operations to prevent dust spread beyond the construction zone.

Cross-Contamination Prevention for Laboratory Continuity

Recognizing the City's emphasis on operational continuity and maintaining ELAP accreditation for the existing laboratory, Hensel Phelps implements specialized cross-contamination prevention measures:

- **Laboratory-Specific Containment Systems:** Installation of physical barriers designed specifically to protect sensitive laboratory environments from construction contaminants.
- **HVAC Protection:** Follows SMACNA standards and job-specific, developed Indoor Air Quality Plan to seal ducts and prevent contamination. requirements throughout construction.
- **Regulatory Environmental Monitoring:** Continuous air quality monitoring to ensure compliance with ELAP requirements throughout construction.
- **Phased Implementation Plan:** Carefully coordinated construction activities to minimize impact on laboratory operations, supporting the City's requirement for uninterrupted laboratory services.

Inspection & Documentation

Addressing the City's emphasis on project management efficiency and regulatory compliance:

- **Structured Oversight:** Regular environmental compliance inspections by Hensel Phelps superintendents and field engineers, with documentation maintained for City review.
- **Transparent Reporting:** Comprehensive documentation of all environmental protection measures, available to City representatives to demonstrate compliance with municipal requirements.

- **Collaborative Approach:** Regular coordination with City inspectors and environmental representatives to ensure alignment with municipal expectations and standards.
- **Trade Partner Accountability:** Environmental protection training for all subcontractors with clear performance expectations, supporting the City's collaborative environment values.

Local Workforce & Community Protection

In alignment with the City's stakeholder engagement values:

- **Local Participation:** Environmental protection training and implementation involving local workforce participants, supporting the City's Local Workforce Participation goals.
- **Community Protection:** Implementation of measures that prevent construction activities from negatively impacting surrounding neighborhoods and businesses.
- **Transparent Communication:** Regular updates to stakeholders regarding environmental protection measures, supporting the City's value of effective communication.

Through this coordinated approach, Hensel Phelps ensures that our environmental management practices not only meet regulatory requirements but also directly support the City of San Diego's project values, particularly maintaining operational continuity of the laboratory while achieving high standards for environmental protection, sustainability, and community consideration.

5.1.12 General plan for functional testing and start-up – Design-Builder to describe plan for Mechanical, Electrical, Plumbing (MEP) equipment and systems functional testing, start-up, adjustment and balancing, and maintenance staff training as well as commissioning of major systems.

The successful transition from construction to operation of the Alvarado Laboratory Improvements project requires a meticulously planned approach to functional testing and start-up. Hensel Phelps has developed a comprehensive plan that addresses the complex systems integration needs of a modern water quality laboratory while ensuring compliance with ELAP certification requirements and LEED commissioning standards.

Our MEP systems testing protocol follows a logical progression from individual components to fully integrated systems:

- **Individual Component Testing**
  a. AHU
  b. Fans
  c. Pumps
  d. Terminal Units
  e. Domestic Water Heaters
  f. Emergency Generator
  g. Additional components as required
- **Systems-level testing where multiple components are tested together to ensure proper interaction and communication.**
  a. Heating and Cooling Systems
  b. Space Pressurization
  c. Laboratory Exhaust Systems
  d. Normal Power Systems
  e. Emergency Power System
  f. Lighting Controls
  g. Building Automation System
  h. Fire and Life Safety Systems
  i. Specialized Laboratory Systems (Fume Hoods, Lab Gases, Specialized Water Systems, etc.)
  j. Additional systems as required
- **Integrated Systems Testing**
  a. Power Loss testing and Emergency Power Verification
  b. Power Restoration Testing

The adjustment and balancing phase is critical to achieving the precise environmental conditions required for accurate laboratory testing. Our HVAC system balancing will be performed by certified technicians with specific experience in laboratory environments, ensuring that air flow, temperature, humidity, and pressurization meet the exacting requirements for water quality testing. Fume hood certification and performance testing will verify that

these critical safety devices provide appropriate containment and ventilation under various operating conditions. Laboratory gas systems will undergo pressure testing and certification to ensure leak-free operation and appropriate delivery pressures at all outlets. Plumbing systems testing and adjustment will verify proper operation of specialized laboratory fixtures, emergency eyewash and shower stations, and pure water distribution systems.

Throughout the functional testing and start-up process, we will maintain comprehensive documentation of all tests performed, results obtained, and any corrective actions implemented. This documentation will support the processes for obtaining any lab certifications required while also establishing a measurable baseline for future performance evaluations. Our team will work closely with laboratory staff to develop customized training programs for each system, ensuring that operational personnel fully understand system functions, maintenance requirements, and troubleshooting procedures.

By implementing this comprehensive functional testing and start-up plan, we will ensure that the Alvarado Laboratory Improvements project achieves the "world-class" standard envisioned by the City of San Diego, providing a state-of-the-art facility that supports accurate and reliable water quality testing for years to come.

5.1.13 Plan for Commissioning

Commissioning for the Alvarado Laboratory Improvements project will follow a comprehensive approach designed to meet the City's requirement for LEED enhanced commissioning while ensuring the specialized needs of a water quality laboratory are fully addressed. Our commissioning plan is led by Hensel Phelps Services (HPS) and integrates quality assurance, performance verification, and knowledge transfer to deliver a fully functional facility that meets or exceeds all project requirements. This provides significant benefits to you, improving operational performance while reducing costs and maximizing the useful life of your asset portfolio. We manage the building systems and commission, verify, train and document facility maintainable assets in support of Hensel Phelps construction projects. The people at HPS make the difference–our technical knowledge of building systems, envelopes, and campus operations enables us to provide best-in-class operational solutions while Delivering EXCELLENCE in all we do.

The commissioning process begins during the design phase with the engagement of a qualified Commissioning Authority (CxA) who will review design documents for compliance with the Standards and Specifications Guidelines for New Construction. This early involvement ensures that commissioning considerations are incorporated into the design, preventing costly modifications during construction. The CxA will develop detailed testing procedures that establish clear responsibilities, testing requirements, and documentation standards for all commissioned systems.

During the construction phase, the commissioning team will conduct regular site observations to verify that systems are being installed according to design specifications and manufacturer requirements. Pre-functional checklists will be completed for each piece of equipment, documenting proper installation, connection, and basic functionality before system-level testing begins. The commissioning team will review contractor submittals for commissioned systems, ensuring that selected equipment meets project requirements and that coordination between systems is properly addressed.

Functional performance testing represents the core of our commissioning process. Each system for each Phase will undergo rigorous testing under various operating conditions to verify performance according to design parameters. For laboratory-specific systems such as fume hoods, biosafety cabinets, and specialized ventilation systems, testing will incorporate ELAP certification requirements and industry best practices. Our testing protocols will verify spatial pressurization relationships, containment effectiveness, air change rates, and other critical parameters specific to laboratory environments. The building automation system will receive particular attention, with comprehensive point-to-point verification and sequence testing to ensure proper monitoring and control of all building systems.

Systems integration testing will verify that separate systems function properly together under normal operations and emergency conditions. This includes testing of emergency power transitions, fire alarm responses, and other critical interactions. Seasonal testing will be conducted as appropriate to verify system performance under varying external conditions, particularly important for the HVAC systems that maintain precise laboratory environments.

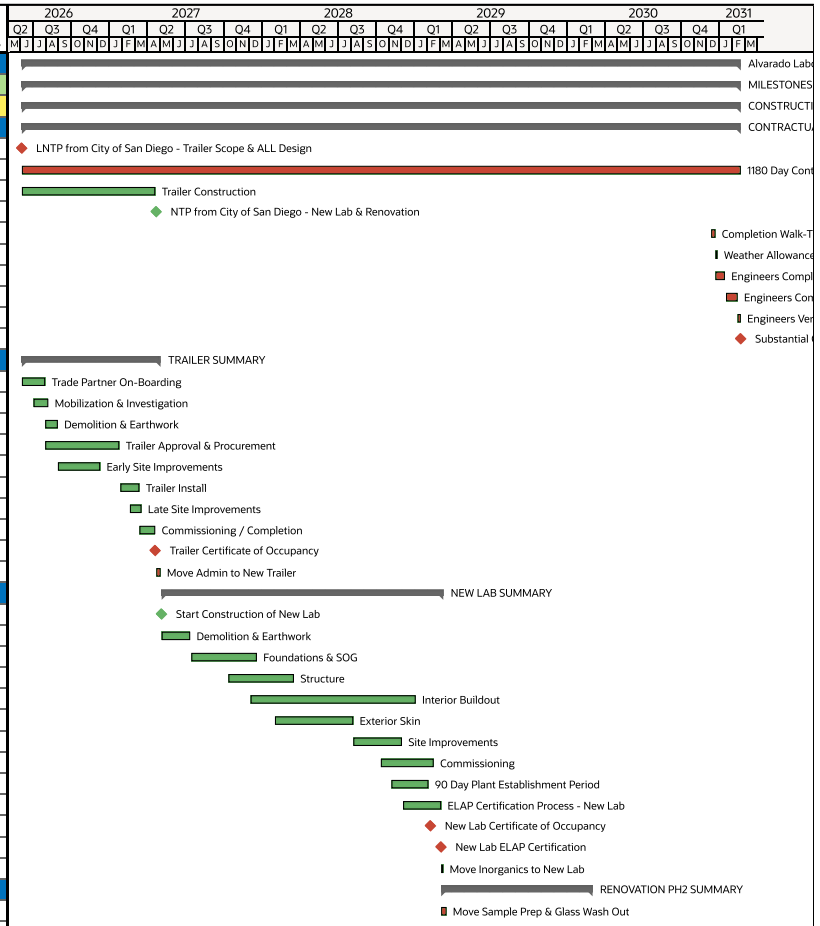
In accordance with LEED enhanced commissioning requirements, our team will conduct a 10-month post-occupancy review to verify continued proper operation, address any issues that have emerged during initial occupancy, and make seasonal adjustments as needed. This review includes interviewing facility staff about system performance and operational challenges, reviewing building automation system trend data, and performing targeted functional testing as needed.

Throughout the commissioning process, comprehensive documentation will be maintained, culminating in a final commissioning report that details all activities performed, results obtained, outstanding issues, and recommendations for ongoing optimization. This documentation will support both LEED certification and ELAP accreditation requirements.

By implementing this comprehensive commissioning plan, we ensure that the Alvarado Laboratory Improvements project will achieve the high-performance, sustainable operation envisioned by the City of San Diego, providing a world-class facility that supports the City's water quality mission for decades to come.

5.1.8 Provide a schedule that shows the tasks, durations, resources (number of crews), and crew work hours projected to complete the work. Identify the critical path. Include in the schedule phasing plan of shutdowns activities.

Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Alvarado Laboratory Improvements	1,182	01-Jun-26	17-Feb-31		185,944.00h
MILESTONES & SUMMARY	1,182	01-Jun-26	17-Feb-31		6,720.00h
CONSTRUCTION SUMMARY	1,182	01-Jun-26	17-Feb-31		6,720.00h
CONTRACTUAL MILESTONES	1,182	01-Jun-26	17-Feb-31		0.00h
LNTP from City of San Diego - Trailer Scope & ALL Design	0	01-Jun-26 ...			0.00h
1180 Day Contractual Timeline from NTP of New Lab	1,180	01-Jun-26	17-Feb-31		0.00h
Trailer Construction	219	01-Jun-26	16-Apr-27		0.00h
NTP from City of San Diego - New Lab & Renovation	0	19-Apr-27			0.00h
Completion Walk-Through Request & Walk	7	11-Dec-30 ...	19-Dec-30		0.00h
Weather Allowance	0	20-Dec-30 ...	20-Dec-30		0.00h
Engineers Completion Punch List Provided	15	20-Dec-30 ...	13-Jan-31		0.00h
Engineers Completion Punch list Completion	20	14-Jan-31	10-Feb-31		0.00h
Engineers Verification of Punch List Completion	5	11-Feb-31	17-Feb-31		0.00h
Substantial Completion	0		17-Feb-31		0.00h
TRAILER SUMMARY	229	01-Jun-26	30-Apr-27		1,120.00h
Trade Partner On-Boarding	40	01-Jun-26	28-Jul-26		0.00h
Mobilization & Investigation	25	30-Jun-26	04-Aug-26		0.00h
Demolition & Earthwork	22	29-Jul-26	27-Aug-26		0.00h
Trailer Approval & Procurement	121	29-Jul-26	22-Jan-27		0.00h
Early Site Improvements	69	27-Aug-26 ...	07-Dec-26		0.00h
Trailer Install	32	25-Jan-27	10-Mar-27		0.00h
Late Site Improvements	20	16-Feb-27	15-Mar-27		0.00h
Commissioning / Completion	28	09-Mar-27 ...	16-Apr-27		0.00h
Trailer Certificate of Occupancy	0		16-Apr-27 C		0.00h
Move Admin to New Trailer	10	19-Apr-27	30-Apr-27	14 Person Crew	1,120.00h
NEW LAB SUMMARY	463	03-May-27 ...	08-Mar-29		560.00h
Start Construction of New Lab	0	03-May-27 ...			0.00h
Demolition & Earthwork	48	03-May-27 ...	09-Jul-27		0.00h
Foundations & SOG	111	12-Jul-27	17-Dec-27		0.00h
Structure	105	11-Oct-27	14-Mar-28		0.00h
Interior Buildout	272	01-Dec-27 ...	02-Jan-29		0.00h
Exterior Skin	129	31-Jan-28	03-Aug-28		0.00h
Site Improvements	80	04-Aug-28 ...	28-Nov-28		0.00h
Commissioning	86	10-Oct-28	13-Feb-29		0.00h
90 Day Plant Establishment Period	90	03-Nov-28 ...	01-Feb-29		0.00h
ELAP Certification Process - New Lab	61	01-Dec-28 ...	01-Mar-29		0.00h
New Lab Certificate of Occupancy	0		07-Feb-29 C		0.00h
New Lab ELAP Certification	0		01-Mar-29		0.00h
Move Inorganics to New Lab	5	02-Mar-29 ...	08-Mar-29	14 Person Crew	560.00h
RENOVATION PH2 SUMMARY	250	02-Mar-29 ...	27-Feb-30		3,920.00h
Move Sample Prep & Glass Wash Out	10	02-Mar-29 ...	15-Mar-29	14 Person Crew	1,120.00h



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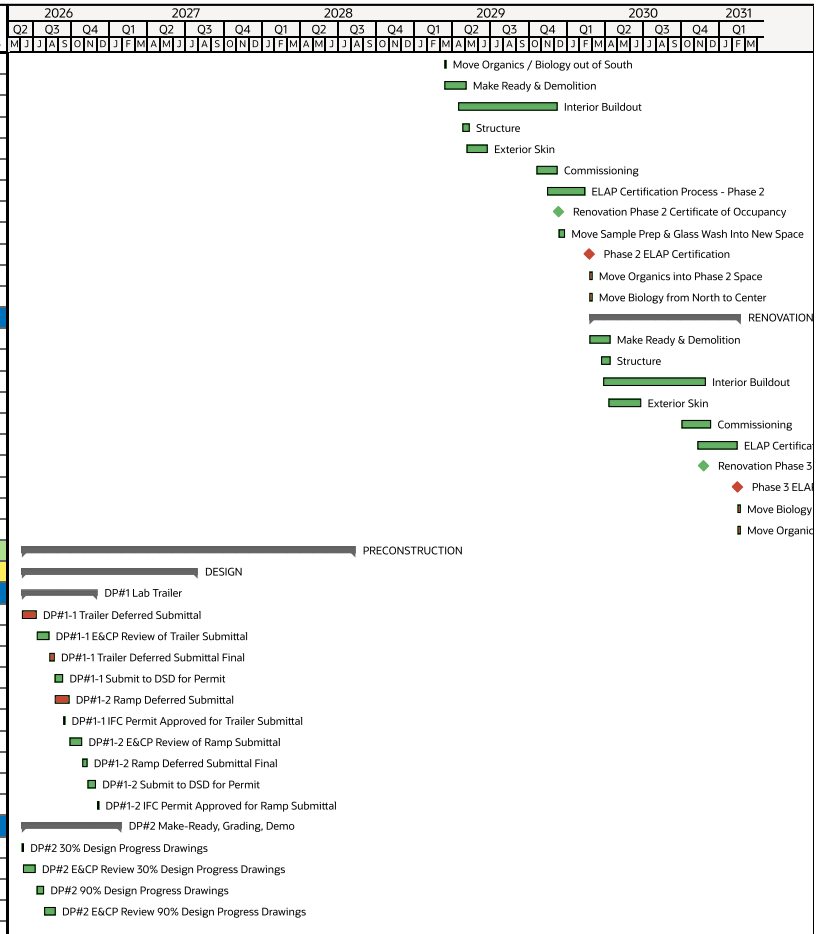
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Move Organics / Biology out of South	5	09-Mar-29 ...	15-Mar-29	14 Person Crew	560.00h
Make Ready & Demolition	39	09-Mar-29 ...	02-May-29		0.00h
Interior Buildout	165	12-Apr-29	06-Dec-29		0.00h
Structure	13	23-Apr-29	09-May-29		0.00h
Exterior Skin	35	03-May-29 ...	22-Jun-29		0.00h
Commissioning	35	18-Oct-29	07-Dec-29		0.00h
ELAP Certification Process - Phase 2	60	13-Nov-29 ...	11-Feb-30		0.00h
Renovation Phase 2 Certificate of Occupancy	0		10-Dec-29		0.00h
Move Sample Prep & Glass Wash Into New Space	10	11-Dec-29 ...	24-Dec-29	14 Person Crew	1,120.00h
Phase 2 ELAP Certification	0		20-Feb-30		0.00h
Move Organics into Phase 2 Space	5	21-Feb-30	27-Feb-30	14 Person Crew	560.00h
Move Biology from North to Center	5	21-Feb-30	27-Feb-30	14 Person Crew	560.00h
RENOVATION PH3 SUMMARY	250	21-Feb-30	17-Feb-31		1,120.00h
Make Ready & Demolition	37	21-Feb-30	12-Apr-30		0.00h
Structure	17	20-Mar-30 ...	11-Apr-30		0.00h
Interior Buildout	172	25-Mar-30 ...	27-Nov-30		0.00h
Exterior Skin	55	08-Apr-30	25-Jun-30		0.00h
Commissioning	49	30-Sep-30 ...	10-Dec-30		0.00h
ELAP Certification Process - Phase 3	63	07-Nov-30 ...	10-Feb-31		0.00h
Renovation Phase 3 Certificate of Occupancy	0		21-Nov-30		0.00h
Phase 3 ELAP Certification	0		10-Feb-31		0.00h
Move Biology into Phase 3 North Space	5	11-Feb-31	17-Feb-31	14 Person Crew	560.00h
Move Organics into Phase 3 Center Space	5	11-Feb-31	17-Feb-31	14 Person Crew	560.00h
PRECONSTRUCTION	549	01-Jun-26	10-Aug-28		0.00h
DESIGN	290	01-Jun-26	28-Jul-27		0.00h
DP#1 Lab Trailer	125	01-Jun-26	30-Nov-26		0.00h
DP#1-1 Trailer Deferred Submittal	25	01-Jun-26	07-Jul-26		0.00h
DP#1-1 E&CP Review of Trailer Submittal	30	07-Jul-26	06-Aug-26		0.00h
DP#1-1 Trailer Deferred Submittal Final	10	07-Aug-26 ...	20-Aug-26		0.00h
DP#1-1 Submit to DSD for Permit	20	20-Aug-26 ...	09-Sep-26		0.00h
DP#1-2 Ramp Deferred Submittal	25	21-Aug-26 ...	25-Sep-26		0.00h
DP#1-1 IFC Permit Approved for Trailer Submittal	1	10-Sep-26 ...	10-Sep-26		0.00h
DP#1-2 E&CP Review of Ramp Submittal	30	25-Sep-26 ...	25-Oct-26		0.00h
DP#1-2 Ramp Deferred Submittal Final	10	26-Oct-26	06-Nov-26		0.00h
DP#1-2 Submit to DSD for Permit	20	06-Nov-26 ...	26-Nov-26		0.00h
DP#1-2 IFC Permit Approved for Ramp Submittal	1	30-Nov-26 ...	30-Nov-26		0.00h
DP#2 Make-Ready, Grading, Demo	164	01-Jun-26	27-Jan-27		0.00h
DP#2 30% Design Progress Drawings	5	01-Jun-26	05-Jun-26		0.00h
DP#2 E&CP Review 30% Design Progress Drawings	30	05-Jun-26	05-Jul-26		0.00h
DP#2 90% Design Progress Drawings	15	06-Jul-26	24-Jul-26		0.00h
DP#2 E&CP Review 90% Design Progress Drawings	30	24-Jul-26	23-Aug-26		0.00h



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Alvarado Laboratory Improvements

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Current
Progress
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Milestones
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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
DP#2 100% Design Progress Drawings	25	24-Aug-26 ...	28-Sep-26		0.00h
DP#2 E&CP Review 100% Design Progress Drawings	30	28-Sep-26 ...	28-Oct-26		0.00h
DP#2 DBT Address Final Comments & E&CP Sign Off	17	29-Oct-26	23-Nov-26		0.00h
DP#2 Submit to DSD for Permit	21	24-Nov-26 ...	24-Dec-26		0.00h
DP#2 DBT Address Final Comments / Clean Up	20	28-Dec-26 ...	26-Jan-27		0.00h
DP#2 IFC Permit Set Stamped	1	27-Jan-27	27-Jan-27		0.00h
DP#3 Foundations & UG Utilities	228	01-Jun-26	29-Apr-27		0.00h
DP#3 30% Design Progress Drawings	40	01-Jun-26	28-Jul-26		0.00h
DP#3 E&CP Review 30% Design Progress Drawings	30	28-Jul-26	27-Aug-26		0.00h
DP#3 90% Design Progress Drawings	60	28-Aug-26 ...	23-Nov-26		0.00h
DP#3 E&CP Review 90% Design Progress Drawings	30	23-Nov-26 ...	23-Dec-26		0.00h
DP#3 100% Design Progress Drawings	40	24-Dec-26 ...	23-Feb-27		0.00h
DP#3 E&CP Review 100% Design Progress Drawings	20	23-Feb-27	15-Mar-27		0.00h
DP#3 DBT Address Final Comments	10	16-Mar-27 ...	29-Mar-27		0.00h
DP#3 Submit to DSD for Permit	21	30-Mar-27 ...	28-Apr-27		0.00h
DP#3 IFC Permit Set Stamped	1	29-Apr-27	29-Apr-27		0.00h
DP#4 Renovation and New Lab	290	01-Jun-26	28-Jul-27		0.00h
DP#4 30% Design Progress Drawings	40	01-Jun-26	28-Jul-26		0.00h
DP#4 E&CP Review 30% Design Progress Drawings	30	28-Jul-26	27-Aug-26		0.00h
DP#4 60% Design Progress Drawings	40	28-Aug-26 ...	23-Oct-26		0.00h
DP#4 E&CP Review 60% Design Progress Drawings	30	23-Oct-26	22-Nov-26		0.00h
DP#4 90% Design Progress Drawings	65	23-Nov-26 ...	01-Mar-27		0.00h
DP#4 E&CP Review 90% Design Progress Drawings	30	01-Mar-27 ...	31-Mar-27		0.00h
DP#4 100% Design Progress Drawings	30	01-Apr-27	12-May-27		0.00h
DP#4 E&CP Review 100% Design Progress Drawings	30	12-May-27 ...	11-Jun-27		0.00h
DP#4 DBT Address Final Comments	10	14-Jun-27	25-Jun-27		0.00h
DP#4 Submit to DSD for Permit	21	28-Jun-27	27-Jul-27		0.00h
DP#4 IFC Permit Set Stamped	1	28-Jul-27	28-Jul-27		0.00h
DP#5 72" Waterline	182	01-Jun-26	23-Feb-27		0.00h
DP#5 30% Design Progress Drawings	20	01-Jun-26	29-Jun-26		0.00h
DP#5 E&CP Review 30% Design Progress Drawings	30	29-Jun-26	29-Jul-26		0.00h
DP#5 60% Design Progress Drawings	20	30-Jul-26	26-Aug-26		0.00h
DP#5 E&CP Review 60% Design Progress Drawings	30	26-Aug-26 ...	25-Sep-26		0.00h
DP#5 90% Design Progress Drawings	15	28-Sep-26 ...	16-Oct-26		0.00h
DP#5 E&CP Review 90% Design Progress Drawings	30	16-Oct-26	15-Nov-26		0.00h
DP#5 100% Design Progress Drawings	15	16-Nov-26 ...	08-Dec-26		0.00h
DP#5 E&CP Review 100% Design Progress Drawings	30	08-Dec-26 ...	07-Jan-27		0.00h
DP#5 DBT Address Final Comments	10	08-Jan-27	22-Jan-27		0.00h
DP#5 Submit to DSD for Permit	20	25-Jan-27	22-Feb-27		0.00h
DP#5 IFC Permit Set Stamped	1	23-Feb-27	23-Feb-27		0.00h
PROCUREMENT	509	29-Jul-26	10-Aug-28		0.00h



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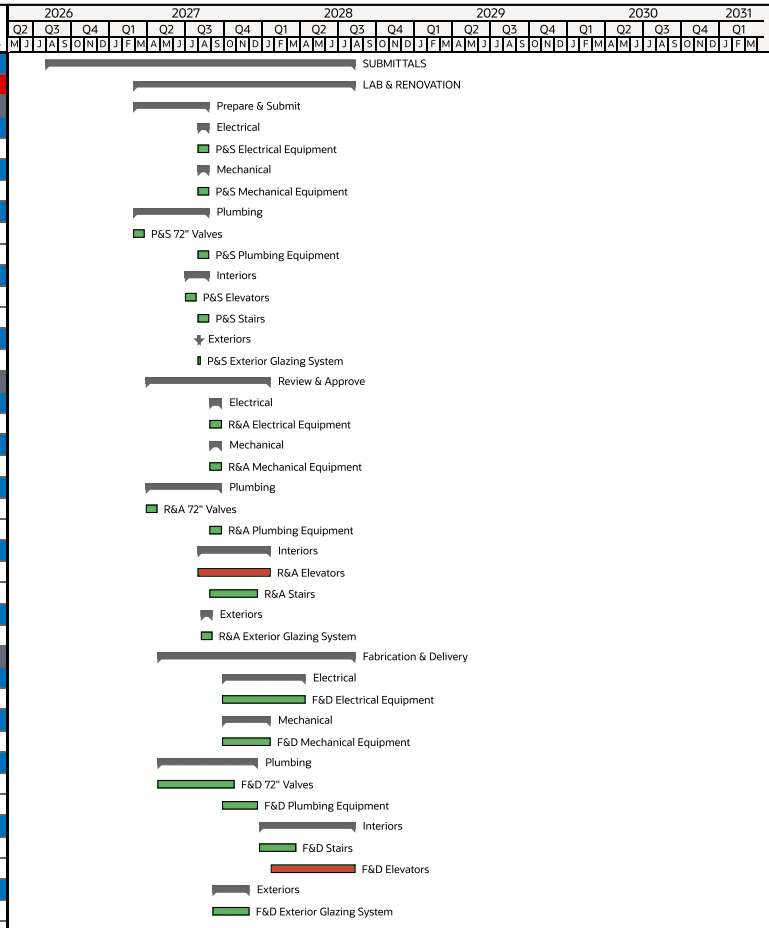
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
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Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
SUBMITTALS	509	29-Jul-26	10-Aug-28		0.00h
LAB & RENOVATION	367	24-Feb-27	10-Aug-28		0.00h
Prepare & Submit	128	24-Feb-27	25-Aug-27		0.00h
Electrical	20	29-Jul-27	25-Aug-27		0.00h
P&S Electrical Equipment	20	29-Jul-27	25-Aug-27		0.00h
Mechanical	20	29-Jul-27	25-Aug-27		0.00h
P&S Mechanical Equipment	20	29-Jul-27	25-Aug-27		0.00h
Plumbing	128	24-Feb-27	25-Aug-27		0.00h
P&S 72" Valves	20	24-Feb-27	23-Mar-27		0.00h
P&S Plumbing Equipment	20	29-Jul-27	25-Aug-27		0.00h
Interiors	42	28-Jun-27	25-Aug-27		0.00h
P&S Elevators	20	28-Jun-27	26-Jul-27		0.00h
P&S Stairs	20	29-Jul-27	25-Aug-27		0.00h
Exteriors	5	29-Jul-27	04-Aug-27		0.00h
P&S Exterior Glazing System	5	29-Jul-27	04-Aug-27		0.00h
Review & Approve	207	24-Mar-27 ...	20-Jan-28		0.00h
Electrical	20	26-Aug-27 ...	23-Sep-27		0.00h
R&A Electrical Equipment	20	26-Aug-27 ...	23-Sep-27		0.00h
Mechanical	20	26-Aug-27 ...	23-Sep-27		0.00h
R&A Mechanical Equipment	20	26-Aug-27 ...	23-Sep-27		0.00h
Plumbing	128	24-Mar-27 ...	23-Sep-27		0.00h
R&A 72" Valves	20	24-Mar-27 ...	21-Apr-27		0.00h
R&A Plumbing Equipment	20	26-Aug-27 ...	23-Sep-27		0.00h
Interiors	119	29-Jul-27	20-Jan-28		0.00h
R&A Elevators	119	29-Jul-27	20-Jan-28		0.00h
R&A Stairs	80	26-Aug-27 ...	21-Dec-27		0.00h
Exteriors	20	05-Aug-27 ...	01-Sep-27		0.00h
R&A Exterior Glazing System	20	05-Aug-27 ...	01-Sep-27		0.00h
Fabrication & Delivery	327	22-Apr-27	10-Aug-28		0.00h
Electrical	135	24-Sep-27 ...	11-Apr-28		0.00h
F&D Electrical Equipment	135	24-Sep-27 ...	11-Apr-28		0.00h
Mechanical	80	24-Sep-27 ...	21-Jan-28		0.00h
F&D Mechanical Equipment	80	24-Sep-27 ...	21-Jan-28		0.00h
Plumbing	168	22-Apr-27	21-Dec-27		0.00h
F&D 72" Valves	130	22-Apr-27	25-Oct-27		0.00h
F&D Plumbing Equipment	60	24-Sep-27 ...	21-Dec-27		0.00h
Interiors	159	22-Dec-27 ...	10-Aug-28		0.00h
F&D Stairs	60	22-Dec-27 ...	20-Mar-28		0.00h
F&D Elevators	140	21-Jan-28	10-Aug-28		0.00h
Exteriors	60	02-Sep-27 ...	30-Nov-27		0.00h
F&D Exterior Glazing System	60	02-Sep-27 ...	30-Nov-27		0.00h



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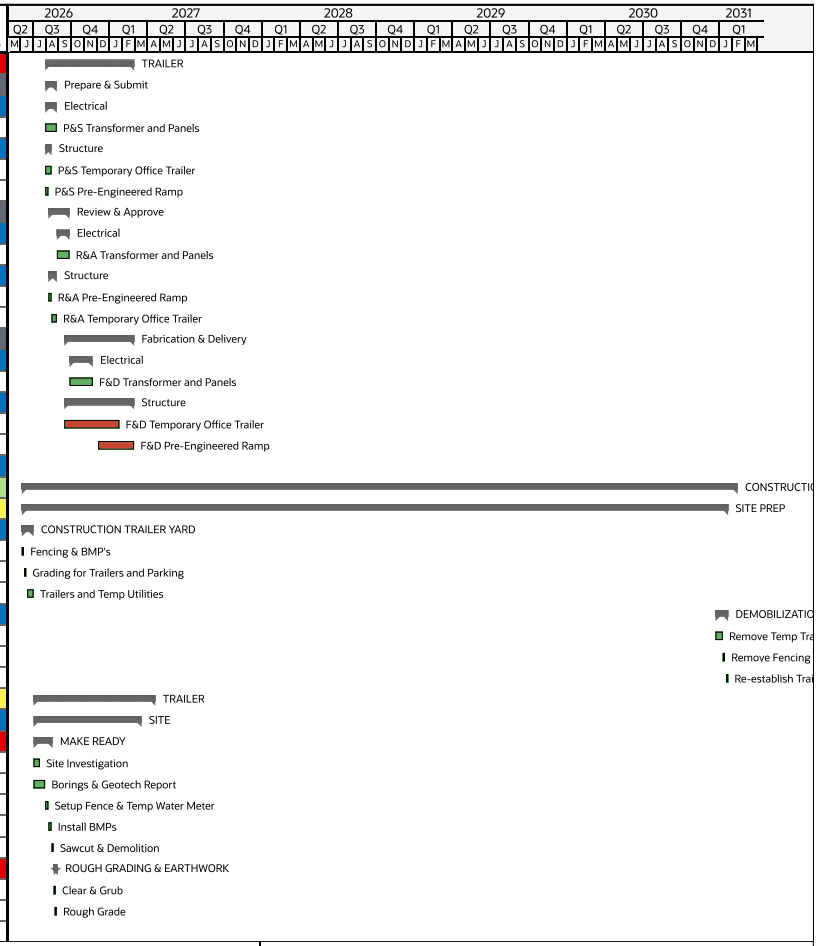
Alvarado Laboratory Improvements

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Current
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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
TRAILER	145	29-Jul-26	26-Feb-27		0.00h
Prepare & Submit	20	29-Jul-26	25-Aug-26		0.00h
Electrical	20	29-Jul-26	25-Aug-26		0.00h
P&S Transformer and Panels	20	29-Jul-26	25-Aug-26		0.00h
Structure	10	29-Jul-26	11-Aug-26		0.00h
P&S Temporary Office Trailer	10	29-Jul-26	11-Aug-26		0.00h
P&S Pre-Engineered Ramp	5	29-Jul-26	04-Aug-26		0.00h
Review & Approve	35	05-Aug-26 ...	23-Sep-26		0.00h
Electrical	20	26-Aug-26 ...	23-Sep-26		0.00h
R&A Transformer and Panels	20	26-Aug-26 ...	23-Sep-26		0.00h
Structure	15	05-Aug-26 ...	25-Aug-26		0.00h
R&A Pre-Engineered Ramp	5	05-Aug-26 ...	11-Aug-26		0.00h
R&A Temporary Office Trailer	10	12-Aug-26 ...	25-Aug-26		0.00h
Fabrication & Delivery	114	11-Sep-26 ...	26-Feb-27		0.00h
Electrical	40	24-Sep-26 ...	19-Nov-26		0.00h
F&D Transformer and Panels	40	24-Sep-26 ...	19-Nov-26		0.00h
Structure	114	11-Sep-26 ...	26-Feb-27		0.00h
F&D Temporary Office Trailer	90	11-Sep-26 ...	22-Jan-27		0.00h
F&D Pre-Engineered Ramp	60	01-Dec-26 ...	26-Feb-27		0.00h
Exteriors					
CONSTRUCTION	1,177	01-Jun-26	10-Feb-31		179,224.00h
SITE PREP	1,162	01-Jun-26	20-Jan-31		1,760.00h
CONSTRUCTION TRAILER YARD	20	01-Jun-26	29-Jun-26		880.00h
Fencing & BMP's	5	01-Jun-26	05-Jun-26	4 Person Crew	160.00h
Grading for Trailers and Parking	5	08-Jun-26	12-Jun-26	6 Person Crew	240.00h
Trailers and Temp Utilities	10	15-Jun-26	29-Jun-26	6 Person Crew	480.00h
DEMOBILIZATION	20	20-Dec-30 ...	20-Jan-31		880.00h
Remove Temp Trailers	10	20-Dec-30 ...	06-Jan-31	6 Person Crew	480.00h
Remove Fencing & BMP's	5	07-Jan-31	13-Jan-31	4 Person Crew	160.00h
Re-establish Trailer Area Landscape	5	14-Jan-31	20-Jan-31	6 Person Crew	240.00h
TRAILER	199	30-Jun-26	16-Apr-27		19,168.00h
SITE	176	30-Jun-26	15-Mar-27		13,280.00h
MAKE READY	33	30-Jun-26	14-Aug-26		1,536.00h
Site Investigation	10	30-Jun-26	14-Jul-26	6 Person Crew	480.00h
Borings & Geotech Report	20	30-Jun-26	28-Jul-26	4 Person Crew	640.00h
Setup Fence & Temp Water Meter	5	29-Jul-26	04-Aug-26	4 Person Crew	160.00h
Install BMPs	5	05-Aug-26 ...	11-Aug-26	4 Person Crew	160.00h
Sawcut & Demolition	3	12-Aug-26 ...	14-Aug-26	4 Person Crew	96.00h
ROUGH GRADING & EARTHWORK	9	17-Aug-26 ...	27-Aug-26		384.00h
Clear & Grub	2	17-Aug-26 ...	18-Aug-26	6 Person Crew	96.00h
Rough Grade	3	19-Aug-26 ...	21-Aug-26	6 Person Crew	144.00h



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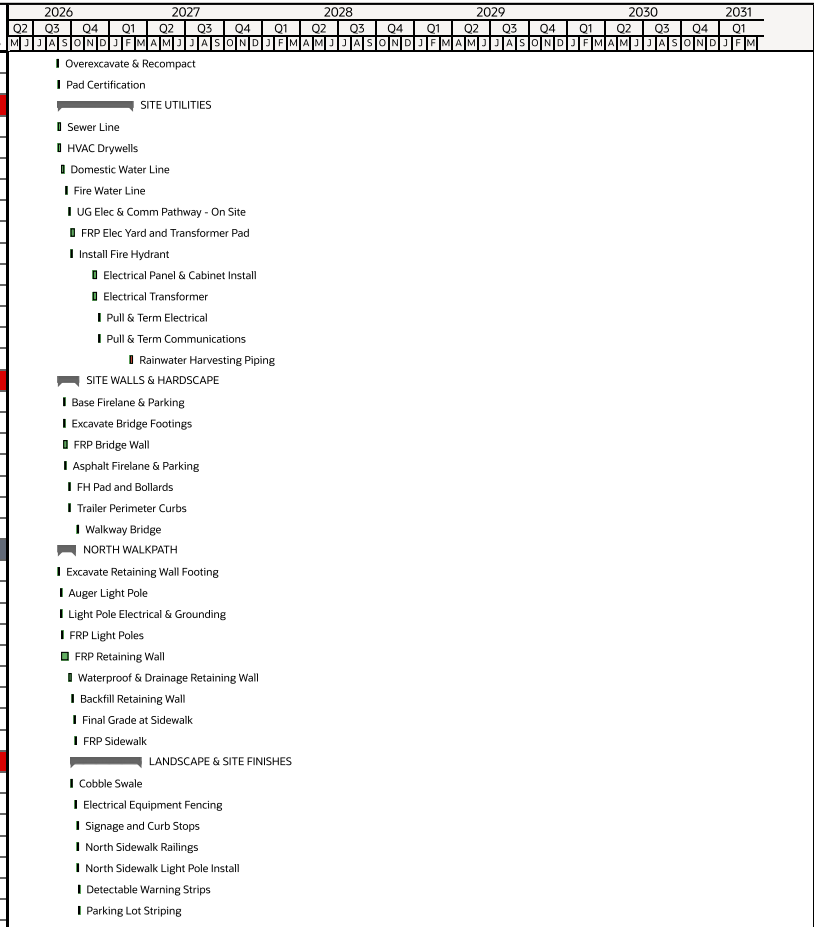
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Overexcavate & Recompact	3	24-Aug-26 ...	26-Aug-26	6 Person Crew	144.00h
Pad Certification	1	27-Aug-26 ...	27-Aug-26		0.00h
SITE UTILITIES	119	28-Aug-26 ...	22-Feb-27		3,136.00h
Sewer Line	5	28-Aug-26 ...	03-Sep-26	6 Person Crew	240.00h
HVAC Drywells	5	28-Aug-26 ...	03-Sep-26	6 Person Crew	240.00h
Domestic Water Line	5	04-Sep-26 ...	11-Sep-26	6 Person Crew	240.00h
Fire Water Line	5	14-Sep-26 ...	18-Sep-26	6 Person Crew	240.00h
UG Elec & Comm Pathway - On Site	5	21-Sep-26 ...	25-Sep-26	6 Person Crew	240.00h
FRP Elec Yard and Transformer Pad	7	28-Sep-26 ...	06-Oct-26	12 Person Crew	672.00h
Install Fire Hydrant	2	28-Sep-26 ...	29-Sep-26	4 Person Crew	64.00h
Electrical Panel & Cabinet Install	5	20-Nov-26 ...	30-Nov-26	6 Person Crew	240.00h
Electrical Transformer	5	20-Nov-26 ...	30-Nov-26	6 Person Crew	240.00h
Pull & Term Electrical	5	01-Dec-26 ...	07-Dec-26	6 Person Crew	240.00h
Pull & Term Communications	5	01-Dec-26 ...	07-Dec-26	6 Person Crew	240.00h
Rainwater Harvesting Piping	5	16-Feb-27	22-Feb-27	6 Person Crew	240.00h
SITE WALLS & HARDSCAPE	36	27-Aug-26 ...	16-Oct-26		4,032.00h
Base Firelane & Parking	2	09-Sep-26 ...	10-Sep-26	8 Person Crew	128.00h
Excavate Bridge Footings	1	09-Sep-26 ...	09-Sep-26	4 Person Crew	32.00h
FRP Bridge Wall	7	10-Sep-26 ...	18-Sep-26	8 Person Crew	448.00h
Asphalt Firelane & Parking	2	11-Sep-26 ...	14-Sep-26	8 Person Crew	128.00h
FH Pad and Bollards	5	21-Sep-26 ...	25-Sep-26	8 Person Crew	320.00h
Trailer Perimeter Curbs	5	21-Sep-26 ...	25-Sep-26	8 Person Crew	320.00h
Walkway Bridge	5	12-Oct-26	16-Oct-26	8 Person Crew	320.00h
NORTH WALKPATH	31	27-Aug-26 ...	09-Oct-26		2,336.00h
Excavate Retaining Wall Footing	3	27-Aug-26 ...	31-Aug-26	4 Person Crew	96.00h
Auger Light Pole	1	01-Sep-26 ...	01-Sep-26	6 Person Crew	48.00h
Light Pole Electrical & Grounding	2	02-Sep-26 ...	03-Sep-26	6 Person Crew	96.00h
FRP Light Poles	3	04-Sep-26 ...	09-Sep-26	10 Person Crew	240.00h
FRP Retaining Wall	12	04-Sep-26 ...	22-Sep-26	10 Person Crew	960.00h
Waterproof & Drainage Retaining Wall	5	23-Sep-26 ...	29-Sep-26	10 Person Crew	400.00h
Backfill Retaining Wall	3	30-Sep-26 ...	02-Oct-26	6 Person Crew	144.00h
Final Grade at Sidewalk	1	05-Oct-26	05-Oct-26	4 Person Crew	32.00h
FRP Sidewalk	4	06-Oct-26	09-Oct-26	10 Person Crew	320.00h
LANDSCAPE & SITE FINISHES	114	28-Sep-26 ...	15-Mar-27		2,992.00h
Cobble Swale	3	28-Sep-26 ...	30-Sep-26	4 Person Crew	96.00h
Electrical Equipment Fencing	2	07-Oct-26	08-Oct-26	2 Person Crew	32.00h
Signage and Curb Stops	2	12-Oct-26	13-Oct-26	4 Person Crew	64.00h
North Sidewalk Railings	5	12-Oct-26	16-Oct-26	4 Person Crew	160.00h
North Sidewalk Light Pole Install	3	12-Oct-26	14-Oct-26	4 Person Crew	96.00h
Detectable Warning Strips	1	14-Oct-26	14-Oct-26	4 Person Crew	32.00h
Parking Lot Striping	1	15-Oct-26	15-Oct-26	4 Person Crew	32.00h



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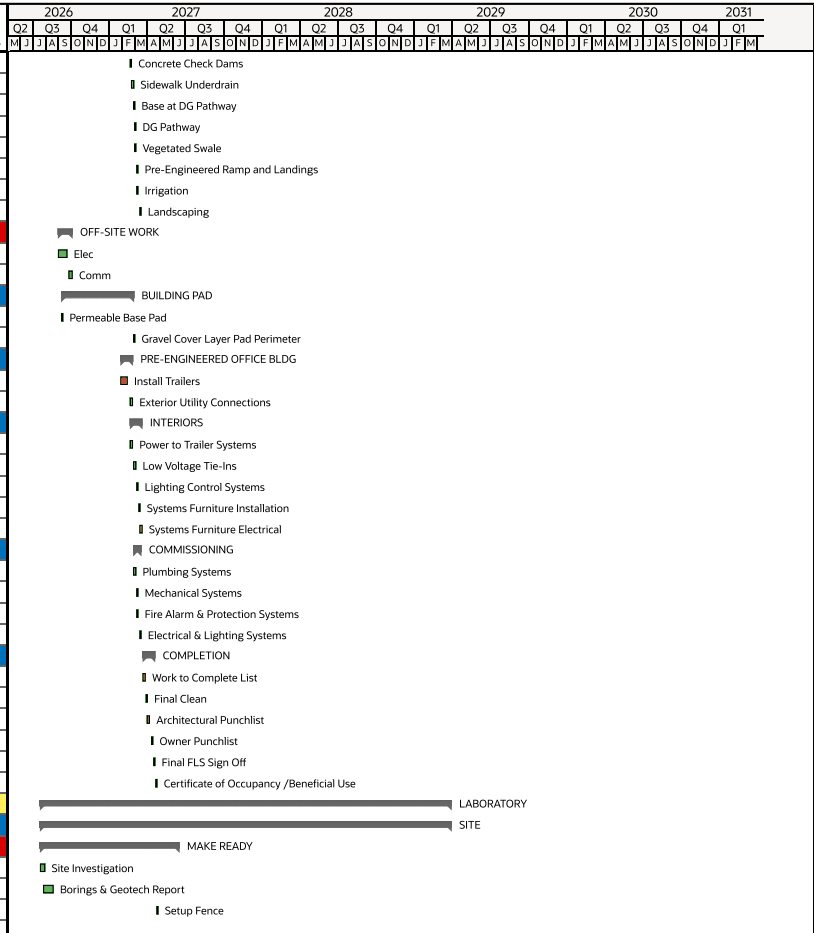
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Concrete Check Dams	3	16-Feb-27	18-Feb-27	10 Person Crew	240.00h
Sidewalk Underdrain	5	19-Feb-27	25-Feb-27	4 Person Crew	160.00h
Base at DG Pathway	2	23-Feb-27	24-Feb-27	4 Person Crew	64.00h
DG Pathway	2	25-Feb-27	26-Feb-27	4 Person Crew	64.00h
Vegetated Swale	2	26-Feb-27	01-Mar-27	8 Person Crew	192.00h
Pre-Engineered Ramp and Landings	5	01-Mar-27 ...	05-Mar-27	8 Person Crew	320.00h
Irrigation	5	02-Mar-27 ...	08-Mar-27	12 Person Crew	480.00h
Landscaping	5	09-Mar-27 ...	15-Mar-27	12 Person Crew	960.00h
OFF-SITE WORK	25	28-Aug-26 ...	02-Oct-26		1,200.00h
Elec	15	28-Aug-26 ...	18-Sep-26	6 Person Crew	720.00h
Comm	10	21-Sep-26 ...	02-Oct-26	6 Person Crew	480.00h
BUILDING PAD	116	04-Sep-26 ...	24-Feb-27		128.00h
Permeable Base Pad	2	04-Sep-26 ...	08-Sep-26	4 Person Crew	64.00h
Gravel Cover Layer Pad Perimeter	2	23-Feb-27	24-Feb-27	4 Person Crew	64.00h
PRE-ENGINEERED OFFICE BLDG	20	25-Jan-27	22-Feb-27		1,760.00h
Install Trailers	15	25-Jan-27	12-Feb-27	12 Person Crew	1,440.00h
Exterior Utility Connections	5	16-Feb-27	22-Feb-27	8 Person Crew	320.00h
INTERIORS	22	16-Feb-27	17-Mar-27		1,440.00h
Power to Trailer Systems	5	16-Feb-27	22-Feb-27	8 Person Crew	320.00h
Low Voltage Tie-Ins	5	23-Feb-27	01-Mar-27	8 Person Crew	320.00h
Lighting Control Systems	5	02-Mar-27 ...	08-Mar-27	6 Person Crew	240.00h
Systems Furniture Installation	3	08-Mar-27 ...	10-Mar-27	8 Person Crew	320.00h
Systems Furniture Electrical	5	11-Mar-27 ...	17-Mar-27	6 Person Crew	240.00h
COMMISSIONING	15	23-Feb-27	15-Mar-27		1,280.00h
Plumbing Systems	5	23-Feb-27	01-Mar-27	8 Person Crew	320.00h
Mechanical Systems	5	02-Mar-27 ...	08-Mar-27	8 Person Crew	320.00h
Fire Alarm & Protection Systems	5	02-Mar-27 ...	08-Mar-27	8 Person Crew	320.00h
Electrical & Lighting Systems	5	09-Mar-27 ...	15-Mar-27	8 Person Crew	320.00h
COMPLETION	21	18-Mar-27 ...	16-Apr-27		1,280.00h
Work to Complete List	5	18-Mar-27 ...	24-Mar-27	10 Person Crew	400.00h
Final Clean	2	25-Mar-27 ...	26-Mar-27	5 Person Crew	80.00h
Architectural Punchlist	5	29-Mar-27 ...	05-Apr-27	10 Person Crew	400.00h
Owner Punchlist	5	06-Apr-27	12-Apr-27	10 Person Crew	400.00h
Final FLS Sign Off	3	13-Apr-27	15-Apr-27		0.00h
Certificate of Occupancy /Beneficial Use	1	16-Apr-27	16-Apr-27		0.00h
LABORATORY	676	15-Jul-26	28-Mar-29		110,024.00h
SITE	676	15-Jul-26	28-Mar-29		18,416.00h
MAKE READY	229	15-Jul-26	14-Jun-27		3,840.00h
Site Investigation	10	15-Jul-26	28-Jul-26	8 Person Crew	640.00h
Borings & Geotech Report	20	22-Jul-26	18-Aug-26	4 Person Crew	640.00h
Setup Fence	5	19-Apr-27	23-Apr-27	6 Person Crew	384.00h



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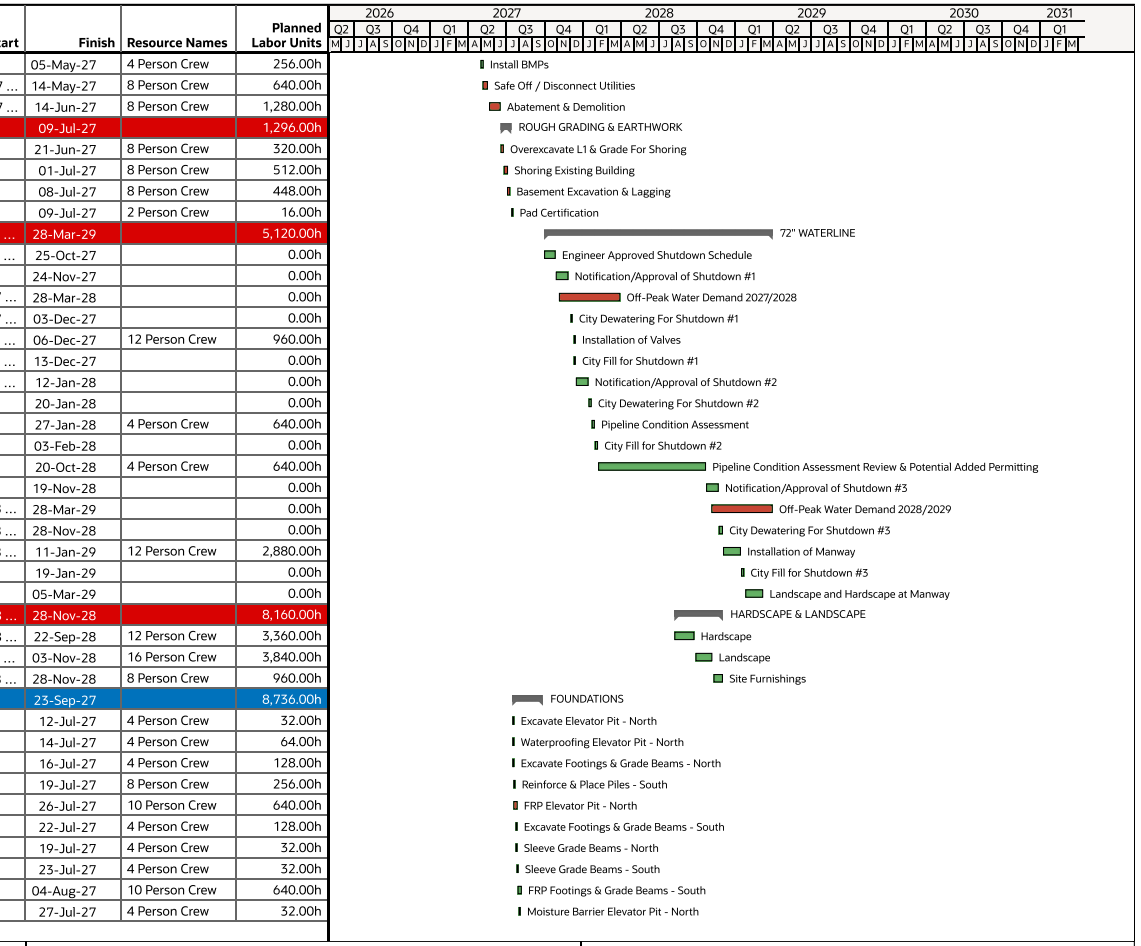
Alvarado Laboratory Improvements

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Current
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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Install BMPs	8	26-Apr-27	05-May-27	4 Person Crew	256.00h
Safe Off / Disconnect Utilities	10	03-May-27 ...	14-May-27	8 Person Crew	640.00h
Abatement & Demolition	20	17-May-27 ...	14-Jun-27	8 Person Crew	1,280.00h
ROUGH GRADING & EARTHWORK	18	15-Jun-27	09-Jul-27		1,296.00h
Overexcavate L1 & Grade For Shoring	5	15-Jun-27	21-Jun-27	8 Person Crew	320.00h
Shoring Existing Building	8	22-Jun-27	01-Jul-27	8 Person Crew	512.00h
Basement Excavation & Lagging	7	29-Jun-27	08-Jul-27	8 Person Crew	448.00h
Pad Certification	1	09-Jul-27	09-Jul-27	2 Person Crew	16.00h
72" WATERLINE	374	28-Sep-27 ...	28-Mar-29		5,120.00h
Engineer Approved Shutdown Schedule	20	28-Sep-27 ...	25-Oct-27		0.00h
Notification/Approval of Shutdown #1	30	25-Oct-27	24-Nov-27		0.00h
Off-Peak Water Demand 2027/2028	100	01-Nov-27 ...	28-Mar-28		0.00h
City Dewatering For Shutdown #1	5	29-Nov-27 ...	03-Dec-27		0.00h
Installation of Valves	1	06-Dec-27 ...	06-Dec-27	12 Person Crew	960.00h
City Fill for Shutdown #1	5	07-Dec-27 ...	13-Dec-27		0.00h
Notification/Approval of Shutdown #2	30	13-Dec-27 ...	12-Jan-28		0.00h
City Dewatering For Shutdown #2	5	13-Jan-28	20-Jan-28		0.00h
Pipeline Condition Assessment	5	21-Jan-28	27-Jan-28	4 Person Crew	640.00h
City Fill for Shutdown #2	5	28-Jan-28	03-Feb-28		0.00h
Pipeline Condition Assessment Review & Potential Ad...	180	04-Feb-28	20-Oct-28	4 Person Crew	640.00h
Notification/Approval of Shutdown #3	30	20-Oct-28	19-Nov-28		0.00h
Off-Peak Water Demand 2028/2029	100	01-Nov-28 ...	28-Mar-29		0.00h
City Dewatering For Shutdown #3	5	20-Nov-28 ...	28-Nov-28		0.00h
Installation of Manway	30	29-Nov-28 ...	11-Jan-29	12 Person Crew	2,880.00h
City Fill for Shutdown #3	5	12-Jan-29	19-Jan-29		0.00h
Landscape and Hardscape at Manway	30	22-Jan-29	05-Mar-29		0.00h
HARDSCAPE & LANDSCAPE	80	04-Aug-28 ...	28-Nov-28		8,160.00h
Hardscape	35	04-Aug-28 ...	22-Sep-28	12 Person Crew	3,360.00h
Landscape	30	25-Sep-28 ...	03-Nov-28	16 Person Crew	3,840.00h
Site Furnishings	15	06-Nov-28 ...	28-Nov-28	8 Person Crew	960.00h
FOUNDATIONS	53	12-Jul-27	23-Sep-27		8,736.00h
Excavate Elevator Pit - North	1	12-Jul-27	12-Jul-27	4 Person Crew	32.00h
Waterproofing Elevator Pit - North	2	13-Jul-27	14-Jul-27	4 Person Crew	64.00h
Excavate Footings & Grade Beams - North	4	13-Jul-27	16-Jul-27	4 Person Crew	128.00h
Reinforce & Place Piles - South	4	14-Jul-27	19-Jul-27	8 Person Crew	256.00h
FRP Elevator Pit - North	8	15-Jul-27	26-Jul-27	10 Person Crew	640.00h
Excavate Footings & Grade Beams - South	4	19-Jul-27	22-Jul-27	4 Person Crew	128.00h
Sleeve Grade Beams - North	1	19-Jul-27	19-Jul-27	4 Person Crew	32.00h
Sleeve Grade Beams - South	1	23-Jul-27	23-Jul-27	4 Person Crew	32.00h
FRP Footings & Grade Beams - South	8	26-Jul-27	04-Aug-27	10 Person Crew	640.00h
Moisture Barrier Elevator Pit - North	1	27-Jul-27	27-Jul-27	4 Person Crew	32.00h



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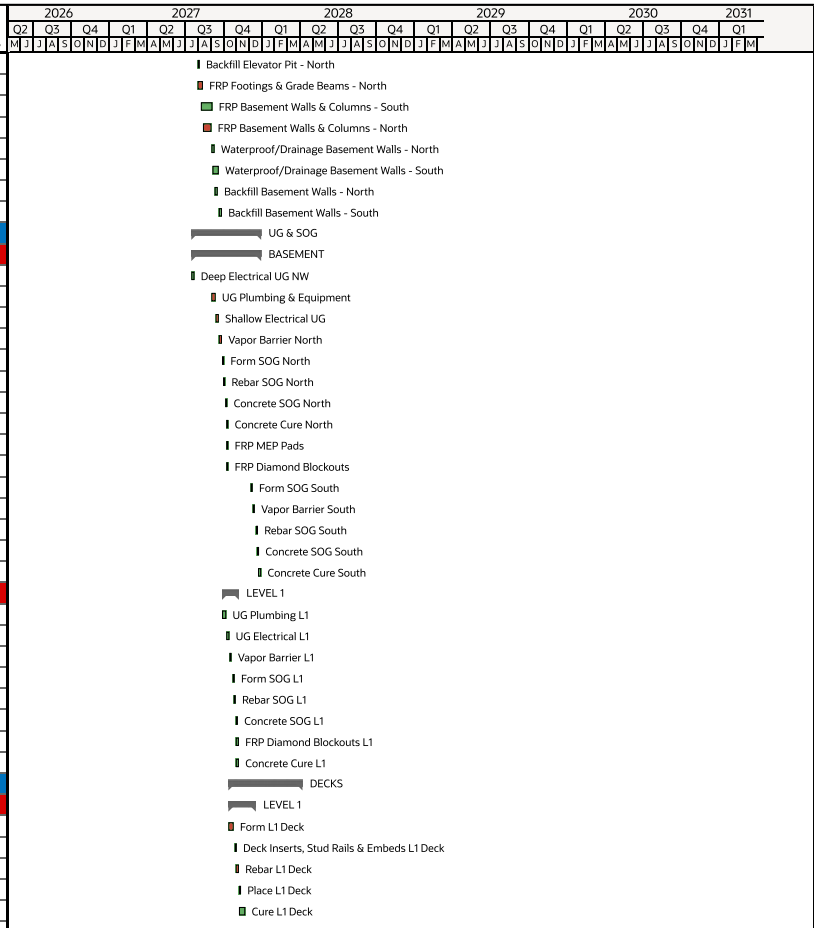
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Backfill Elevator Pit - North	1	28-Jul-27	28-Jul-27	4 Person Crew	32.00h
FRP Footings & Grade Beams - North	8	29-Jul-27	09-Aug-27	10 Person Crew	640.00h
FRP Basement Walls & Columns - South	20	05-Aug-27 ...	01-Sep-27	16 Person Crew	2,560.00h
FRP Basement Walls & Columns - North	15	10-Aug-27 ...	30-Aug-27	16 Person Crew	1,920.00h
Waterproof/Drainage Basement Walls - North	5	31-Aug-27 ...	07-Sep-27	8 Person Crew	320.00h
Waterproof/Drainage Basement Walls - South	10	02-Sep-27 ...	16-Sep-27	8 Person Crew	640.00h
Backfill Basement Walls - North	5	08-Sep-27 ...	14-Sep-27	8 Person Crew	320.00h
Backfill Basement Walls - South	5	17-Sep-27 ...	23-Sep-27	8 Person Crew	320.00h
UG & SOG	116	12-Jul-27	27-Dec-27		5,488.00h
BASEMENT	116	12-Jul-27	27-Dec-27		4,032.00h
Deep Electrical UG NW	8	12-Jul-27	21-Jul-27	8 Person Crew	512.00h
UG Plumbing & Equipment	7	31-Aug-27 ...	09-Sep-27	8 Person Crew	448.00h
Shallow Electrical UG	5	10-Sep-27 ...	16-Sep-27	8 Person Crew	320.00h
Vapor Barrier North	5	17-Sep-27 ...	23-Sep-27	14 Person Crew	560.00h
Form SOG North	2	24-Sep-27 ...	27-Sep-27	8 Person Crew	128.00h
Rebar SOG North	3	28-Sep-27 ...	30-Sep-27	8 Person Crew	192.00h
Concrete SOG North	1	01-Oct-27	01-Oct-27	14 Person Crew	112.00h
Concrete Cure North	5	04-Oct-27	08-Oct-27		0.00h
FRP MEP Pads	5	04-Oct-27	08-Oct-27	8 Person Crew	320.00h
FRP Diamond Blockouts	5	04-Oct-27	08-Oct-27	8 Person Crew	320.00h
Form SOG South	4	01-Dec-27 ...	06-Dec-27	8 Person Crew	256.00h
Vapor Barrier South	5	07-Dec-27 ...	13-Dec-27	14 Person Crew	560.00h
Rebar SOG South	3	14-Dec-27 ...	16-Dec-27	8 Person Crew	192.00h
Concrete SOG South	1	17-Dec-27 ...	17-Dec-27	14 Person Crew	112.00h
Concrete Cure South	5	20-Dec-27 ...	27-Dec-27		0.00h
LEVEL 1	29	24-Sep-27 ...	03-Nov-27		1,456.00h
UG Plumbing L1	7	24-Sep-27 ...	04-Oct-27	6 Person Crew	336.00h
UG Electrical L1	5	05-Oct-27	11-Oct-27	6 Person Crew	240.00h
Vapor Barrier L1	5	12-Oct-27	18-Oct-27	6 Person Crew	240.00h
Form SOG L1	3	19-Oct-27	21-Oct-27	6 Person Crew	144.00h
Rebar SOG L1	3	22-Oct-27	26-Oct-27	6 Person Crew	144.00h
Concrete SOG L1	1	27-Oct-27	27-Oct-27	14 Person Crew	112.00h
FRP Diamond Blockouts L1	5	28-Oct-27	03-Nov-27	6 Person Crew	240.00h
Concrete Cure L1	5	28-Oct-27	03-Nov-27		0.00h
DECKS	118	11-Oct-27	03-Apr-28		9,240.00h
LEVEL 1	45	11-Oct-27	15-Dec-27		3,664.00h
Form L1 Deck	10	11-Oct-27	22-Oct-27	16 Person Crew	1,280.00h
Deck Inserts, Stud Rails & Embeds L1 Deck	3	25-Oct-27	27-Oct-27	4 Person Crew	160.00h
Rebar L1 Deck	5	28-Oct-27	03-Nov-27	5 Person Crew	200.00h
Place L1 Deck	1	04-Nov-27 ...	04-Nov-27	16 Person Crew	128.00h
Cure L1 Deck	10	05-Nov-27 ...	19-Nov-27		0.00h



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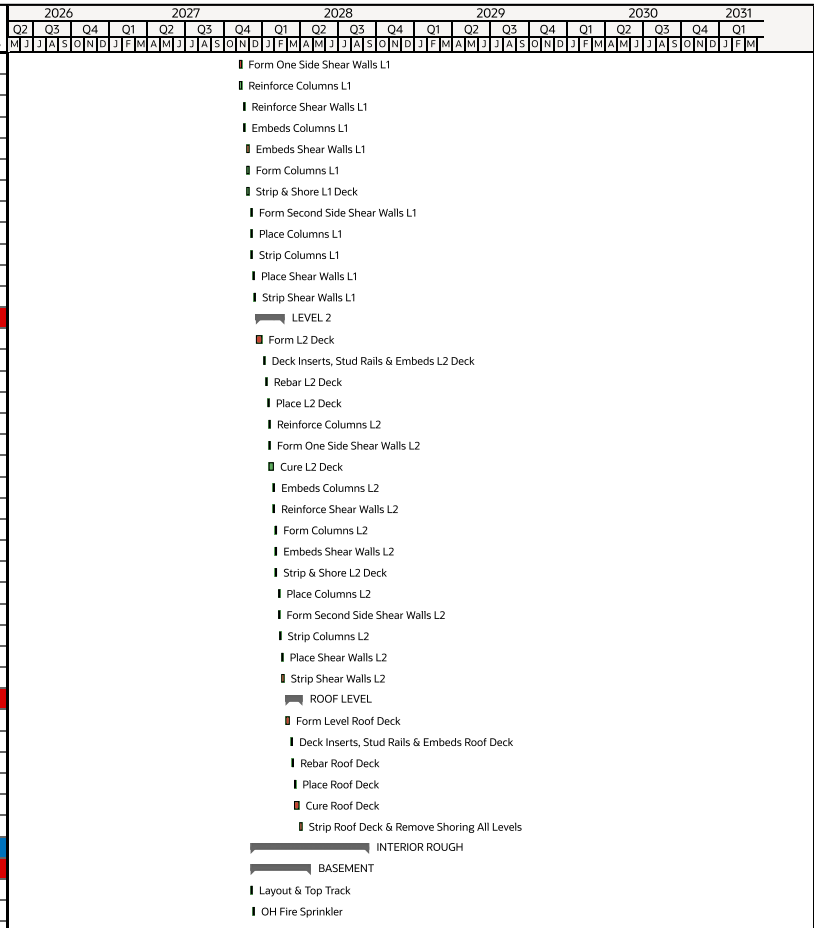
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Form One Side Shear Walls L1	5	05-Nov-27 ...	12-Nov-27	5 Person Crew	200.00h
Reinforce Columns L1	5	05-Nov-27 ...	12-Nov-27	4 Person Crew	160.00h
Reinforce Shear Walls L1	5	15-Nov-27 ...	19-Nov-27	4 Person Crew	160.00h
Embeds Columns L1	5	15-Nov-27 ...	19-Nov-27	4 Person Crew	160.00h
Embeds Shear Walls L1	5	22-Nov-27 ...	30-Nov-27	4 Person Crew	160.00h
Form Columns L1	5	22-Nov-27 ...	30-Nov-27	5 Person Crew	200.00h
Strip & Shore L1 Deck	5	22-Nov-27 ...	30-Nov-27	5 Person Crew	200.00h
Form Second Side Shear Walls L1	5	01-Dec-27 ...	07-Dec-27	5 Person Crew	200.00h
Place Columns L1	1	01-Dec-27 ...	01-Dec-27	6 Person Crew	48.00h
Strip Columns L1	5	02-Dec-27 ...	08-Dec-27	4 Person Crew	160.00h
Place Shear Walls L1	1	08-Dec-27 ...	08-Dec-27	6 Person Crew	48.00h
Strip Shear Walls L1	5	09-Dec-27 ...	15-Dec-27	5 Person Crew	200.00h
LEVEL 2	45	16-Dec-27 ...	22-Feb-28		3,664.00h
Form L2 Deck	10	16-Dec-27 ...	30-Dec-27	16 Person Crew	1,280.00h
Deck Inserts, Stud Rails & Embeds L2 Deck	3	03-Jan-28	05-Jan-28	4 Person Crew	160.00h
Rebar L2 Deck	5	06-Jan-28	12-Jan-28	5 Person Crew	200.00h
Place L2 Deck	1	13-Jan-28	13-Jan-28	16 Person Crew	128.00h
Reinforce Columns L2	5	14-Jan-28	21-Jan-28	4 Person Crew	160.00h
Form One Side Shear Walls L2	5	14-Jan-28	21-Jan-28	5 Person Crew	200.00h
Cure L2 Deck	10	14-Jan-28	28-Jan-28		0.00h
Embeds Columns L2	5	24-Jan-28	28-Jan-28	4 Person Crew	160.00h
Reinforce Shear Walls L2	5	24-Jan-28	28-Jan-28	4 Person Crew	160.00h
Form Columns L2	5	31-Jan-28	04-Feb-28	5 Person Crew	200.00h
Embeds Shear Walls L2	5	31-Jan-28	04-Feb-28	4 Person Crew	160.00h
Strip & Shore L2 Deck	5	31-Jan-28	04-Feb-28	5 Person Crew	200.00h
Place Columns L2	1	07-Feb-28	07-Feb-28	6 Person Crew	48.00h
Form Second Side Shear Walls L2	5	07-Feb-28	11-Feb-28	5 Person Crew	200.00h
Strip Columns L2	5	08-Feb-28	14-Feb-28	4 Person Crew	160.00h
Place Shear Walls L2	1	14-Feb-28	14-Feb-28	6 Person Crew	48.00h
Strip Shear Walls L2	5	15-Feb-28	22-Feb-28	5 Person Crew	200.00h
ROOF LEVEL	28	23-Feb-28	03-Apr-28		1,912.00h
Form Level Roof Deck	8	23-Feb-28	03-Mar-28	16 Person Crew	1,024.00h
Deck Inserts, Stud Rails & Embeds Roof Deck	3	06-Mar-28 ...	08-Mar-28	4 Person Crew	160.00h
Rebar Roof Deck	3	09-Mar-28 ...	13-Mar-28	5 Person Crew	200.00h
Place Roof Deck	1	14-Mar-28 ...	14-Mar-28	16 Person Crew	128.00h
Cure Roof Deck	10	15-Mar-28 ...	28-Mar-28		0.00h
Strip Roof Deck & Remove Shoring All Levels	3	29-Mar-28 ...	03-Apr-28	5 Person Crew, ...	400.00h
INTERIOR ROUGH	195	01-Dec-27 ...	11-Sep-28		21,912.00h
BASEMENT	100	01-Dec-27 ...	25-Apr-28		6,936.00h
Layout & Top Track	3	01-Dec-27 ...	03-Dec-27	4 Person Crew	96.00h
OH Fire Sprinkler	4	06-Dec-27 ...	09-Dec-27	8 Person Crew	256.00h



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Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
OH Storm	3	10-Dec-27 ...	14-Dec-27	6 Person Crew	144.00h
Wall & Drop Soffit Framing	5	15-Dec-27 ...	21-Dec-27	8 Person Crew	320.00h
One Side Drywall	3	17-Dec-27 ...	21-Dec-27	10 Person Crew	240.00h
MEP Layout & Hangers	3	22-Dec-27 ...	27-Dec-27	8 Person Crew	192.00h
MEP In-Wall Rough-In Top Down	5	28-Dec-27 ...	04-Jan-28	10 Person Crew	400.00h
Spray Top of Wall	2	05-Jan-28	06-Jan-28	4 Person Crew	64.00h
Tape & Finish Top of Wall	5	07-Jan-28	13-Jan-28	8 Person Crew	320.00h
OH Gravity High Piping	5	14-Jan-28	21-Jan-28	6 Person Crew	240.00h
OH Electrical	5	24-Jan-28	28-Jan-28	8 Person Crew	320.00h
OH Duct Mains	3	31-Jan-28	02-Feb-28	5 Person Crew	120.00h
OH Branch Duct	3	03-Feb-28	07-Feb-28	5 Person Crew	120.00h
Pressure Test Mech Piping	3	08-Feb-28	10-Feb-28	4 Person Crew	96.00h
OH Plumbing	5	10-Feb-28	16-Feb-28	8 Person Crew	320.00h
OH Electrical / FA/ Comm / Cable Tray	5	17-Feb-28	24-Feb-28	8 Person Crew	320.00h
Test OH Plumbing Systems	3	25-Feb-28	29-Feb-28	6 Person Crew	144.00h
Test OH HVAC Systems	3	25-Feb-28	29-Feb-28	6 Person Crew	144.00h
Plumbing In-Wall Rough In	5	01-Mar-28 ...	07-Mar-28	8 Person Crew	320.00h
Electrical In-Wall Rough In	5	03-Mar-28 ...	09-Mar-28	8 Person Crew	320.00h
FA & LV In-Wall Rough In	5	07-Mar-28 ...	13-Mar-28	8 Person Crew	320.00h
Test OH and In-Wall Plumbing	3	14-Mar-28 ...	16-Mar-28	6 Person Crew	144.00h
Backing	2	17-Mar-28 ...	20-Mar-28	4 Person Crew	64.00h
In-Wall Inspection and Sign-Off	3	21-Mar-28 ...	23-Mar-28	4 Person Crew	96.00h
Drywall	5	24-Mar-28 ...	30-Mar-28	10 Person Crew	400.00h
Work to Complete List	10	03-Apr-28	14-Apr-28	10 Person Crew	800.00h
Tape & Finish Drywall	7	17-Apr-28	25-Apr-28	10 Person Crew...	616.00h
LEVEL 1	114	07-Feb-28	20-Jul-28		7,568.00h
Layout & Top Track	3	07-Feb-28	09-Feb-28	4 Person Crew	96.00h
OH Fire Sprinkler	4	10-Feb-28	15-Feb-28	8 Person Crew	256.00h
OH Storm	3	16-Feb-28	18-Feb-28	6 Person Crew	144.00h
Wall & Drop Soffit Framing	5	22-Feb-28	28-Feb-28	8 Person Crew	320.00h
Top Down 1 Side Drywall	3	24-Feb-28	28-Feb-28	8 Person Crew	192.00h
MEP Layout & Hangers	3	29-Feb-28	02-Mar-28	8 Person Crew	192.00h
MEP In-Wall Rough-In Top Down	5	03-Mar-28 ...	09-Mar-28	10 Person Crew	400.00h
Insulate Top Down	2	10-Mar-28 ...	13-Mar-28	4 Person Crew	64.00h
Top Down 2nd Side Drywall	3	14-Mar-28 ...	16-Mar-28	8 Person Crew	192.00h
Spray Top of Wall	2	17-Mar-28 ...	20-Mar-28	4 Person Crew	64.00h
Tape & Finish Top Down Drywall	5	21-Mar-28 ...	27-Mar-28	8 Person Crew	320.00h
OH Gravity High Piping	5	28-Mar-28 ...	04-Apr-28	6 Person Crew	240.00h
OH HHW & CHW Piping	5	05-Apr-28	11-Apr-28	8 Person Crew	320.00h
OH High Electrical	5	12-Apr-28	18-Apr-28	8 Person Crew	320.00h
OH Duct Mains	5	19-Apr-28	25-Apr-28	5 Person Crew	200.00h



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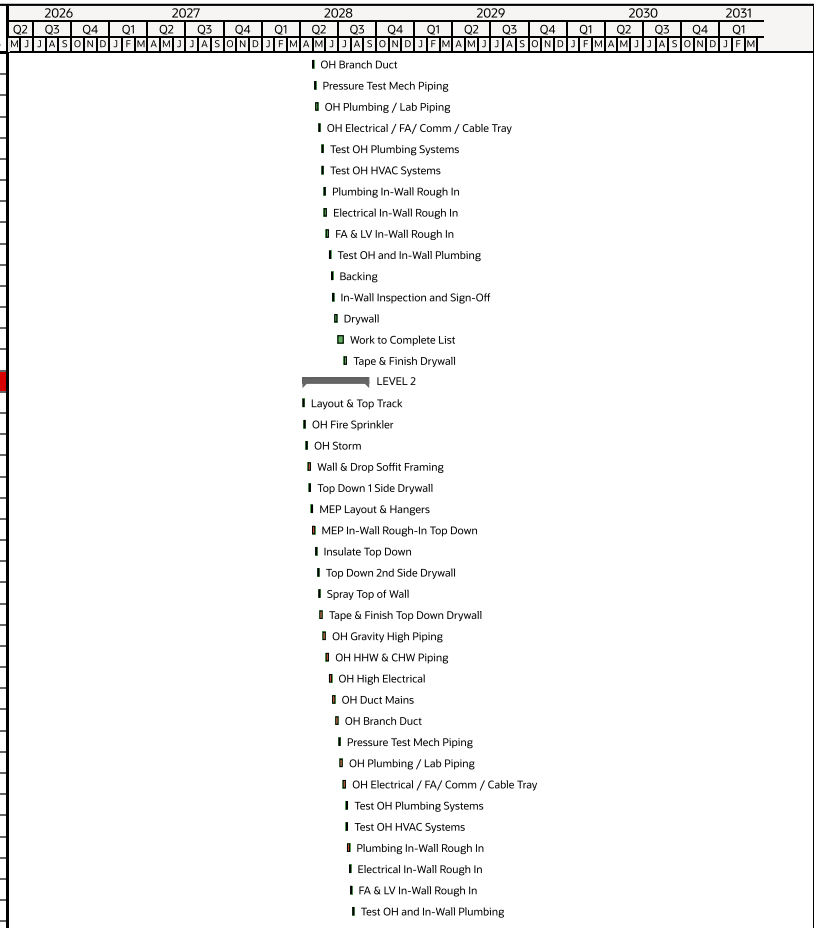
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
OH Branch Duct	5	26-Apr-28	02-May-28	5 Person Crew	200.00h
Pressure Test Mech Piping	3	03-May-28 ...	05-May-28	4 Person Crew	96.00h
OH Plumbing / Lab Piping	5	05-May-28 ...	11-May-28	8 Person Crew	320.00h
OH Electrical / FA/ Comm / Cable Tray	5	12-May-28 ...	18-May-28	8 Person Crew	320.00h
Test OH Plumbing Systems	3	19-May-28 ...	23-May-28	6 Person Crew	144.00h
Test OH HVAC Systems	3	19-May-28 ...	23-May-28	6 Person Crew	144.00h
Plumbing In-Wall Rough In	5	24-May-28 ...	31-May-28	8 Person Crew	320.00h
Electrical In-Wall Rough In	5	26-May-28 ...	02-Jun-28	8 Person Crew	320.00h
FA & LV In-Wall Rough In	5	31-May-28 ...	06-Jun-28	8 Person Crew	320.00h
Test OH and In-Wall Plumbing	3	07-Jun-28	09-Jun-28	6 Person Crew	144.00h
Backing	2	12-Jun-28	13-Jun-28	4 Person Crew	64.00h
In-Wall Inspection and Sign-Off	3	14-Jun-28	16-Jun-28	4 Person Crew	96.00h
Drywall	5	20-Jun-28	26-Jun-28	10 Person Crew	400.00h
Work to Complete List	10	27-Jun-28	11-Jul-28	10 Person Crew	800.00h
Tape & Finish Drywall	7	12-Jul-28	20-Jul-28	10 Person Crew	560.00h
LEVEL 2	111	04-Apr-28	11-Sep-28		7,408.00h
Layout & Top Track	3	04-Apr-28	06-Apr-28	4 Person Crew	96.00h
OH Fire Sprinkler	4	07-Apr-28	12-Apr-28	8 Person Crew	256.00h
OH Storm	3	13-Apr-28	17-Apr-28	6 Person Crew	144.00h
Wall & Drop Soffit Framing	5	18-Apr-28	24-Apr-28	8 Person Crew	320.00h
Top Down 1 Side Drywall	3	20-Apr-28	24-Apr-28	8 Person Crew	192.00h
MEP Layout & Hangers	3	25-Apr-28	27-Apr-28	8 Person Crew	192.00h
MEP In-Wall Rough-In Top Down	5	28-Apr-28	04-May-28	10 Person Crew	400.00h
Insulate Top Down	2	05-May-28 ...	08-May-28	4 Person Crew	64.00h
Top Down 2nd Side Drywall	3	09-May-28 ...	11-May-28	8 Person Crew	192.00h
Spray Top of Wall	2	12-May-28 ...	15-May-28	4 Person Crew	64.00h
Tape & Finish Top Down Drywall	5	16-May-28 ...	22-May-28	8 Person Crew	320.00h
OH Gravity High Piping	5	23-May-28 ...	30-May-28	6 Person Crew	240.00h
OH HHW & CHW Piping	5	31-May-28 ...	06-Jun-28	8 Person Crew	320.00h
OH High Electrical	5	07-Jun-28	13-Jun-28	8 Person Crew	320.00h
OH Duct Mains	5	14-Jun-28	21-Jun-28	5 Person Crew	200.00h
OH Branch Duct	5	22-Jun-28	28-Jun-28	5 Person Crew	200.00h
Pressure Test Mech Piping	3	29-Jun-28	03-Jul-28	4 Person Crew	96.00h
OH Plumbing / Lab Piping	5	03-Jul-28	10-Jul-28	8 Person Crew	320.00h
OH Electrical / FA/ Comm / Cable Tray	5	11-Jul-28	17-Jul-28	8 Person Crew	320.00h
Test OH Plumbing Systems	3	18-Jul-28	20-Jul-28	6 Person Crew	144.00h
Test OH HVAC Systems	3	18-Jul-28	20-Jul-28	6 Person Crew	144.00h
Plumbing In-Wall Rough In	5	21-Jul-28	27-Jul-28	8 Person Crew	320.00h
Electrical In-Wall Rough In	5	25-Jul-28	31-Jul-28	8 Person Crew	320.00h
FA & LV In-Wall Rough In	5	27-Jul-28	02-Aug-28	8 Person Crew	320.00h
Test OH and In-Wall Plumbing	3	03-Aug-28 ...	07-Aug-28	6 Person Crew	144.00h



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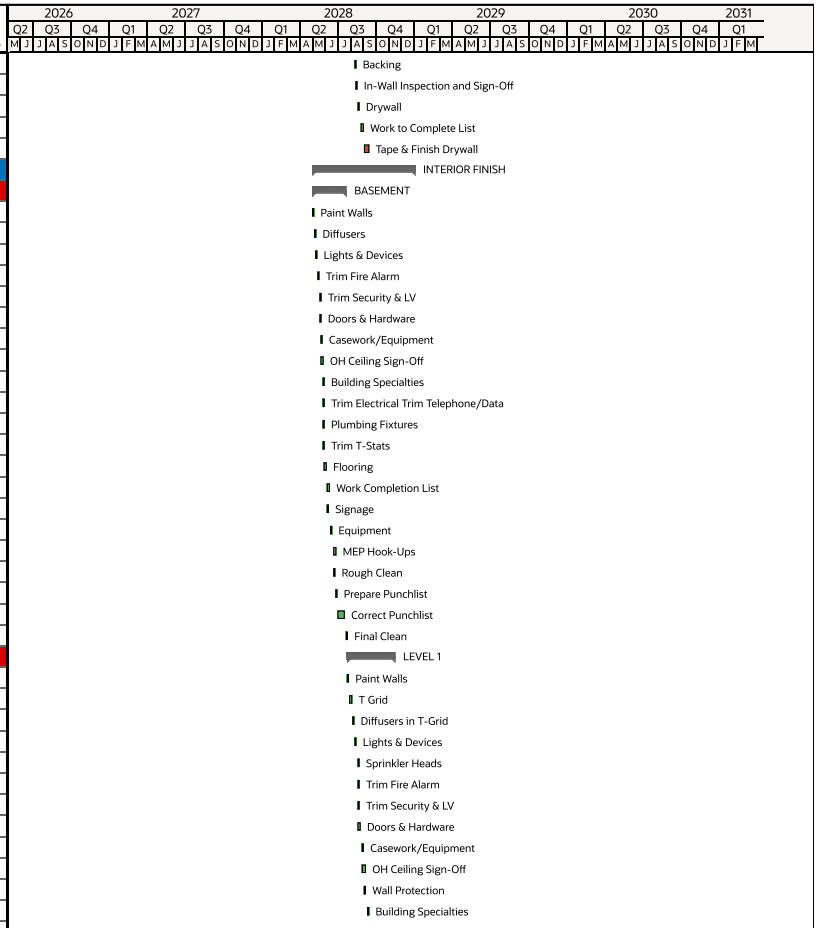
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Backing	2	08-Aug-28 ...	09-Aug-28	4 Person Crew	64.00h
In-Wall Inspection and Sign-Off	3	10-Aug-28 ...	14-Aug-28	4 Person Crew	96.00h
Drywall	5	15-Aug-28 ...	21-Aug-28	10 Person Crew	400.00h
Work to Complete List	7	22-Aug-28 ...	30-Aug-28	10 Person Crew	640.00h
Tape & Finish Drywall	7	31-Aug-28 ...	11-Sep-28	10 Person Crew	560.00h
INTERIOR FINISH	172	26-Apr-28	02-Jan-29		14,872.00h
BASEMENT	58	26-Apr-28	19-Jul-28		3,992.00h
Paint Walls	3	26-Apr-28	28-Apr-28	6 Person Crew	144.00h
Diffusers	3	01-May-28 ...	03-May-28	4 Person Crew	96.00h
Lights & Devices	5	04-May-28 ...	10-May-28	4 Person Crew	160.00h
Trim Fire Alarm	2	11-May-28 ...	12-May-28	4 Person Crew	64.00h
Trim Security & LV	2	15-May-28 ...	16-May-28	4 Person Crew	64.00h
Doors & Hardware	3	15-May-28 ...	17-May-28	6 Person Crew	144.00h
Casework/Equipment	3	18-May-28 ...	22-May-28	6 Person Crew	144.00h
OH Ceiling Sign-Off	5	18-May-28 ...	24-May-28	6 Person Crew	240.00h
Building Specialties	3	23-May-28 ...	25-May-28	6 Person Crew	144.00h
Trim Electrical Trim Telephone/Data	2	23-May-28 ...	24-May-28	4 Person Crew	64.00h
Plumbing Fixtures	4	23-May-28 ...	26-May-28	4 Person Crew	128.00h
Trim T-Stats	2	23-May-28 ...	24-May-28	4 Person Crew	64.00h
Flooring	4	26-May-28 ...	01-Jun-28	6 Person Crew	192.00h
Work Completion List	5	02-Jun-28	08-Jun-28	10 Person Crew	400.00h
Signage	1	02-Jun-28	02-Jun-28	4 Person Crew	32.00h
Equipment	5	09-Jun-28	15-Jun-28	6 Person Crew	240.00h
MEP Hook-Ups	5	16-Jun-28	23-Jun-28	6 Person Crew	240.00h
Rough Clean	2	16-Jun-28	20-Jun-28	6 Person Crew	96.00h
Prepare Punchlist	3	21-Jun-28	23-Jun-28	4 Person Crew	96.00h
Correct Punchlist	14	26-Jun-28	14-Jul-28	10 Person Crew	1,120.00h
Final Clean	3	17-Jul-28	19-Jul-28	5 Person Crew	120.00h
LEVEL 1	83	21-Jul-28	15-Nov-28		5,720.00h
Paint Walls	3	21-Jul-28	25-Jul-28	6 Person Crew	144.00h
T Grid	5	26-Jul-28	01-Aug-28	6 Person Crew	240.00h
Diffusers in T-Grid	3	02-Aug-28 ...	04-Aug-28	4 Person Crew	96.00h
Lights & Devices	5	07-Aug-28 ...	11-Aug-28	4 Person Crew	160.00h
Sprinkler Heads	4	14-Aug-28 ...	17-Aug-28	4 Person Crew	128.00h
Trim Fire Alarm	2	14-Aug-28 ...	15-Aug-28	4 Person Crew	64.00h
Trim Security & LV	2	16-Aug-28 ...	17-Aug-28	4 Person Crew	64.00h
Doors & Hardware	6	16-Aug-28 ...	23-Aug-28	6 Person Crew	288.00h
Casework/Equipment	5	24-Aug-28 ...	30-Aug-28	6 Person Crew	240.00h
OH Ceiling Sign-Off	8	24-Aug-28 ...	05-Sep-28	6 Person Crew	384.00h
Wall Protection	3	31-Aug-28 ...	05-Sep-28	4 Person Crew	96.00h
Building Specialties	3	06-Sep-28 ...	08-Sep-28	6 Person Crew	144.00h



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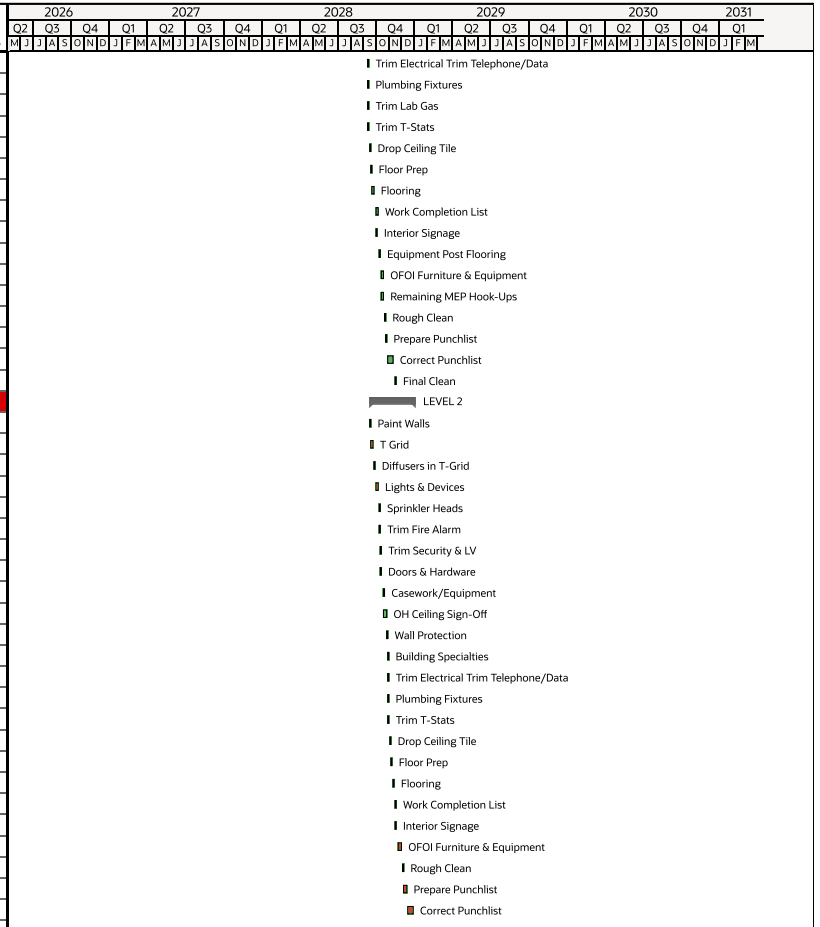
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Trim Electrical Trim Telephone/Data	2	06-Sep-28 ...	07-Sep-28	4 Person Crew	64.00h
Plumbing Fixtures	4	06-Sep-28 ...	11-Sep-28	4 Person Crew	128.00h
Trim Lab Gas	5	06-Sep-28 ...	12-Sep-28	4 Person Crew	160.00h
Trim T-Stats	2	06-Sep-28 ...	07-Sep-28	4 Person Crew	64.00h
Drop Ceiling Tile	3	11-Sep-28 ...	13-Sep-28	6 Person Crew	144.00h
Floor Prep	2	14-Sep-28 ...	15-Sep-28	6 Person Crew	96.00h
Flooring	6	18-Sep-28 ...	25-Sep-28	6 Person Crew	288.00h
Work Completion List	7	26-Sep-28 ...	04-Oct-28	10 Person Crew	560.00h
Interior Signage	2	26-Sep-28 ...	27-Sep-28	4 Person Crew	64.00h
Equipment Post Flooring	3	05-Oct-28	09-Oct-28	6 Person Crew	144.00h
OFOI Furniture & Equipment	5	10-Oct-28	16-Oct-28	6 Person Crew	240.00h
Remaining MEP Hook-Ups	5	10-Oct-28	16-Oct-28	6 Person Crew	240.00h
Rough Clean	2	17-Oct-28	18-Oct-28	6 Person Crew	96.00h
Prepare Punchlist	3	19-Oct-28	23-Oct-28	6 Person Crew	144.00h
Correct Punchlist	14	24-Oct-28	10-Nov-28	10 Person Crew	1,120.00h
Final Clean	3	13-Nov-28 ...	15-Nov-28	5 Person Crew	120.00h
LEVEL 2	77	12-Sep-28 ...	02-Jan-29		5,160.00h
Paint Walls	3	12-Sep-28 ...	14-Sep-28	6 Person Crew	144.00h
T Grid	5	15-Sep-28 ...	21-Sep-28	6 Person Crew	240.00h
Diffusers in T-Grid	3	22-Sep-28 ...	26-Sep-28	4 Person Crew	96.00h
Lights & Devices	5	27-Sep-28 ...	03-Oct-28	4 Person Crew	160.00h
Sprinkler Heads	4	04-Oct-28	09-Oct-28	4 Person Crew	128.00h
Trim Fire Alarm	2	04-Oct-28	05-Oct-28	4 Person Crew	64.00h
Trim Security & LV	2	06-Oct-28	09-Oct-28	4 Person Crew	64.00h
Doors & Hardware	6	06-Oct-28	13-Oct-28	6 Person Crew	288.00h
Casework/Equipment	5	16-Oct-28	20-Oct-28	6 Person Crew	240.00h
OH Ceiling Sign-Off	8	16-Oct-28	25-Oct-28	6 Person Crew	384.00h
Wall Protection	3	23-Oct-28	25-Oct-28	4 Person Crew	96.00h
Building Specialties	3	26-Oct-28	30-Oct-28	6 Person Crew	144.00h
Trim Electrical Trim Telephone/Data	2	26-Oct-28	27-Oct-28	4 Person Crew	64.00h
Plumbing Fixtures	4	26-Oct-28	31-Oct-28	4 Person Crew	128.00h
Trim T-Stats	2	26-Oct-28	27-Oct-28	4 Person Crew	64.00h
Drop Ceiling Tile	2	31-Oct-28	01-Nov-28	6 Person Crew	96.00h
Floor Prep	2	02-Nov-28 ...	03-Nov-28	6 Person Crew	96.00h
Flooring	5	06-Nov-28 ...	10-Nov-28	6 Person Crew	240.00h
Work Completion List	5	13-Nov-28 ...	17-Nov-28	10 Person Crew	400.00h
Interior Signage	2	13-Nov-28 ...	14-Nov-28	4 Person Crew	64.00h
OFOI Furniture & Equipment	5	20-Nov-28 ...	28-Nov-28	6 Person Crew	240.00h
Rough Clean	2	29-Nov-28 ...	30-Nov-28	6 Person Crew	96.00h
Prepare Punchlist	8	01-Dec-28 ...	12-Dec-28	6 Person Crew	384.00h
Correct Punchlist	10	13-Dec-28 ...	27-Dec-28	10 Person Crew	1,120.00h



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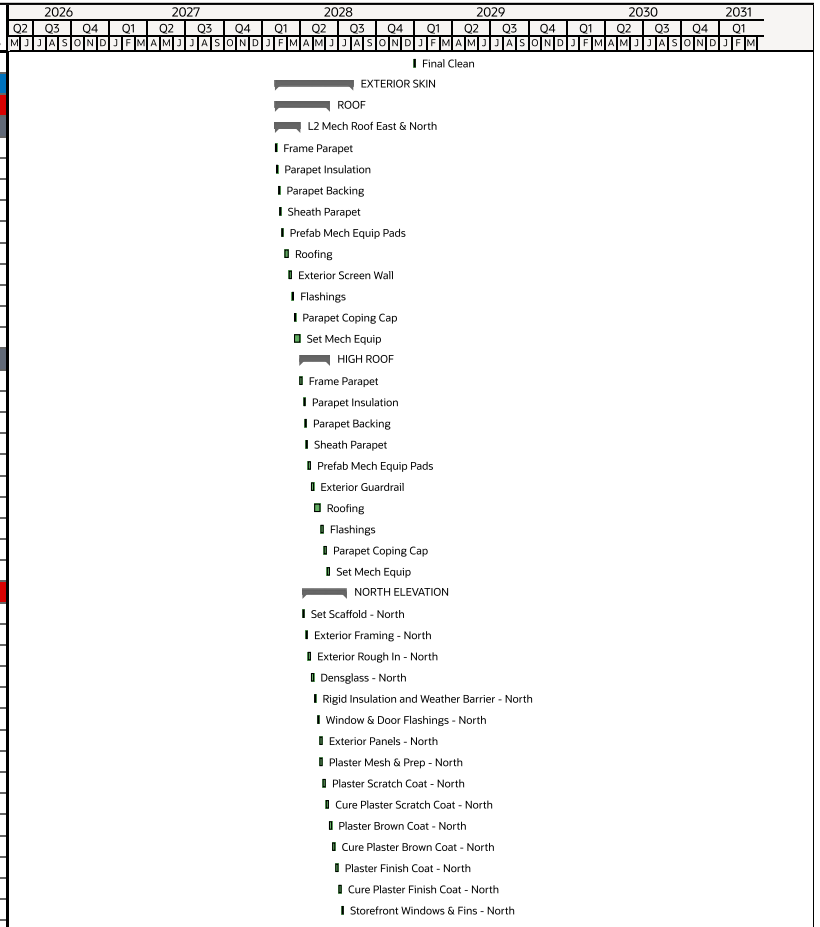
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Final Clean	3	28-Dec-28 ...	02-Jan-29	5 Person Crew	120.00h
EXTERIOR SKIN	129	31-Jan-28	03-Aug-28		15,744.00h
ROOF	91	31-Jan-28	08-Jun-28		4,544.00h
L2 Mech Roof East & North	42	31-Jan-28	29-Mar-28		2,208.00h
Frame Parapet	3	31-Jan-28	02-Feb-28	4 Person Crew	96.00h
Parapet Insulation	2	03-Feb-28	04-Feb-28	4 Person Crew	64.00h
Parapet Backing	2	07-Feb-28	08-Feb-28	4 Person Crew	64.00h
Sheath Parapet	3	09-Feb-28	11-Feb-28	4 Person Crew	96.00h
Prefab Mech Equip Pads	5	14-Feb-28	18-Feb-28	4 Person Crew	160.00h
Roofing	8	22-Feb-28	02-Mar-28	10 Person Crew	640.00h
Exterior Screen Wall	5	03-Mar-28 ...	09-Mar-28	8 Person Crew	320.00h
Flashings	2	10-Mar-28 ...	13-Mar-28	4 Person Crew	64.00h
Parapet Coping Cap	2	14-Mar-28 ...	15-Mar-28	4 Person Crew	64.00h
Set Mech Equip	10	16-Mar-28 ...	29-Mar-28	8 Person Crew	640.00h
HIGH ROOF	50	29-Mar-28 ...	08-Jun-28		2,336.00h
Frame Parapet	5	29-Mar-28 ...	05-Apr-28	4 Person Crew	160.00h
Parapet Insulation	2	06-Apr-28	07-Apr-28	4 Person Crew	64.00h
Parapet Backing	2	10-Apr-28	11-Apr-28	4 Person Crew	64.00h
Sheath Parapet	4	12-Apr-28	17-Apr-28	4 Person Crew	128.00h
Prefab Mech Equip Pads	5	18-Apr-28	24-Apr-28	4 Person Crew	160.00h
Exterior Guardrail	5	25-Apr-28	01-May-28	4 Person Crew	160.00h
Roofing	12	02-May-28 ...	17-May-28	10 Person Crew	960.00h
Flashings	5	18-May-28 ...	24-May-28	4 Person Crew	160.00h
Parapet Coping Cap	5	25-May-28 ...	01-Jun-28	4 Person Crew	160.00h
Set Mech Equip	5	02-Jun-28	08-Jun-28	8 Person Crew	320.00h
NORTH ELEVATION	75	04-Apr-28	20-Jul-28		2,880.00h
Set Scaffold - North	5	04-Apr-28	10-Apr-28	10 Person Crew	400.00h
Exterior Framing - North	5	11-Apr-28	17-Apr-28	5 Person Crew	200.00h
Exterior Rough In - North	5	18-Apr-28	24-Apr-28	6 Person Crew	240.00h
Densglass - North	5	25-Apr-28	01-May-28	5 Person Crew	200.00h
Rigid Insulation and Weather Barrier - North	5	02-May-28 ...	08-May-28	5 Person Crew	200.00h
Window & Door Flashings - North	5	09-May-28 ...	15-May-28	4 Person Crew	160.00h
Exterior Panels - North	5	16-May-28 ...	22-May-28	5 Person Crew	200.00h
Plaster Mesh & Prep - North	5	16-May-28 ...	22-May-28	5 Person Crew	200.00h
Plaster Scratch Coat - North	5	23-May-28 ...	30-May-28	5 Person Crew	200.00h
Cure Plaster Scratch Coat - North	5	31-May-28 ...	06-Jun-28		0.00h
Plaster Brown Coat - North	5	07-Jun-28	13-Jun-28	5 Person Crew	200.00h
Cure Plaster Brown Coat - North	5	14-Jun-28	21-Jun-28		0.00h
Plaster Finish Coat - North	5	22-Jun-28	28-Jun-28	5 Person Crew	200.00h
Cure Plaster Finish Coat - North	5	29-Jun-28	06-Jul-28		0.00h
Storefront Windows & Fins - North	5	07-Jul-28	13-Jul-28	8 Person Crew	320.00h



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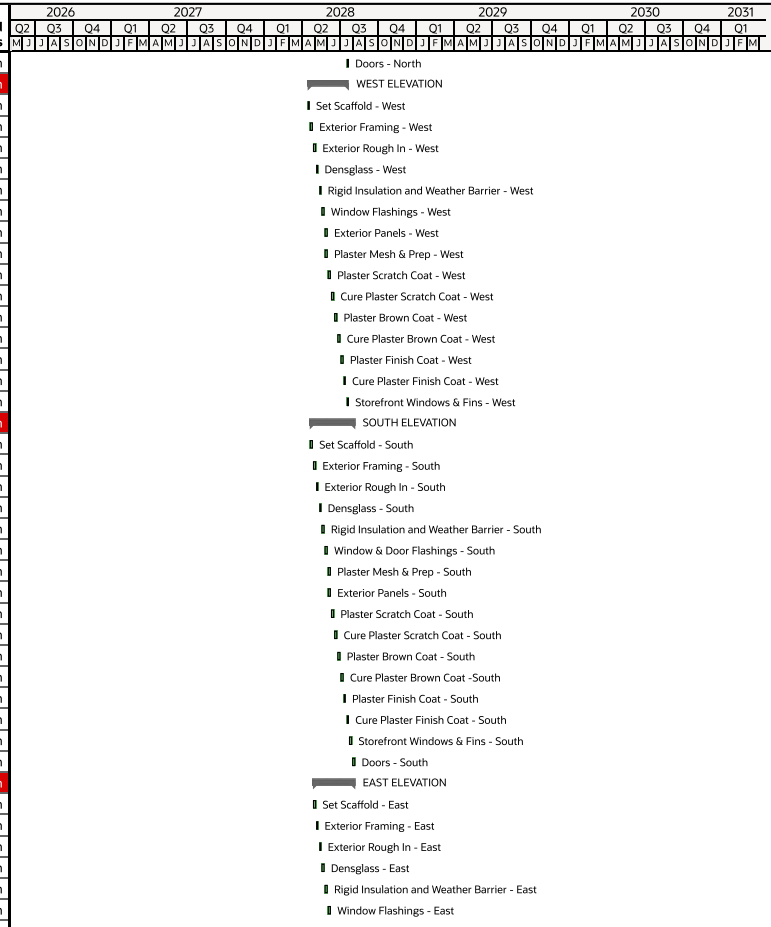
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Doors - North	5	14-Jul-28	20-Jul-28	4 Person Crew	160.00h
WEST ELEVATION	70	11-Apr-28	20-Jul-28		2,720.00h
Set Scaffold - West	5	11-Apr-28	17-Apr-28	10 Person Crew	400.00h
Exterior Framing - West	5	18-Apr-28	24-Apr-28	5 Person Crew	200.00h
Exterior Rough In - West	5	25-Apr-28	01-May-28	6 Person Crew	240.00h
Densglass - West	5	02-May-28 ...	08-May-28	5 Person Crew	200.00h
Rigid Insulation and Weather Barrier - West	5	09-May-28 ...	15-May-28	5 Person Crew	200.00h
Window Flashings - West	5	16-May-28 ...	22-May-28	4 Person Crew	160.00h
Exterior Panels - West	5	23-May-28 ...	30-May-28	5 Person Crew	200.00h
Plaster Mesh & Prep - West	5	23-May-28 ...	30-May-28	5 Person Crew	200.00h
Plaster Scratch Coat - West	5	31-May-28 ...	06-Jun-28	5 Person Crew	200.00h
Cure Plaster Scratch Coat - West	5	07-Jun-28	13-Jun-28		0.00h
Plaster Brown Coat - West	5	14-Jun-28	21-Jun-28	5 Person Crew	200.00h
Cure Plaster Brown Coat - West	5	22-Jun-28	28-Jun-28		0.00h
Plaster Finish Coat - West	5	29-Jun-28	06-Jul-28	5 Person Crew	200.00h
Cure Plaster Finish Coat - West	5	07-Jul-28	13-Jul-28		0.00h
Storefront Windows & Fins - West	5	14-Jul-28	20-Jul-28	8 Person Crew	320.00h
SOUTH ELEVATION	75	18-Apr-28	03-Aug-28		2,880.00h
Set Scaffold - South	5	18-Apr-28	24-Apr-28	10 Person Crew	400.00h
Exterior Framing - South	5	25-Apr-28	01-May-28	5 Person Crew	200.00h
Exterior Rough In - South	5	02-May-28 ...	08-May-28	6 Person Crew	240.00h
Densglass - South	5	09-May-28 ...	15-May-28	5 Person Crew	200.00h
Rigid Insulation and Weather Barrier - South	5	16-May-28 ...	22-May-28	5 Person Crew	200.00h
Window & Door Flashings - South	5	23-May-28 ...	30-May-28	4 Person Crew	160.00h
Plaster Mesh & Prep - South	5	31-May-28 ...	06-Jun-28	5 Person Crew	200.00h
Exterior Panels - South	5	31-May-28 ...	06-Jun-28	5 Person Crew	200.00h
Plaster Scratch Coat - South	5	07-Jun-28	13-Jun-28	5 Person Crew	200.00h
Cure Plaster Scratch Coat - South	5	14-Jun-28	21-Jun-28		0.00h
Plaster Brown Coat - South	5	22-Jun-28	28-Jun-28	5 Person Crew	200.00h
Cure Plaster Brown Coat -South	5	29-Jun-28	06-Jul-28		0.00h
Plaster Finish Coat - South	5	07-Jul-28	13-Jul-28	5 Person Crew	200.00h
Cure Plaster Finish Coat - South	5	14-Jul-28	20-Jul-28		0.00h
Storefront Windows & Fins - South	5	21-Jul-28	27-Jul-28	8 Person Crew	320.00h
Doors - South	5	28-Jul-28	03-Aug-28	4 Person Crew	160.00h
EAST ELEVATION	70	25-Apr-28	03-Aug-28		2,720.00h
Set Scaffold - East	5	25-Apr-28	01-May-28	10 Person Crew	400.00h
Exterior Framing - East	5	02-May-28 ...	08-May-28	5 Person Crew	200.00h
Exterior Rough In - East	5	09-May-28 ...	15-May-28	6 Person Crew	240.00h
Densglass - East	5	16-May-28 ...	22-May-28	5 Person Crew	200.00h
Rigid Insulation and Weather Barrier - East	5	23-May-28 ...	30-May-28	5 Person Crew	200.00h
Window Flashings - East	5	31-May-28 ...	06-Jun-28	4 Person Crew	160.00h



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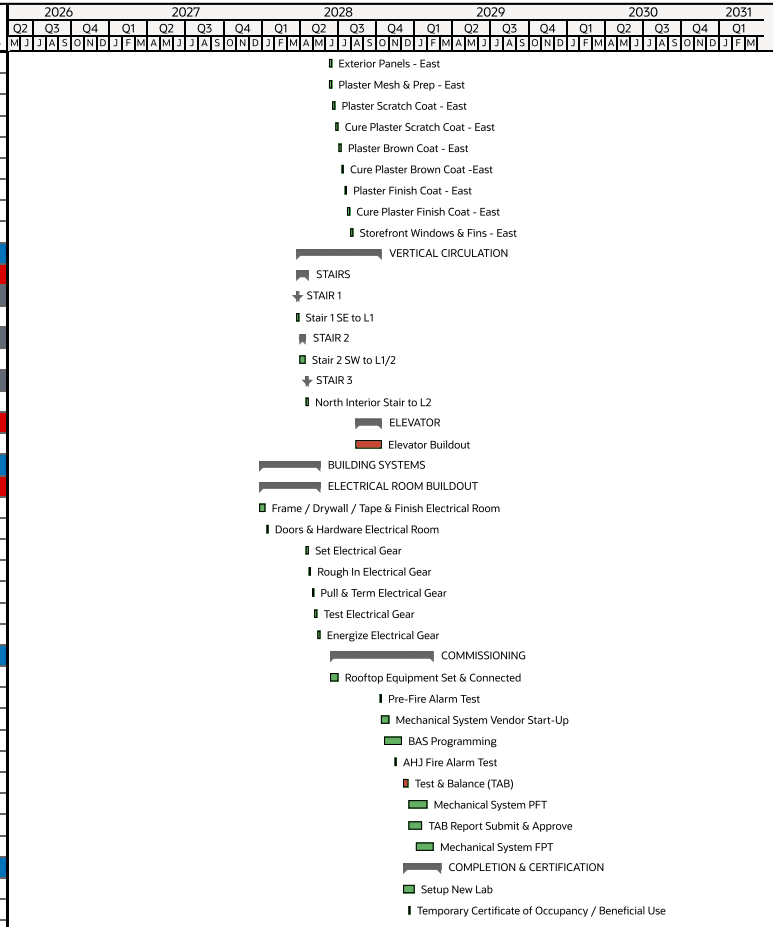
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Exterior Panels - East	5	07-Jun-28	13-Jun-28	5 Person Crew	200.00h
Plaster Mesh & Prep - East	5	07-Jun-28	13-Jun-28	5 Person Crew	200.00h
Plaster Scratch Coat - East	5	14-Jun-28	21-Jun-28	5 Person Crew	200.00h
Cure Plaster Scratch Coat - East	5	22-Jun-28	28-Jun-28		0.00h
Plaster Brown Coat - East	5	29-Jun-28	06-Jul-28	5 Person Crew	200.00h
Cure Plaster Brown Coat -East	5	07-Jul-28	13-Jul-28		0.00h
Plaster Finish Coat - East	5	14-Jul-28	20-Jul-28	5 Person Crew	200.00h
Cure Plaster Finish Coat - East	5	21-Jul-28	27-Jul-28		0.00h
Storefront Windows & Fins - East	5	28-Jul-28	03-Aug-28	8 Person Crew	320.00h
VERTICAL CIRCULATION	144	21-Mar-28 ...	13-Oct-28		2,600.00h
STAIRS	20	21-Mar-28 ...	18-Apr-28		800.00h
STAIR 1	5	21-Mar-28 ...	27-Mar-28		200.00h
Stair 1 SE to L1	5	21-Mar-28 ...	27-Mar-28	5 Person Crew	200.00h
STAIR 2	10	28-Mar-28 ...	11-Apr-28		400.00h
Stair 2 SW to L1/2	10	28-Mar-28 ...	11-Apr-28	5 Person Crew	400.00h
STAIR 3	5	12-Apr-28	18-Apr-28		200.00h
North Interior Stair to L2	5	12-Apr-28	18-Apr-28	5 Person Crew	200.00h
ELEVATOR	45	11-Aug-28 ...	13-Oct-28		1,800.00h
Elevator Buildout	45	11-Aug-28 ...	13-Oct-28	5 Person Crew	1,800.00h
BUILDING SYSTEMS	100	22-Dec-27 ...	16-May-28		2,656.00h
ELECTRICAL ROOM BUILDOUT	100	22-Dec-27 ...	16-May-28		2,656.00h
Frame / Drywall / Tape & Finish Electrical Room	11	22-Dec-27 ...	07-Jan-28	12 Person Crew	1,056.00h
Doors & Hardware Electrical Room	5	10-Jan-28	14-Jan-28	2 Person Crew	80.00h
Set Electrical Gear	5	12-Apr-28	18-Apr-28	6 Person Crew	240.00h
Rough In Electrical Gear	5	19-Apr-28	25-Apr-28	8 Person Crew	320.00h
Pull & Term Electrical Gear	5	26-Apr-28	02-May-28	10 Person Crew	400.00h
Test Electrical Gear	5	03-May-28 ...	09-May-28	6 Person Crew	240.00h
Energize Electrical Gear	5	10-May-28 ...	16-May-28	4 Person Crew, ...	320.00h
COMMISSIONING	170	09-Jun-28	13-Feb-29		8,120.00h
Rooftop Equipment Set & Connected	15	09-Jun-28	30-Jun-28	8 Person Crew	960.00h
Pre-Fire Alarm Test	5	06-Oct-28	12-Oct-28	5 Person Crew	200.00h
Mechanical System Vendor Start-Up	15	10-Oct-28	30-Oct-28	6 Person Crew	720.00h
BAS Programming	30	17-Oct-28	29-Nov-28	4 Person Crew, ...	1,920.00h
AHJ Fire Alarm Test	5	13-Nov-28 ...	17-Nov-28	4 Person Crew	160.00h
Test & Balance (TAB)	10	01-Dec-28 ...	14-Dec-28	4 Person Crew	320.00h
Mechanical System PFT	30	15-Dec-28 ...	30-Jan-29	4 Person Crew, ...	1,920.00h
TAB Report Submit & Approve	20	15-Dec-28 ...	16-Jan-29		0.00h
Mechanical System FPT	30	02-Jan-29	13-Feb-29	4 Person Crew, ...	1,920.00h
COMPLETION & CERTIFICATION	61	01-Dec-28 ...	01-Mar-29		2,240.00h
Setup New Lab	20	01-Dec-28 ...	29-Dec-28	14 Person Crew	2,240.00h
Temporary Certificate of Occupancy / Beneficial Use	1	15-Dec-28 ...	15-Dec-28		0.00h



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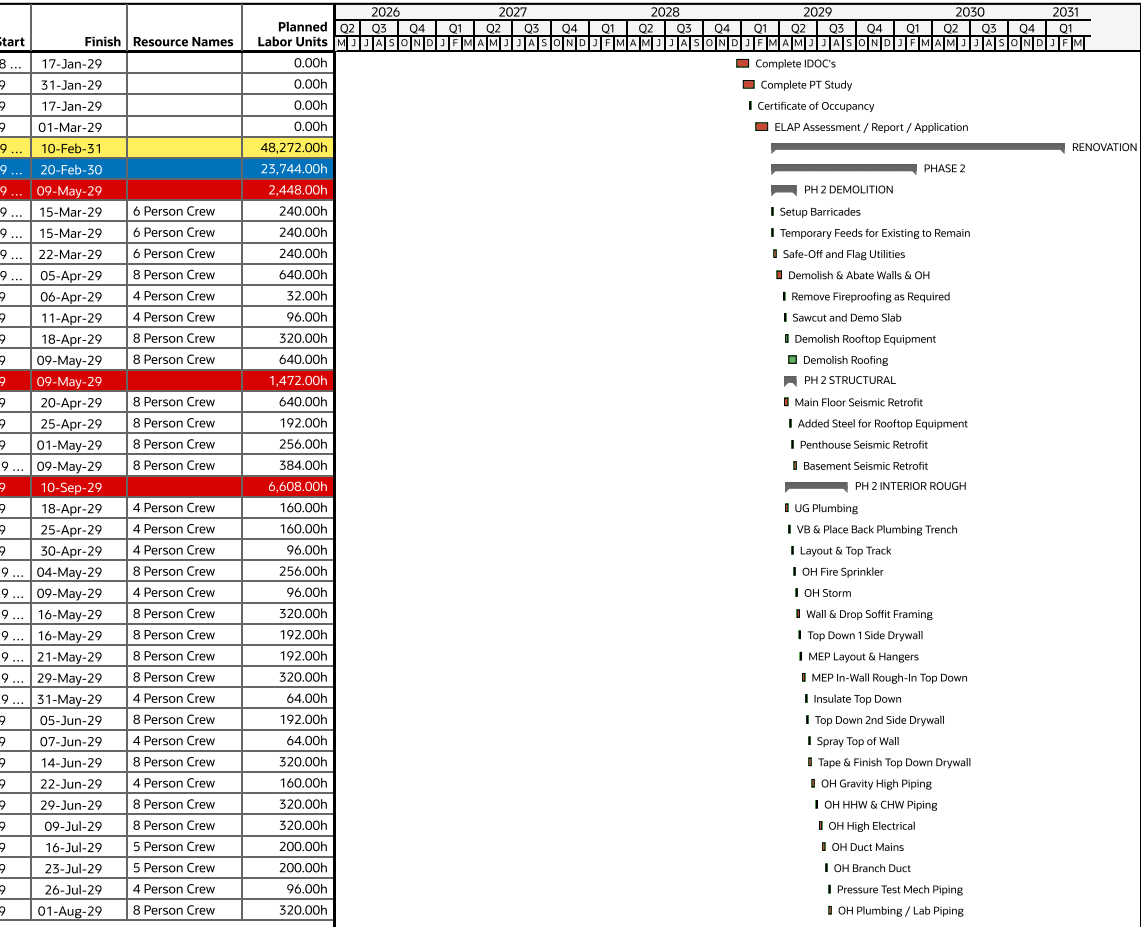
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical
Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Complete IDOC's	20	18-Dec-28 ...	17-Jan-29		0.00h
Complete PT Study	20	03-Jan-29	31-Jan-29		0.00h
Certificate of Occupancy	1	17-Jan-29	17-Jan-29		0.00h
ELAP Assessment / Report / Application	20	01-Feb-29	01-Mar-29		0.00h
RENOVATION	485	09-Mar-29 ...	10-Feb-31		48,272.00h
PHASE 2	240	09-Mar-29 ...	20-Feb-30		23,744.00h
PH 2 DEMOLITION	44	09-Mar-29 ...	09-May-29		2,448.00h
Setup Barricades	5	09-Mar-29 ...	15-Mar-29	6 Person Crew	240.00h
Temporary Feeds for Existing to Remain	5	09-Mar-29 ...	15-Mar-29	6 Person Crew	240.00h
Safe-Off and Flag Utilities	5	16-Mar-29 ...	22-Mar-29	6 Person Crew	240.00h
Demolish & Abate Walls & OH	10	23-Mar-29 ...	05-Apr-29	8 Person Crew	640.00h
Remove Fireproofing as Required	1	06-Apr-29	06-Apr-29	4 Person Crew	32.00h
Sawcut and Demo Slab	3	09-Apr-29	11-Apr-29	4 Person Crew	96.00h
Demolish Rooftop Equipment	5	12-Apr-29	18-Apr-29	8 Person Crew	320.00h
Demolish Roofing	15	19-Apr-29	09-May-29	8 Person Crew	640.00h
PH 2 STRUCTURAL	23	09-Apr-29	09-May-29		1,472.00h
Main Floor Seismic Retrofit	10	09-Apr-29	20-Apr-29	8 Person Crew	640.00h
Added Steel for Rooftop Equipment	3	23-Apr-29	25-Apr-29	8 Person Crew	192.00h
Penthouse Seismic Retrofit	4	26-Apr-29	01-May-29	8 Person Crew	256.00h
Basement Seismic Retrofit	6	02-May-29 ...	09-May-29	8 Person Crew	384.00h
PH 2 INTERIOR ROUGH	105	12-Apr-29	10-Sep-29		6,608.00h
UG Plumbing	5	12-Apr-29	18-Apr-29	4 Person Crew	160.00h
VB & Place Back Plumbing Trench	5	19-Apr-29	25-Apr-29	4 Person Crew	160.00h
Layout & Top Track	3	26-Apr-29	30-Apr-29	4 Person Crew	96.00h
OH Fire Sprinkler	4	01-May-29 ...	04-May-29	8 Person Crew	256.00h
OH Storm	3	07-May-29 ...	09-May-29	4 Person Crew	96.00h
Wall & Drop Soffit Framing	5	10-May-29 ...	16-May-29	8 Person Crew	320.00h
Top Down 1 Side Drywall	3	14-May-29 ...	16-May-29	8 Person Crew	192.00h
MEP Layout & Hangers	3	17-May-29 ...	21-May-29	8 Person Crew	192.00h
MEP In-Wall Rough-In Top Down	5	22-May-29 ...	29-May-29	8 Person Crew	320.00h
Insulate Top Down	2	30-May-29 ...	31-May-29	4 Person Crew	64.00h
Top Down 2nd Side Drywall	3	01-Jun-29	05-Jun-29	8 Person Crew	192.00h
Spray Top of Wall	2	06-Jun-29	07-Jun-29	4 Person Crew	64.00h
Tape & Finish Top Down Drywall	5	08-Jun-29	14-Jun-29	8 Person Crew	320.00h
OH Gravity High Piping	5	15-Jun-29	22-Jun-29	4 Person Crew	160.00h
OH HHW & CHW Piping	5	25-Jun-29	29-Jun-29	8 Person Crew	320.00h
OH High Electrical	5	02-Jul-29	09-Jul-29	8 Person Crew	320.00h
OH Duct Mains	5	10-Jul-29	16-Jul-29	5 Person Crew	200.00h
OH Branch Duct	5	17-Jul-29	23-Jul-29	5 Person Crew	200.00h
Pressure Test Mech Piping	3	24-Jul-29	26-Jul-29	4 Person Crew	96.00h
OH Plumbing / Lab Piping	5	26-Jul-29	01-Aug-29	8 Person Crew	320.00h



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Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical

Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Plumbing In-Wall Rough In	5	26-Jul-29	01-Aug-29	8 Person Crew	320.00h
OH Electrical / FA/ Comm / Cable Tray	5	02-Aug-29 ...	08-Aug-29	8 Person Crew	320.00h
Electrical In-Wall Rough In	5	02-Aug-29 ...	08-Aug-29	8 Person Crew	320.00h
FA & LV In-Wall Rough In	5	06-Aug-29 ...	10-Aug-29	8 Person Crew	320.00h
Test OH HVAC Systems	3	09-Aug-29 ...	13-Aug-29	4 Person Crew	96.00h
Test OH Plumbing Systems	3	09-Aug-29 ...	13-Aug-29	4 Person Crew	96.00h
Test OH and In-Wall Plumbing	3	13-Aug-29 ...	15-Aug-29	4 Person Crew	96.00h
Backing	2	16-Aug-29 ...	17-Aug-29	2 Person Crew	32.00h
In-Wall Inspection and Sign-Off	3	20-Aug-29 ...	22-Aug-29	8 Person Crew	192.00h
Drywall	5	23-Aug-29 ...	29-Aug-29	8 Person Crew	320.00h
Tape & Finish Drywall	7	30-Aug-29 ...	10-Sep-29	8 Person Crew	448.00h
PH 2 INTERIOR FINISH	61	11-Sep-29 ...	06-Dec-29		5,496.00h
Paint Walls	3	11-Sep-29 ...	13-Sep-29	4 Person Crew	96.00h
T Grid	5	14-Sep-29 ...	20-Sep-29	6 Person Crew	240.00h
Diffusers in T-Grid	3	21-Sep-29 ...	25-Sep-29	4 Person Crew	96.00h
Lights & Devices	5	21-Sep-29 ...	27-Sep-29	4 Person Crew	160.00h
Trim Fire Alarm	2	28-Sep-29 ...	01-Oct-29	4 Person Crew	64.00h
Sprinkler Heads	2	28-Sep-29 ...	01-Oct-29	4 Person Crew	64.00h
Trim Security & LV	2	02-Oct-29	03-Oct-29	4 Person Crew	64.00h
Casework/Equipment	5	04-Oct-29	10-Oct-29	6 Person Crew	240.00h
Wall Protection	3	11-Oct-29	15-Oct-29	4 Person Crew	96.00h
Floor Prep	2	11-Oct-29	12-Oct-29	6 Person Crew	96.00h
OH Ceiling Sign-Off	8	11-Oct-29	22-Oct-29	8 Person Crew	512.00h
Flooring	6	15-Oct-29	22-Oct-29	6 Person Crew	288.00h
Trim T-Stats	2	16-Oct-29	17-Oct-29	4 Person Crew	64.00h
Trim Lab Gas	5	16-Oct-29	22-Oct-29	4 Person Crew	160.00h
Building Specialties	3	16-Oct-29	18-Oct-29	8 Person Crew	192.00h
Trim Electrical Trim Telephone/Data	2	16-Oct-29	17-Oct-29	4 Person Crew	64.00h
Plumbing Fixtures	4	16-Oct-29	19-Oct-29	4 Person Crew	128.00h
Drop Ceiling Tile	3	23-Oct-29	25-Oct-29	6 Person Crew	144.00h
Doors & Hardware	5	23-Oct-29	29-Oct-29	6 Person Crew	240.00h
Interior Signage	2	23-Oct-29	24-Oct-29	4 Person Crew	64.00h
Work Completion List	7	30-Oct-29	07-Nov-29	10 Person Crew	560.00h
Lab Benches Post Flooring	3	08-Nov-29 ...	12-Nov-29	6 Person Crew	144.00h
Rough Clean	2	08-Nov-29 ...	09-Nov-29	6 Person Crew	96.00h
OFOI Furniture & Equipment	4	13-Nov-29 ...	16-Nov-29	6 Person Crew	240.00h
Prepare Punchlist	3	13-Nov-29 ...	15-Nov-29	6 Person Crew	144.00h
Remaining MEP Hook-Ups	4	13-Nov-29 ...	16-Nov-29	8 Person Crew	320.00h
Correct Punchlist	10	16-Nov-29 ...	03-Dec-29	10 Person Crew	800.00h
Final Clean	3	04-Dec-29 ...	06-Dec-29	5 Person Crew	120.00h
PH 2 ROOF	36	03-May-29 ...	22-Jun-29		2,400.00h



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Alvarado Laboratory Improvements

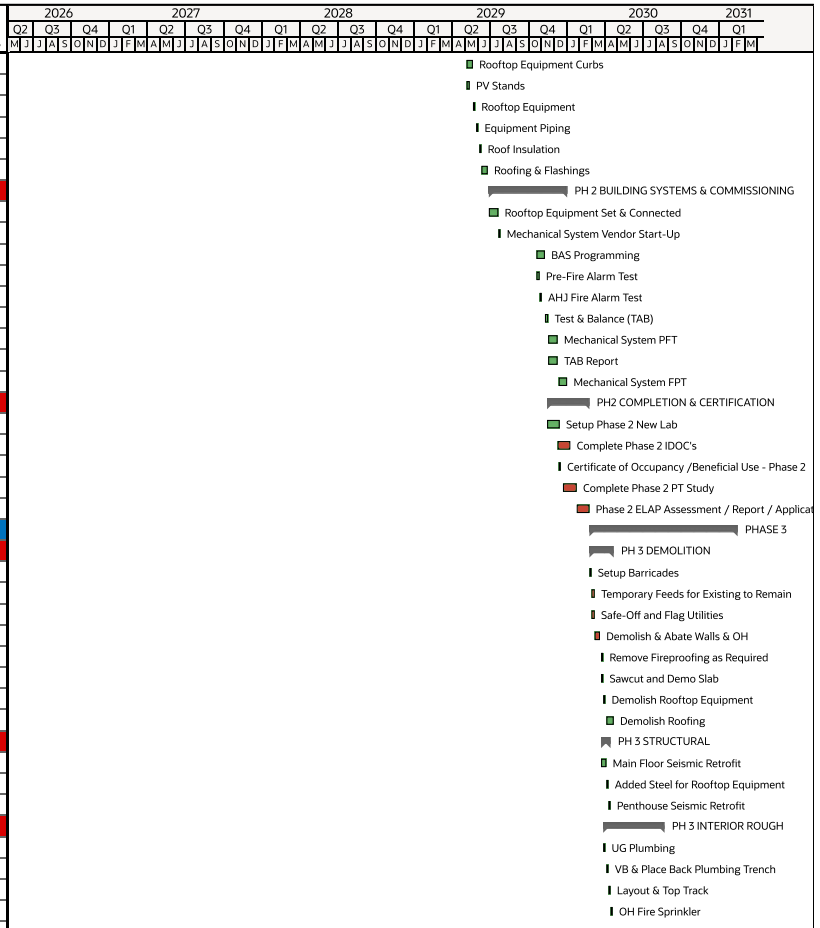
2318 - RFP Schedule - 12/17/2025

Current
Progress
Critical

Milestones
Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Rooftop Equipment Curbs	10	03-May-29 ...	16-May-29	8 Person Crew	640.00h
PV Stands	5	03-May-29 ...	09-May-29	8 Person Crew	320.00h
Rooftop Equipment	5	17-May-29 ...	23-May-29	8 Person Crew	320.00h
Equipment Piping	5	24-May-29 ...	31-May-29	8 Person Crew	320.00h
Roof Insulation	5	01-Jun-29	07-Jun-29	10 Person Crew	400.00h
Roofing & Flashings	10	08-Jun-29	22-Jun-29	10 Person Crew	400.00h
PH 2 BUILDING SYSTEMS & COMMISSIONING	131	25-Jun-29	31-Dec-29		3,080.00h
Rooftop Equipment Set & Connected	15	25-Jun-29	16-Jul-29	8 Person Crew	960.00h
Mechanical System Vendor Start-Up	5	17-Jul-29	23-Jul-29	4 Person Crew	160.00h
BAS Programming	15	18-Oct-29	07-Nov-29	4 Person Crew	480.00h
Pre-Fire Alarm Test	5	18-Oct-29	24-Oct-29	5 Person Crew	200.00h
AHJ Fire Alarm Test	5	25-Oct-29	31-Oct-29	4 Person Crew	160.00h
Test & Balance (TAB)	5	08-Nov-29 ...	14-Nov-29	4 Person Crew	160.00h
Mechanical System PFT	15	15-Nov-29 ...	07-Dec-29	4 Person Crew	480.00h
TAB Report	15	15-Nov-29 ...	07-Dec-29		0.00h
Mechanical System FPT	15	10-Dec-29 ...	31-Dec-29	4 Person Crew	480.00h
PH2 COMPLETION & CERTIFICATION	66	13-Nov-29 ...	20-Feb-30		2,240.00h
Setup Phase 2 New Lab	20	13-Nov-29 ...	12-Dec-29	14 Person Crew	2,240.00h
Complete Phase 2 IDOC's	20	07-Dec-29 ...	07-Jan-30		0.00h
Certificate of Occupancy /Beneficial Use - Phase 2	1	10-Dec-29 ...	10-Dec-29		0.00h
Complete Phase 2 PT Study	20	21-Dec-29 ...	22-Jan-30		0.00h
Phase 2 ELAP Assessment / Report / Application	20	23-Jan-30	20-Feb-30		0.00h
PHASE 3	245	21-Feb-30	10-Feb-31		24,528.00h
PH 3 DEMOLITION	42	21-Feb-30	19-Apr-30		2,560.00h
Setup Barricades	3	21-Feb-30	25-Feb-30	8 Person Crew	192.00h
Temporary Feeds for Existing to Remain	5	26-Feb-30	04-Mar-30	8 Person Crew	320.00h
Safe-Off and Flag Utilities	5	26-Feb-30	04-Mar-30	8 Person Crew	320.00h
Demolish & Abate Walls & OH	10	05-Mar-30 ...	18-Mar-30	8 Person Crew	640.00h
Remove Fireproofing as Required	1	19-Mar-30 ...	19-Mar-30	4 Person Crew	32.00h
Sawcut and Demo Slab	3	20-Mar-30 ...	22-Mar-30	4 Person Crew	96.00h
Demolish Rooftop Equipment	5	25-Mar-30 ...	29-Mar-30	8 Person Crew	320.00h
Demolish Roofing	15	01-Apr-30	19-Apr-30	8 Person Crew	640.00h
PH 3 STRUCTURAL	17	20-Mar-30 ...	11-Apr-30		1,088.00h
Main Floor Seismic Retrofit	10	20-Mar-30 ...	02-Apr-30	8 Person Crew	640.00h
Added Steel for Rooftop Equipment	3	03-Apr-30	05-Apr-30	8 Person Crew	192.00h
Penthouse Seismic Retrofit	4	08-Apr-30	11-Apr-30	8 Person Crew	256.00h
PH 3 INTERIOR ROUGH	105	25-Mar-30 ...	20-Aug-30		6,608.00h
UG Plumbing	5	25-Mar-30 ...	29-Mar-30	4 Person Crew	160.00h
VB & Place Back Plumbing Trench	5	01-Apr-30	05-Apr-30	4 Person Crew	160.00h
Layout & Top Track	3	08-Apr-30	10-Apr-30	4 Person Crew	96.00h
OH Fire Sprinkler	4	11-Apr-30	16-Apr-30	8 Person Crew	256.00h



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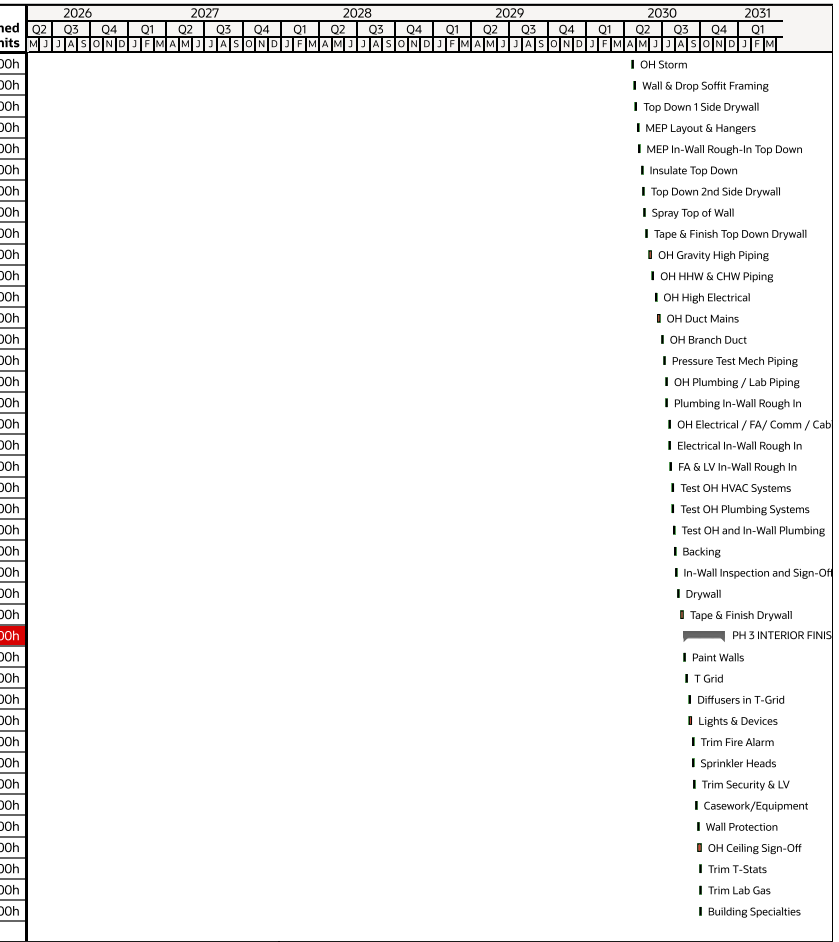
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
Progress
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Summary

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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
OH Storm	3	17-Apr-30	19-Apr-30	4 Person Crew	96.00h
Wall & Drop Soffit Framing	5	22-Apr-30	26-Apr-30	8 Person Crew	320.00h
Top Down 1 Side Drywall	3	24-Apr-30	26-Apr-30	8 Person Crew	192.00h
MEP Layout & Hangers	3	29-Apr-30	01-May-30	8 Person Crew	192.00h
MEP In-Wall Rough-In Top Down	5	02-May-30 ...	08-May-30	8 Person Crew	320.00h
Insulate Top Down	2	09-May-30 ...	10-May-30	4 Person Crew	64.00h
Top Down 2nd Side Drywall	3	13-May-30 ...	15-May-30	8 Person Crew	192.00h
Spray Top of Wall	2	16-May-30 ...	17-May-30	4 Person Crew	64.00h
Tape & Finish Top Down Drywall	5	20-May-30 ...	24-May-30	8 Person Crew	320.00h
OH Gravity High Piping	5	28-May-30 ...	03-Jun-30	4 Person Crew	160.00h
OH HHW & CHW Piping	5	04-Jun-30	10-Jun-30	8 Person Crew	320.00h
OH High Electrical	5	11-Jun-30	17-Jun-30	8 Person Crew	320.00h
OH Duct Mains	5	18-Jun-30	25-Jun-30	5 Person Crew	200.00h
OH Branch Duct	5	26-Jun-30	02-Jul-30	5 Person Crew	200.00h
Pressure Test Mech Piping	3	03-Jul-30	08-Jul-30	4 Person Crew	96.00h
OH Plumbing / Lab Piping	5	08-Jul-30	12-Jul-30	8 Person Crew	320.00h
Plumbing In-Wall Rough In	5	08-Jul-30	12-Jul-30	8 Person Crew	320.00h
OH Electrical / FA/ Comm / Cable Tray	5	15-Jul-30	19-Jul-30	8 Person Crew	320.00h
Electrical In-Wall Rough In	5	15-Jul-30	19-Jul-30	8 Person Crew	320.00h
FA & LV In-Wall Rough In	5	17-Jul-30	23-Jul-30	8 Person Crew	320.00h
Test OH HVAC Systems	3	22-Jul-30	24-Jul-30	4 Person Crew	96.00h
Test OH Plumbing Systems	3	22-Jul-30	24-Jul-30	4 Person Crew	96.00h
Test OH and In-Wall Plumbing	3	24-Jul-30	26-Jul-30	4 Person Crew	96.00h
Backing	2	29-Jul-30	30-Jul-30	2 Person Crew	32.00h
In-Wall Inspection and Sign-Off	3	31-Jul-30	02-Aug-30	8 Person Crew	192.00h
Drywall	5	05-Aug-30 ...	09-Aug-30	8 Person Crew	320.00h
Tape & Finish Drywall	7	12-Aug-30 ...	20-Aug-30	8 Person Crew	448.00h
PH 3 INTERIOR FINISH	68	21-Aug-30 ...	27-Nov-30		5,208.00h
Paint Walls	3	21-Aug-30 ...	23-Aug-30	4 Person Crew	96.00h
T Grid	5	26-Aug-30 ...	30-Aug-30	6 Person Crew	240.00h
Diffusers in T-Grid	3	03-Sep-30 ...	05-Sep-30	4 Person Crew	96.00h
Lights & Devices	5	03-Sep-30 ...	09-Sep-30	4 Person Crew	160.00h
Trim Fire Alarm	2	10-Sep-30 ...	11-Sep-30	4 Person Crew	64.00h
Sprinkler Heads	2	10-Sep-30 ...	11-Sep-30	4 Person Crew	64.00h
Trim Security & LV	2	12-Sep-30 ...	13-Sep-30	4 Person Crew	64.00h
Casework/Equipment	5	16-Sep-30 ...	20-Sep-30	8 Person Crew	320.00h
Wall Protection	3	23-Sep-30 ...	25-Sep-30	4 Person Crew	96.00h
OH Ceiling Sign-Off	8	23-Sep-30 ...	02-Oct-30	8 Person Crew	512.00h
Trim T-Stats	2	26-Sep-30 ...	27-Sep-30	4 Person Crew	64.00h
Trim Lab Gas	5	26-Sep-30 ...	02-Oct-30	4 Person Crew	160.00h
Building Specialties	3	26-Sep-30 ...	30-Sep-30	6 Person Crew	144.00h



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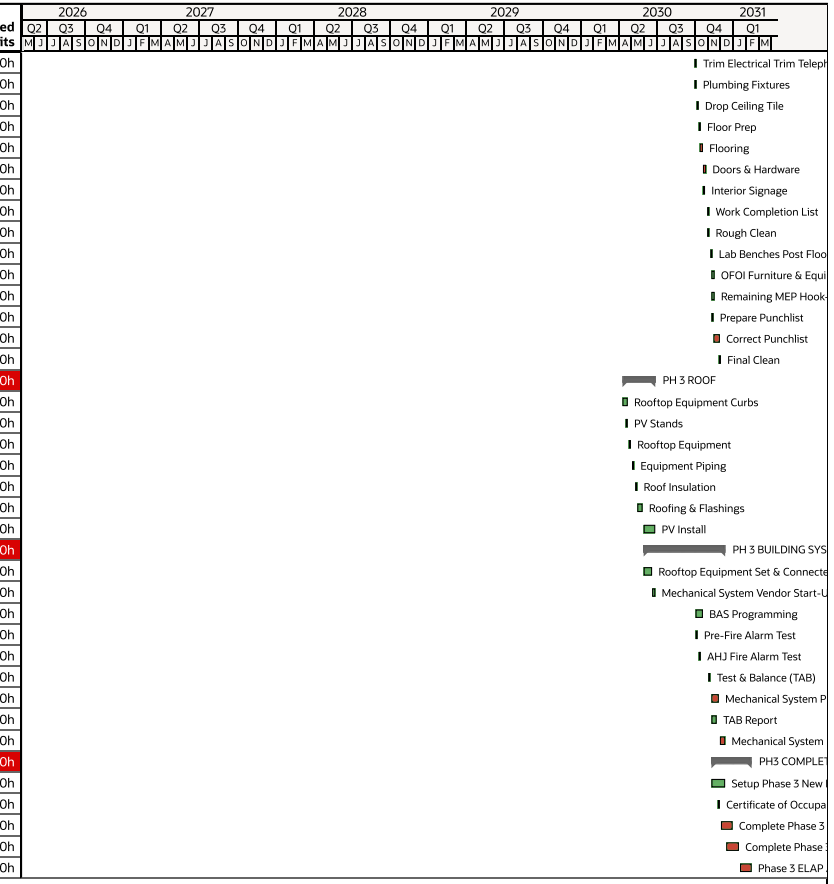
Alvarado Laboratory Improvements

2318 - RFP Schedule - 12/17/2025

Current
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Name	Planned Duration	Start	Finish	Resource Names	Planned Labor Units
Trim Electrical Trim Telephone/Data	2	26-Sep-30 ...	27-Sep-30	4 Person Crew	64.00h
Plumbing Fixtures	4	26-Sep-30 ...	01-Oct-30	4 Person Crew	128.00h
Drop Ceiling Tile	3	03-Oct-30	07-Oct-30	6 Person Crew	144.00h
Floor Prep	2	08-Oct-30	09-Oct-30	6 Person Crew	96.00h
Flooring	6	10-Oct-30	17-Oct-30	8 Person Crew	384.00h
Doors & Hardware	6	18-Oct-30	25-Oct-30	4 Person Crew	192.00h
Interior Signage	2	18-Oct-30	21-Oct-30	4 Person Crew	64.00h
Work Completion List	5	28-Oct-30	01-Nov-30	8 Person Crew	320.00h
Rough Clean	2	28-Oct-30	29-Oct-30	8 Person Crew	128.00h
Lab Benches Post Flooring	3	04-Nov-30 ...	06-Nov-30	6 Person Crew	144.00h
OFOI Furniture & Equipment	4	07-Nov-30 ...	13-Nov-30	8 Person Crew	256.00h
Remaining MEP Hook-Ups	4	07-Nov-30 ...	13-Nov-30	8 Person Crew	256.00h
Prepare Punchlist	3	07-Nov-30 ...	12-Nov-30	8 Person Crew	192.00h
Correct Punchlist	10	13-Nov-30 ...	27-Nov-30	8 Person Crew	640.00h
Final Clean	3	25-Nov-30 ...	27-Nov-30	5 Person Crew	120.00h
PH 3 ROOF	56	08-Apr-30	25-Jun-30		4,000.00h
Rooftop Equipment Curbs	10	08-Apr-30	19-Apr-30	8 Person Crew	640.00h
PV Stands	5	15-Apr-30	19-Apr-30	8 Person Crew	320.00h
Rooftop Equipment	5	22-Apr-30	26-Apr-30	8 Person Crew	320.00h
Equipment Piping	5	29-Apr-30	03-May-30	8 Person Crew	320.00h
Roof Insulation	5	06-May-30 ...	10-May-30	10 Person Crew	400.00h
Roofing & Flashings	10	13-May-30 ...	24-May-30	10 Person Crew	400.00h
PV Install	20	28-May-30 ...	25-Jun-30	10 Person Crew	1,600.00h
PH 3 BUILDING SYSTEMS & COMMISSIONING	135	28-May-30 ...	10-Dec-30		2,824.00h
Rooftop Equipment Set & Connected	15	28-May-30 ...	17-Jun-30	8 Person Crew	960.00h
Mechanical System Vendor Start-Up	5	18-Jun-30	25-Jun-30	4 Person Crew	160.00h
BAS Programming	15	30-Sep-30 ...	18-Oct-30	4 Person Crew	480.00h
Pre-Fire Alarm Test	5	30-Sep-30 ...	04-Oct-30	5 Person Crew	200.00h
AHJ Fire Alarm Test	5	07-Oct-30	11-Oct-30	4 Person Crew	160.00h
Test & Balance (TAB)	5	30-Oct-30	05-Nov-30	4 Person Crew	160.00h
Mechanical System PFT	12	06-Nov-30 ...	25-Nov-30	4 Person Crew	384.00h
TAB Report	10	06-Nov-30 ...	20-Nov-30		0.00h
Mechanical System FPT	10	26-Nov-30 ...	10-Dec-30	4 Person Crew	320.00h
PH3 COMPLETION & CERTIFICATION	63	07-Nov-30 ...	10-Feb-31		2,240.00h
Setup Phase 3 New Lab	20	07-Nov-30 ...	09-Dec-30	14 Person Crew	2,240.00h
Certificate of Occupancy /Beneficial Use - Phase 3	1	21-Nov-30 ...	21-Nov-30		0.00h
Complete Phase 3 IDOC's	20	29-Nov-30 ...	27-Dec-30		0.00h
Complete Phase 3 PT Study	20	13-Dec-30 ...	13-Jan-31		0.00h
Phase 3 ELAP Assessment / Report / Application	20	14-Jan-31	10-Feb-31		0.00h



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Alvarado Laboratory Improvements

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View of Inorganics Open Lab

6. Equal Employment and Contracting Opportunity

Our Commitment to Equal Opportunity & Inclusive Contracting

Hensel Phelps shares the City of San Diego's vision for equal opportunity in the workplace and subcontracting. We don't just meet EOCP requirements, we embed them into our culture and project delivery approach. Our philosophy is simple: inclusion creates stronger teams, better solutions, and lasting community impact. We believe our core values of Ownership, Integrity, Builder, Diversity, and Community are the foundation of success. These values guide us in creating a workplace where every individual feels valued and empowered.

SUPPLIER DIVERSITY & SUBCONTRACTOR ENGAGEMENT

Our approach to subcontracting is strategic:

- **Early Outreach:** We identify and engage local DBE, DVBE, MBE, SMBE, SWBE, WBE, SLBE, and ELBE firms early in the process.
- **Scope De-Bundling:** Large bid packages are broken into smaller scopes to increase accessibility for small businesses.
- **Database Utilization:** We maintain a database of 25,000+ certified small business contractors and leverage City, State and Federal directories.
- **Bid & Post-Bid Support:** Assistance with bonding, insurance, compliance, and prompt payment ensures success for our partners.

PROGRAMS & PARTNERSHIPS

We invest in programs that strengthen small businesses and workforce diversity:

- **Technical Assistance Program (TAP):** Training on scheduling, safety, quality, and cash flow management.
- **Targeted Outreach:** Events like Meet the Estimators and Path to Partnership connect small firms with opportunities.
- **Industry Associations:** Active engagement with WBEC-West, NAMCSC, VIB Network, GLAAACC, ASA, AMAC, North San Diego Small Business Development Center and others.

WORKFORCE DEVELOPMENT

Our commitment extends to building careers:

- **Internship Pipeline:** 25% of new hires come from our internship program. Our 2025 Summer intern program resulted in 41 of 48 interns being offered either a full-time position, a 2nd/3rd internship, temp hire, or referral to another HP region.
- **Employment Opportunity Program:** Hensel Phelps founded and managed program that provides pathways for unhoused individuals and veterans through partnerships with Helmets to Hard Hats and PATH.
- **Union Collaboration:** Apprenticeship programs and readiness initiatives create opportunities for underrepresented groups.

COMMUNITY & ECONOMIC IMPACT

Beyond construction, we support local businesses and community initiatives:

- Catering and services from small, minority-owned firms.
- Events like ACE Mentor Program, CIEF Design-Build Competition, and WiOPS leadership programs.
- Volunteer efforts and charitable initiatives that strengthen community ties, including the annual Hensel Phelps Turkey Giveaway, which has provided over 344,000 meals across Southern California over the past 15 years.

6.1. Failure to submit the required EOCP information will result in Proposal being determined as non-responsive.

The Design-Builder team has complied with the above requirement and emailed the Work Force Report (EOC Form BB05) directly to Juan E. Espindola, Senior Contract Specialist based on a response from Addendum 03 noting the ability to do so.

6.2. Subcontractor Documentation

The Design-Builder team is committed to making every effort to achieve the 25% participation goal from SLBE, ELBE, or DVBE subcontractors.

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Design-Builder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Design-Builder's total Bid. The Design-Builder shall also list below the portion of the work which will be done by each Subcontractor under this contract. The Design-Builder shall list only one Subcontractor for each portion of the Work. The **PERCENT VALUE** of the total Bid to be performed shall be stated for all Subcontractors listed. Failure to comply with this requirement shall result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder's attention is directed to the Special Provisions - General; Paragraph 2-3 Subcontracts, which stipulates the percent of the Work to be performed with the Design-Builders'own forces. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED ②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: G & C Equipment Corporation Address: 879 W. 190th St.,Ste. 500 City: Gardena State: CA Zip: 90248 Phone: 310.515.6715	Constructor	Temporary Trailers	1.16%	SDVOB SBE DVBE CBE HUBZone LSE MBE	California	N/A
Name: Frank and Son Paving, Inc. Address: 1019 3rd Ave. City: Chula Vista State: CA Zip: 91911 Phone: 619.422.8322	Constructor	AC Paving	0.61%	SLBE ELBE SB	City of San Diego California	N/A
Name: Nava Landscapes Inc Address: 484 Kensington Dr. City: San Marcos State: CA Zip: 92078 Phone: 760.809.0416	Constructor	Landscape/ Irrigation	1.17%	SLBE SB SB-PW	California	N/A

① As appropriate, Design-Builder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Design-Builder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

The Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE and ELBE).

Form Title: DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY (Rev. May 2011)
Form Number: AA15
Project Title:

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY

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NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED ②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: PC Iron Inc dba Pacific Coast Iron Address: 9038 Jamacha Rd. City: Spring Valley State: CA Zip: 91977 Phone: 619.461.9800	Constructor	Structural Steel Ornamental Metals	4.10%	DVBE LSBE SDVOSB	CA DGS 1012406 City of San Diego FED SBA	N/A
Name: San Diego Sheet Metal, Inc. Address: 455 54th St., Suite 102 City: San Diego State: CA Zip: 92114 Phone: 619.559.0023	Constructor	Sheet Metal & Flashing	1.03%	SLBE SB-PW	City of San Diego CA Dept. of General Service	N/A
Name: Perez Construction Group, Inc. Address: 355 S Grand Ave., Ste. 2450 City: Los Angeles State: CA Zip: 90071 Phone: 213.289.9100	Constructor	Drywall Plaster Insulation Air Barrier Fireproofing	2.35%	DBE MBE DVBE SBE SLBE	CPUC DGS SCMSDC	N/A

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Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Design-Builder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

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NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED ②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: Soundproof San Diego Inc. Address: 10977 Mission Rd. City: San Diego State: CA Zip: 92108 Phone: 858.876.4874	Constructor	Acoustic Ceiling Tile & Sound Panels	0.93%	SLBE ELBE	CA Dept General Services	N/A
Name: ISEC, Incorporated Address: 10105 Carroll Canyon Rd. City: San Diego State: CA Zip: 92131 Phone: 858.279.9085	Constructor	Lab Equipment	3.29%	N/A	N/A	N/A
Name: G & C Equipment Corporation Address: 879 W. 190th St.,Ste. 500 City: Gardena State: CA Zip: 90248 Phone: 310.515.6715	Constructor	Lab Casework	1.07%	SDVOB SBE DVBE CBE HUBZone LSE MBE	California	N/A

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Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Design-Builder shall indicate if Subcontractor is certified by:

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State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

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Project Title:

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Design-Builder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Design-Builder's total Bid. The Design-Builder shall also list below the portion of the work which will be done by each Subcontractor under this contract. The Design-Builder shall list only one Subcontractor for each portion of the Work. The **PERCENT VALUE** of the total Bid to be performed shall be stated for all Subcontractors listed. Failure to comply with this requirement shall result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder's attention is directed to the Special Provisions - General; Paragraph 2-3 Subcontracts, which stipulates the percent of the Work to be performed with the Design-Builders'own forces. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED ②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: A-1 Fire Protection, Inc. Address: 8655 Miramar Place City: San Diego State: CA Zip: 92121 Phone: 858.623.2733	Constructor	Fire Sprinkler	0.55%	WBE, SLBE, ELBE	City of San Diego	N/A
Name: AO Reed & Co, LLC Address: 4777 Ruffner St. City: San Diego State: CA Zip: 92131 Phone: 858.565.4131	Constructor	Mechanical Plumbing	11.29%	N/A	N/A	N/A
Name: Saffa Contracting Co. Address: 6641 Murray Park Dr. City: San Diego State: CA Zip: 92120 Phone: 715.557.2203	Constructor	Controls/ Equipment	5.72%	DVBE	CADoGS, CA	N/A

① As appropriate, Design-Builder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Design-Builder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

The Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE and ELBE).

Form Title: DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY (Rev. May 2011)
Form Number: AA15
Project Title:

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Design-Builder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Design-Builder's total Bid. The Design-Builder shall also list below the portion of the work which will be done by each Subcontractor under this contract. The Design-Builder shall list only one Subcontractor for each portion of the Work. The **PERCENT VALUE** of the total Bid to be performed shall be stated for all Subcontractors listed. Failure to comply with this requirement shall result in the Bid being rejected as non-responsive and ineligible for award. The Design-Builder's attention is directed to the Special Provisions - General; Paragraph 2-3 Subcontracts, which stipulates the percent of the Work to be performed with the Design-Builders'own forces. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED ②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: Dynalectric San Diego Address: 1111 Pioneer Way City: El Cajon State: CA Zip: 92020 Phone: 619.328.4007	Constructor	Electrical	8.80%	N/A	N/A	N/A
Name: G & C Equipment Corporation Address: 879 W. 190th St.,Ste. 500 City: Gardena State: CA Zip: 90248 Phone: 310.515.6715	Constructor	Electrical Equipment	1.55%	SDVOB SBE DVBE CBE HUBZone LSE MBE	California	N/A
Name: Address: City: State: Zip: Phone:						

① As appropriate, Design-Builder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Design-Builder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

The Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE and ELBE).

Form Title: DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY (Rev. May 2011)
Form Number: AA15
Project Title:

DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY ADDITIVE/DEDUCTIVE ALTERNATE

(USE ONLY WHEN ADDITIVE ALTERNATES ARE REQUIRED)

The Design-Builder shall list all Subcontractors described in the Design-Builder's Base Bid whose percentage of work will increase or decrease if alternates are selected for award. Design-Builder shall also list additional Subcontractors not described in the Design-Builder's Base Bid who, as a result of the alternates, will perform work or labor, or render services, or specially fabricate and install a portion [type] of work or improvements in an amount in excess of 0.5%. Failure to comply with this requirement shall result in the bid being rejected as non-responsive and ineligible for award. The Design-Builder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB WoSB, HUBZone, and SDVOSB Subcontractors that Design-Builder are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

ADDITIVE/ DEDUCTIVE ALTERNATE	NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	PERCENT VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED ②	CHECK IF JOINT VENTURE PARTNERSHIP
Additive Alternate B	Name: Dynalectric San Diego Address: 1111 Pioneer Way City: El Cajon State: CA Zip: 92020 Phone: 619.328.4007	Constructor	Electrical	1.01%	N/A	N/A	N/A
	Name: Address: City: State: Zip: Phone:						
	Name: Address: City: State: Zip: Phone:						

① As appropriate, Design-Builder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
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City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

The Design-Builder will not receive any subcontracting participation percentages if the Design-Builder fails to submit the required proof of certification (except for OBE, SLBE and ELBE).

Form Title: DESIGN-BUILD LIST OF SUBCONTRACTORS TO BE INCLUDED IN THE TECHNICAL (NON-PRICE) PROPOSAL ONLY ADDITIVE/DEDUCTIVE ALTERNATE (Rev. May 2011)
Form Number: AA20
Project Title:



Outdoor Terrace

7. References

7. References

Minimum of three (3) references required with contact name, title, organization, phone number, and email. Provide a brief description of each reference and their relevance to the project.

1. Amanda Scheidlinger
Director of Construction
San Diego State University
(805) 459-9027 | ascheidlinger@sdsu.edu

Brief Description: Amanda is the Director of Construction at SDSU.

Relevance to Project: Amanda is responsible for the development of SDSU's new Life Sciences Building. This project is currently under construction and being executed by the D-B team of Hensel Phelps + SmithGroup.

2. Jon Frye
Senior Project Manager
Sharp Healthcare
(602) 376-6905 | jonathan.frye@sharp.com

Brief Description: John is currently a Regional Director with Sharp Healthcare Facilities Management & Development.

Relevance to Project: John was a Facilities Project Manager and responsible for the development of Sharp's Oceanview Tower project located in Chula Vista. The D-B team of Hensel Phelps + SmithGroup completed this project in Q4 of 2019.

3. Paul Wilburn
Capital Outlay Program Manager
California Department of General Services
(916) 375-4282 | paul.wilburn@dgs.ca.gov

Brief Description: Paul is currently a Capital Outlay Program Manager, part of the Project Management Section of the State of California's Department of General Services, Real Estate Services Division.

Relevance to Project: Paul, as Project Director within the Project Management and Development Branch, was responsible for the development of the State of California's COVID Testing Laboratory. Hensel Phelps + SmithGroup delivered this critical project in a record 2 months time.

4. Jacqueline Norman
Campus Architect
University of California, Riverside
(951) 236-5704 | jacqueline.norman@ucr.edu

Brief Description: Jacqueline is the Campus Architect and Associate Vice Chancellor at the University of California, Riverside's Planning, Design, and Construction services.

Relevance to Project: Jacqueline was responsible for the development of UC Riverside's new Multidisciplinary Research Building, which was procured utilizing a traditional, stipulated sum, D-B delivery model. This project was completed in Q4 of 2018 and delivered by Hensel Phelps + SmithGroup.

5. Eugene Kim
Senior Project Manager
California Institute of Technology
(909) 927-7744 | eugene.kim@caltech.edu

Brief Description: Eugene is a Senior Project Manager at the California Institute of Technology (Caltech), and part of Planning, Design, and Construction services.

Relevance to Project: Eugene was responsible for the development of Caltech's Chen Neuroscience Research Building, which was delivered utilizing a progressive D-B delivery model and completed by Hensel Phelps + SmithGroup.

View of South and West Facades



8. Appendix

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8. Appendix

8.1 Technical Drawing Set

8.2 Revit Model

8.3 Animation

8.4 Safety Program



DC Water Headquarters

8.1 Technical Drawing Set

8.1 Technical Drawing Set

Included with our submittal is a Technical Drawing Set of the Proposed Design Concept.

File name: 8.1 - City of San Diego - Alvarado Laboratory Improvements - Technical Drawings Set.pdf

DOWNLOAD LINK: LINK

URL:
https://smithgroup4.sharepoint.com/:f:/s/00018375-Consultants/IgDACciQQA4EToC-b6U8HsdnCAalbJvff5FgcQg44rANGtt0?e=IBHu4Z

QR CODE:



8.2 Revit Model

8.2 Revit Model

A Revit Model of our proposed design has been included with our submittal.

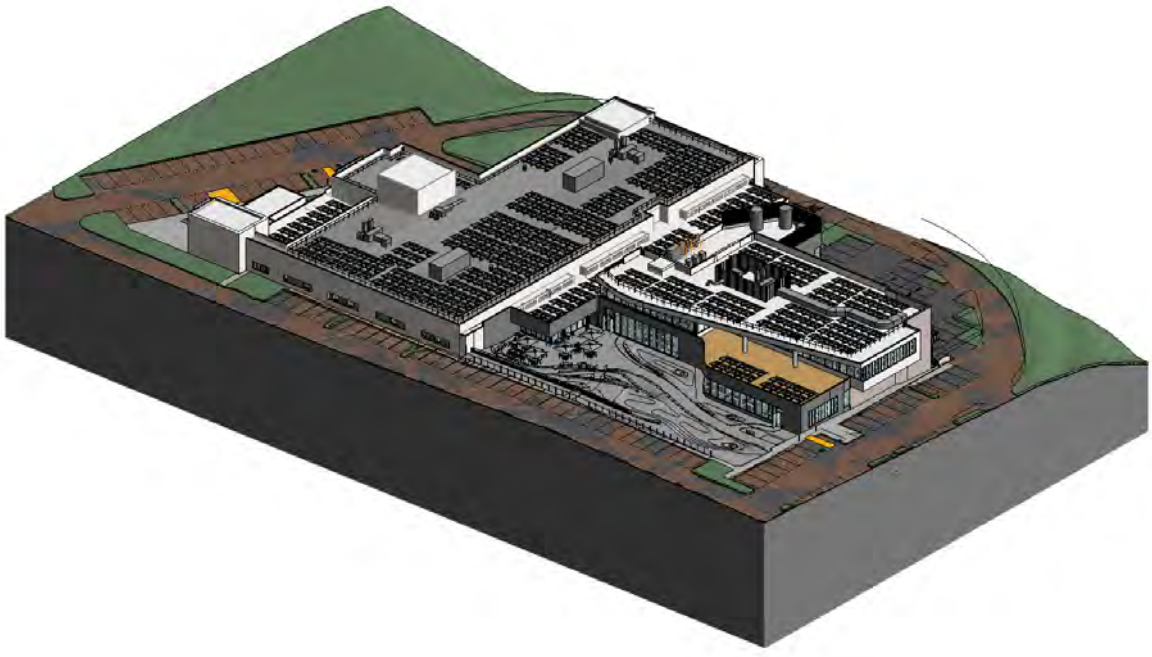
File name: 8.2 - City of San Diego - Alvarado Laboratory Improvements - Revit Model.zip

Version: Revit 2025

DOWNLOAD LINK: LINK

URL:
https://smithgroup4.sharepoint.com/:f:/s/00018375-Consultants/IgDACciQQA4EToC-b6U8HsdnCAalbJvff5FgcQg44rANGtt0?e=IBHu4Z

QR CODE:



8.3 Animation

8.3 Animation

Included with our submittal is an animation of the proposed design concept.

File name: 8.3 - City of San Diego - Alvarado Laboratory Improvements - Animation.mp4

DOWNLOAD LINK: LINK

URL:
https://smithgroup4.sharepoint.com/:f:/s/00018375-Consultants/IgDACciQQA4EToC-b6U8HsdnCAalbJvff5FgcQg44rANGtt0?e=IBHu4Z

QR CODE:



8.4 Safety Program

8.4 Safety Program

Accident Prevention Plan



Project Name:
Alvarado Laboratory Improvements and
Alvarado Laboratory Improvements Trailer

Date Produce
11.17.2025

Form A03.01 Page A Modified: 05.2024

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1. Statement of Safety and Health Policy

Hensel Phelps places the highest value on the safety and health of our employees, trade partners and our communities. It is the policy of Hensel Phelps to perform work in the safest manner possible, consistent with good construction practices. We believe that accidents can be prevented through planning, training, follow-up and a cooperative effort in all areas of our operations. Project specific risk must be identified and preventive measures applied prior to the execution of any work.

To fulfill this policy, Hensel Phelps has established this Accident Prevention Plan (APP) to support our philosophy all injuries can be prevented.

2. Project Description

The project includes the phased renovation and reconstruction of the existing Alvarado Laboratory building and the construction of a new laboratory building with office and parking space. It also includes the installation of a temporary office trailer, site and utility improvements, and coordination with adjacent projects.



3. Responsibilities and Lines of Authority

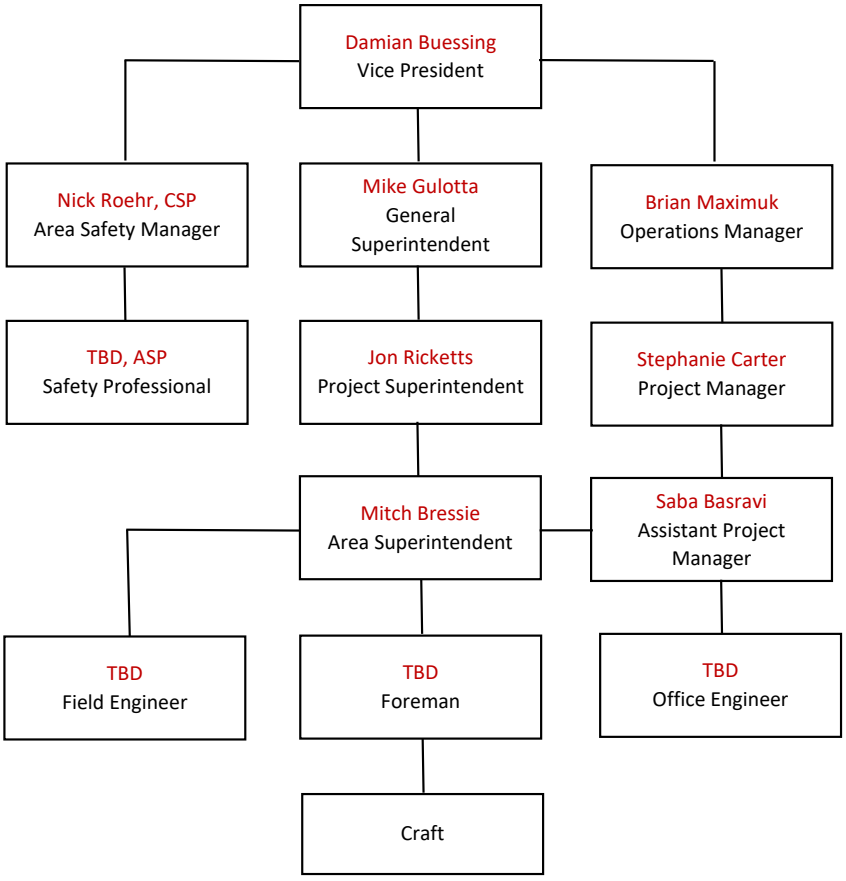
The Hensel Phelps safety culture focuses on three pillars of safety excellence: leadership involvement, employee engagement, and accountability. Our culture is grounded in the belief that all personnel are empowered and encouraged to stop work and report any safety concern or hazard to their immediate supervisor. While all of us play a part in preventing workplace accidents, there are elements of the Hensel Phelps safety and health program that are the responsibility of key staff members to ensure implementation.

The Project Manager and Superintendent are responsible for the effectiveness of the Accident Prevention Plan on their project. The primary responsibility for jobsite safety rests with the Superintendent. It is the Project Manager's responsibility to ensure safety is properly incorporated into planning and execution; reinforce and promote accountability among staff members and trade partners as it relates to the project's safety policies; and enforce these policies by actively participating in safety-related functions.

Executive leadership is responsible for the appointment of appropriate people to administer the program and oversight of safety performance for the project. Project safety performance will be reviewed as part of the Book of 14 review process and employee periodic performance evaluations.

Trade partners will be furnished a copy of this APP and are bound to it contractually. Hensel Phelps reserves the right to update and/or modify any and all items outlined in this APP without any cost to Hensel Phelps and/or the Owner. Hensel Phelps will provide the updated APP to all trade partners should there be any updates and/or modifications that would potentially affect trade partners. In addition, trade partners and tier contractors are responsible for compliance with all applicable laws, regulations, their safety program and their Activity Hazard Analysis.

Hensel Phelps Lines of Authority:



Key elements and responsibilities of the Safety and Health Program									
Program Element	**Superintendent**	**Project Manager**	**Area Supt**	**Site Safety Professionals**	**Staff**	**Foreman**	**Safety Director**	**Vice President Operations Manager General Supt**	**Trade Partner Supervision**
Accident Prevention Plan	P	P	A	A	X	X	R	O	X
Site Utilization Plan and Material Management Plan	P	A	P	A	X	X	R	O	X
Public Hazard Analysis	P	A	A	A	X	X	R	O	X
Emergency Action Plan	P	P	A	A	X	X	O	P	A
Site Specific Safety Orientation	P	P	A	A	X	X	R	O	X
Safety Training	P	P	A	R	A	A	R	O	X
CARES	X	A	A	R	A	P	A	O	A
Foreman Indoctrinations	P	X	A	R		X	R	P (GS)	X
SAFE Program	P	P	A	R	X	X	R	O	X
Disciplinary Action	P	P	A	R	X	A	R	O	P
AHA/STA	P	A	P	R	A	A	R	O	P
Six Step Quality/Safety Process	P	P	A	R	A	A	R	O	P
Documentation	P	P	A	A	X	A	R	O	P

Primary = P Assist = A Accountable = X Resource = R Oversight = O

4. Prevention of Alcohol and Drug Abuse

To maintain a safe, healthy and efficient work environment, and to minimize absenteeism and tardiness, all Employers, unless excluded by a collective bargaining agreement or other laws, codes or ordinances, shall implement a Substance Abuse Prevention Policy that, at minimum, includes testing as prescribed by this section. Hensel Phelps may request at any time that the trade partner test 100% of their employees on the project or any personnel involved in an accident, incident or near miss. All associated costs are the responsibility of the employer of the affected employee.

Fundamental requirements of this program:

- Employers shall implement and enforce a policy that prohibits the possession, distribution, promotion, manufacture, sale, use or abuse of unauthorized drugs or drugs that are illegal under either federal or applicable state laws, drug paraphernalia, controlled substances and alcoholic

beverages by employees, agents or any person otherwise under the control of the employer, including employees and agents of trade partners and consultants while on the work site.

- Employees shall be prohibited from reporting to the premises under the influence of drugs or alcohol.
- The policy must apply to all personnel, including but not limited to regular, part-time, probationary, casual and contract employees of the company, as well as to employees and agents of trade partners and consultants. The employer shall take whatever legally permissible steps are necessary or appropriate to enforce compliance with this policy.
- Employees governed by this policy may possess a prescription medication in its original container and prescribed for current use of the person in possession by an authorized medical practitioner; provided that the employer provides a mechanism to ensure that employees taking prescription medicine inform their employer about potential side effects of medication which may affect the employee's work ability (particularly their alertness and coordination), safety and the safety of others.
- Comply with all owner specific requirements.

5. Submittals, Planning and Activity Hazard Analysis

Each contractor must submit to Hensel Phelps an Activity Hazard Analysis (Form B06.01) for each definable feature of work (DFOW) prior to the start of that operation. Each contractor is responsible for ensuring that any of their trade partners also follow this procedure. The Activity Hazard Analysis (AHA) should be accepted prior to and reviewed in the Preparatory Meeting. The contractor should come prepared with a final submitted and accepted product to this meeting. This AHA must identify the following:

- A detailed plan identifying hazards for each task or operation and control measures that will be used.
- Equipment that will be used to include training and inspection requirements.
- The names of the designated competent and qualified person(s) for the operation. Proof of competency must be attached to the Activity Hazard Analysis.

The Activity Hazard Analysis must be physically present in the field while work is being performed and must be reviewed and updated as appropriate due to changing conditions and lessons learned. It is the responsibility of each contractor for compliance with all applicable safety laws, regulations, ordinances and contractual requirements. Each contractor is responsible for reviewing each Activity Hazard Analysis with all personnel involved before the start of the operation, on a frequent basis, when conditions change, and must notify Hensel Phelps and adjust the Activity Hazard Analysis as necessary whenever the plan for performing the work is modified or following an unplanned event. All updated Activity Hazard Analysis must be submitted to Hensel Phelps.

Additional documents must be submitted to Hensel Phelps before any trade partner starts work. These documents include, but are not limited to the following:

Written Plans and Additional Documentation		
Lifting and Hoisting	Arc Flash Hazard Analysis	Proof of Competency for Competent and Qualified People

Fall Protection	Abatement Plans	Equipment Operator Training Certificates
Lock Out / Tag Out	Demolition Plans	Safety Data Sheet (SDS) Log (Form A03.09)
Respiratory Protection	Steel Erection Plans	Site-Specific Safety Data Sheets (SDS)
Respirable Crystalline Silica Exposure Control Plan	Formwork and Shoring Plans	Chemical Questionnaire (Form A03.08)
Permit Required Confined Space	Engineering Plans	Safety Disciplinary Program
State Specific Plans		
Injury and Illness Prevention Plan (CA)	Code of Safe Practices (CA)	Annual (and activity notification) or Project Permit, if required (CA)
Heat Stress Prevention (CA / WA)	Workplace Violence Prevention Plan (CA)	

6. Training

Site-Specific Safety Orientation:

All personnel accessing a Hensel Phelps project must self-enroll and complete the Site-Specific Safety Orientation prior to engaging in work activities. This orientation is approximately two hours long and participants will be oriented to the general safety rules of the project. In addition, they will learn about the emergency action plan, reporting of safety concerns, SAFE program, the project's disciplinary program, and the importance of reporting accidents and near misses. After this orientation, a label with each participant's first and last name will be issued for placement on the front of the hard hat. It is required that this label remain on their hard hat. A site-specific sticker or badge will be issued to each person allowing them access to the project site. There may be circumstances where Hensel Phelps will require an individual, crew or foreman to repeat the orientation prior to being allowed back on the site.

Mandatory Training:

Hensel Phelps will have supervisory personnel trained in first aid and CPR. Each trade partner is required to have at least one employee that has current first aid and CPR training on the project while they are performing work. Additional training that will be required is based upon the definable feature of work. Examples of mandatory training include, but are not limited to LO/TO, confined space entry, crane operation, equipment and forklift operation, trench and excavation, scaffolds, fall protection, respiratory protection, rigging, powder-actuated tool use, hazardous materials and OSHA 10 or 30 hour. If a contractor uses temporary workers, they must receive all applicable training prior to beginning work.

Periodic Safety and Health Training:

Hensel Phelps will conduct weekly toolbox meetings. These meetings will be conducted by a qualified management representative. Trade partners will be required to conduct weekly toolbox meetings specific to their scope of work. These meetings will be held during the week at the trade partner's discretion. Signed documentation verifying employees present during the meeting and the topic discussed must be submitted to Hensel Phelps weekly and no later than the end of the business day on Friday. A job wide safety meeting will be held at least monthly on this project.

Hensel Phelps will provide awareness and comprehensive level training to our employees periodically based on project requirements. Trade partners are responsible to provide necessary training to their employees based on applicable regulations, safety audit findings, near miss events / accidents, their company policy and this APP.

Emergency Action Plan Training:
Training in the project's emergency action plan will take place in the site-specific safety orientation. Refresher training will be conducted periodically throughout the length of the project. In addition, at least two drills per year will be conducted where the emergency action plan is rehearsed.

7. Safety and Health Inspections

In accordance with our SAFE Program, the Project Superintendent and Project Manager are responsible to develop a jobsite safety audit schedule that helps facilitate consistent safety presence in the field. All supervisory employees (foreman and above) will participate in these audits and will be trained in the Hensel Phelps SAFE Program.

In addition, Hensel Phelps will conduct a weekly safety audit. The Hensel Phelps Weekly Safety Audit (Form B08.01) will be used as a guide for these inspections and a copy kept on file. Trade partner supervisors may be asked to participate in these weekly safety walks and additionally conduct a weekly safety audit of their work area(s). Periodically, safety inspections shall be completed by the Director of Safety and Health.

Trade partners and tier contractors are required to conduct, as a minimum, a weekly safety inspection of their operation. During this inspection, they should verify that the Activity Hazard Analysis is accurate and updated, if needed. This process must include a review of the designated competent and qualified personnel to verify they are onsite, as required.

Tool and Equipment Inspections:
Before any tool or equipment is put into use on this project, it shall be inspected by a qualified person to verify safe operating condition. All tools and equipment must have operational safety devices provided by the manufacturer including reverse signal alarms, guards for moving parts and hot surfaces, overhead protection, rollover protection, cords, etc. All operators shall be familiar with the provisions of the applicable standards.

Inspections must be conducted by users prior to each use. Continued inspections by each contractor using tools or equipment shall be made prior to use each day to ensure safe operating conditions and proper maintenance. Any tool or equipment found to be in an unsafe operating condition shall be tagged "Out of Service - Do Not Use" (or similar language), and its use prohibited until unsafe conditions have been corrected.

All repairs on tools or equipment shall be made at a location that will provide a safe place for repairs and minimizes impact to the project. Hazardous energy must be adequately controlled in accordance with manufacturer recommendations and applicable regulations prior to any repairs being made. Any guard or safety device removed or made ineffective shall be replaced or restored to safe operating condition immediately after completion of work that requires its removal.

8. Recognition and Discipline

Hensel Phelps believes that a strong safety culture engages all stakeholders including field supervision and craft personnel in our safety and health program. A critical element of our safety and health program is recognizing people for their active participation in promoting jobsite safety and health. To encourage people to work safely, this project has developed the following safety recognition program:

Craft Awareness, Recognition and Engagement in Safety (CARES):
Our Craft Awareness, Recognition and Engagement in Safety (CARES) Program will be implemented on all Hensel Phelps Projects. CARES is a program that engages Hensel Phelps and trade professionals in the project's safety culture to ensure everyone has a voice. The CARES team will meet periodically to discuss concerns from the craft and ways to improve project moral. Project leadership will work with trade partners to select representatives to participate in this required safety committee.

Policies and Procedures for Non-Compliance:
Hensel Phelps uses our Safety Accountability for Everyone (SAFE) Program as the primary method for observing and correcting the unsafe behaviors of workers and unsafe environmental conditions. SAFE requires one-on-one interaction between the observer and the worker once an unsafe act is observed. This interaction provides the observer with the opportunity to discuss with the individual hazards of the unsafe act observed and the actions to prevent recurrence. Through a questioning dialogue with the worker, the observer finds ways to prevent the unsafe act(s) from occurring again.

SAFE also recognizes safe behavior of workers by thanking them for a job well done and reinforcing their safe behavior. The individual will be recognized for their continued effort and encouraged to continue working safely.

If the observer is unable to affect the desired change in behavior of a worker committing an unsafe act or causing an unsafe condition to exist, using SAFE, the employer's disciplinary program must be implemented. If the employer's disciplinary program is not implemented the individual and / or the supervisor will be removed from the project.

There are some circumstances where a serious violation will result in immediate removal from the site. These violations, known as "Lifesaving Rules", will be communicated to all persons entering the site during the site-specific safety orientation and include:

- Fall protection
- Poor safety attitude
- Lock out / tag out
- Confined space
- Trench / excavation
- Removal of safety devices
- Horseplay or fighting
- Repeat offenses of safety rules
- Impairment
- Disregard of safety rules

In the event a trade partner has safety issue(s) on the project, Hensel Phelps may require the trade partner to furnish a full-time safety professional for the project. Hensel Phelps reserves the right to

terminate this subcontract in whole or in part at any time for unresolved safety issues or repeat safety violations.

9. Accident, Incident and Near Miss Reporting

All accidents, incidents and near misses must be reported to the Hensel Phelps Project Superintendent immediately. These events must be investigated and a report describing the causes and actions to prevent recurrence given to Hensel Phelps within 24 hours of the accident. In the event an employee is injured, Hensel Phelps must be kept informed on their status.

Any accident arising out of a trade partner or tier contractor's work shall be discussed at the next Contractor's Safety Committee meeting, to discuss causes, methods of prevention and lessons learned. At that meeting, an officer, executive, or owner of the company shall explain, in person, the cause of the accident and the actions the trade partner shall take to prevent similar accidents in the future.

Return-to-Work Program:
All contractors on the project are required to have a return-to-work program where injured employees are offered light duty tasks or jobs when recommended by a health care provider as the result of a work-related injury or illness. Physical demands must be assessed for modified duty jobs to ensure they can be performed safely by injured employees and doctor recommendations on limitations must be followed. Supervisory personnel must be provided with any physician's restrictions to ensure that the restrictions are followed. All medical records for injured employees must be maintained by the employer and kept confidential.

Trade partner must make every effort necessary to get the injured employee back to a full duty status and employees must be trained on the employer's program.

Local health care providers must be made aware of the return-to-work program when the clinic is established and describe details of how the company provides modified work to employees who are unable to perform their regular duties.

Monthly Report:
No later than the 15th of each month, each trade partner must report to the Hensel Phelps Project Manager the following information:

- Total work hours for the previous month
- Total OSHA Recordable Incidents for the previous month
- Total Lost Time Injury cases for the previous month, including total days lost
- Total DART (days away, restricted, transferred) cases for the previous month
- Other accident information that is required for the project

10. Personal Protective Equipment

As a minimum, everyone entering this project will be required to wear the following personal protective equipment:

Head protection will be worn with bill facing forward unless the head protection device is designed to be worn with the brim to the back and the task or job being performed requires that the brim be

positioned to the back of the head. Trade partners are required to conduct a hazard assessment for their work to determine if their helmet must have an electrical rating.

Additional personal protective equipment that is required on this site includes:

- ANSI Z87.1 safety-glasses with rigid side shields (prescription lenses must meet the same standard)
- Construction grade work boots that extend above the ankle
- Work shirt with t-shirt length sleeves
- Gloves when handling material
- High visibility apparel
- Sturdy pants
- Additional PPE based on the hazard and AHA

Prior to initiating a new definable feature of work, a hazard assessment will be conducted using the Activity Hazard Analysis process to determine the need for additional personal protective equipment. No loose or frayed clothing can be worn, especially near machinery or other moving parts.

All Hensel Phelps and trade partner employees shall be trained on the types of personal protective equipment that will be used. This training may be conducted in orientation, classroom and/or through toolbox talk trainings. Certification of this training will be maintained by signing an orientation safety sign in sheet and/or on the toolbox talk documentation.

Respiratory Protection:
Prior to the use of respiratory protection, the use of feasible engineering and administrative controls will be evaluated by a qualified person to see if they can effectively eliminate, reduce or control the hazard to an acceptable exposure. Where feasible engineering or administrative controls do not adequately address the hazard, respiratory protection will be used to provide exposed workers with proper protection. If respiratory protection is necessary, the contractor must submit a written respiratory protection plan that meets applicable regulations. It is the responsibility of each contractor to evaluate the hazards of any substance they will be using and take appropriate measures to protect their employees and other personnel in the area. Hensel Phelps may request that any operations producing a potential respiratory hazard to be analyzed by an industrial hygienist at the trade partner's expense.

General Guidelines for Respiratory Protection:

- Workers wearing respiratory protection must be medically evaluated and fit tested prior to wearing respirators.
- Respirators must be kept clean and stored in accordance with manufacturer recommendations.
- Workers wearing respirators must be clean shaven to maintain a tight seal with the respirator.
- Contractors must verify that respiratory equipment is appropriate for the exposure(s).
- Respirators must be NIOSH approved.
- Workers must be trained in accordance with applicable regulations.

11. Emergency Response

If there is an event that requires Hensel Phelps to evacuate the project, Hensel Phelps will use air horns to notify personnel that an emergency exists. Continuous blasts of air horns around the project will

notify project personnel to report to the assembly area located North of the new lab. Designated personnel will do a head count of all personnel to assure all employees are accounted for. If the head count determines that any are missing, immediately report the information to the Superintendent. This information will be communicated to the Crisis Team Leader and the Crisis Management Plan will be implemented. This plan will be periodically updated once the erection of the building has commenced and include posting of exit routes.

At the beginning of the project and thereafter on a periodic basis, the Superintendent will invite police, emergency services and the fire department to the jobsite. The purpose of the visit will be to familiarize them with the job and the location.

Major Injury:
In the event of a serious injury to an employee or general public:

- The person with authority at the scene will take charge until the Superintendent arrives.
- Notify Hensel Phelps giving the location of the accident, the number of people injured, and the nature of the accident.
- Limit communication systems to emergency use only.
- The field office personnel will call emergency services giving them the number of people injured, cause of injury, and directions to the accident scene.
- Designate persons to meet the ambulance at the entrance to the jobsite to escort emergency personnel to the accident scene.
- Emergency first aid may be administered. The injured person is not to be moved unless further injury is imminent.
- Support personnel are to keep all nonessential people away from the emergency scene and maintain emergency access.
- In case of injury or alleged injury to the general public, get their name, address and phone, and give the information to the Superintendent.
- If necessary, Hensel Phelps will initiate the Crisis Management Plan and notify necessary parties.

Fire Fighting Plan:
In the event there is a fire, follow these steps:

- Notify the Hensel Phelps field office giving the exact location and type of fire.
- The field office will notify the Superintendent.
- All communications systems will be limited to emergency use only.
- The person in authority at the scene will take charge until the Superintendent arrives.
- If necessary, field office personnel will notify emergency services, giving the nature of the fire and location.
- Designate persons to meet the Fire Department at the jobsite entrance to escort them to the fire.
- Unless life threatening, personnel on the job may attempt to fight the fire using fire extinguishers until the Fire Department arrives. In cases of heavy smoke or fumes, an order to evacuate will be issued. When the Fire Department arrives, the scene will be turned over to them.

Posting of Emergency Telephone Numbers:

Near all telephones in the job trailer and the bulletin board, the following emergency phone numbers will be posted:

Agency	Phone Number	Address
Ambulance	844-796-2467	N/A
Hospital Sharp Grossmont	619-740-6000	5555 Grossmont Center Dr, La Mesa Ca 91942
Jobsite Clinic Perlman Clinic	858-900-9490	6386 Alvarado Ct #101, San Diego, Ca 92120
Fire	619-667-1355	N/A
Police	911	N/A

12. First Aid and Medical Support

First aid kits will be provided in the appropriate numbers and will conform to the applicable regulatory requirements. Periodic checks will be made to ensure the kits are properly stocked and located. Trade partners are responsible for maintaining adequately stocked first aid kits for their employees. Toolbox meetings will be held to discuss the location and contents of the first aid kits.

13.Site Sanitation

Potable water will be obtained from locations identified by the Superintendent. Common water containers (if used) must have disposable paper drinking cups obtainable from a dispenser and receptacles for disposal of the paper cups will be provided. All containers will be clearly marked "DRINKING WATER" and will be kept in a clean and sanitary condition. Trade partners are responsible for providing their own source of potable water for their employees.

Toilets and will be provided based on the following schedule:

Number of Employees	Minimum Number of Toilets
20 or Fewer	1
20 or Greater	1 toilet seat and 1 urinal per 40 workers
200 or Greater	1 toilet seat and 1 urinal per 50 workers
Wash facilities will be provided near toilet facilities.	

Hensel Phelps and trade partners must be aware of their responsibility and the necessity of cleaning their respective work areas throughout the day. Failure to maintain a clean work area will result in mandatory waste/debris removal at the trade partner's expense. It is the expectation of Hensel Phelps that every trade partner removes their generated trash and construction debris as it is generated. Trash carts and cans shall be provided by the trade partner as a means of removing trash and construction debris from the project and deposited in trash dumpsters daily, at a minimum, and more frequently as conditions warrant.

Any rag or waste soiled with combustible materials shall be stored in tightly closed metal containers and disposed of properly. Timber and forming materials shall be stacked to be stable and self-supporting.

Used lumber and forming material shall have all nails (or similar impalement hazards) withdrawn as they are taken apart.

Housekeeping:
General housekeeping practices are imperative to a safe working environment. Keeping the project site clean and orderly will also aid project teams in efficiency. Throughout the duration of the project there may be required composite site cleanups where each trade will be required to designate one worker for housekeeping aid. Other best management practices for housekeeping include:

- Conspicuously placed garbage cans throughout the site
- Marked or labeled dumpsters for excess or trash material off site hauling
- Removal of all nails, screws or other protrusions in spare or trash material
- Materials and tools should be arranged in a manner to never block walkways, emergency equipment, fire extinguishers and access/egress paths
- Overhead inspections performed for any loose or unsecured overhead hazards that could fall onto employees
- Suspension of power cords to elevate off walking/working surfaces
- Stored materials shall be stacked in a manner to prevent from tipping or falling. Round materials like pipes should have blocking or means to prevent from rolling
- Always dispose of food and drink into garbage cans to prevent pest attraction
- Materials used to clean up spills of oily or hazardous substances shall be disposed of according to local jurisdiction requirements
- The project will also have set schedules for rotating trash removal. This shall be discussed and planned in the weekly trade partner meetings

14. Indoor Air Quality Management

It is the responsibility of each trade partner working on the project to report any worker concerns related to indoor air quality to Hensel Phelps immediately. In addition, each trade partner on the project must maintain good indoor air quality conditions associated with their work.

Each trade partner is responsible to conduct an exposure evaluation to determine or reasonably estimate whether an employee is or could be exposed to an airborne contaminant above a permissible exposure limit (PEL) or other airborne hazards, such as gases, vapors, fumes, dust, mist and biological hazards for their scopes of work. It is the responsibility of each employer to provide adequate protection to their employees, so they are protected from overexposure to airborne contaminants.

A professional hygienist will be employed to provide a baseline and monitor air quality directly adjacent to construction limits to ensure no employees outside or inside the construction limits are affected.

General Guidelines:

- Activities that involve usage of chemicals or solvents that are hazardous will be conducted after normal working hours, where possible, or in a manner that will prevent exposure to other workers.
- Gas powered equipment cannot be used in an enclosed area unless sufficient precautions are taken and continuous air monitoring is conducted. Examples of sufficient precautions include use of scrubbers and ventilation systems.

- Smoking is only allowed in designated areas.
- Water will not be allowed to accumulate and will be cleaned up immediately.

15. Abrasive Blasting

This plan provides general guidelines to address hazards associated with abrasive blasting. If any abrasive blasting will be conducted on this project, the contractor is required to submit an Activity Hazard Analysis to address the hazards associated with the work and to protect anyone in the area of this operation.

General Guidelines:

- Only trained and authorized personnel are allowed to perform abrasive blasting.
- Blasting media must be non-silica base and must minimize exposure to silica and any hazardous substances that could be generated during the blasting process.
- Prior to blasting, a qualified person must evaluate the blasting media, surface coatings, and any dusts or fumes that could be generated during the operation. The associated hazards and controls will be documented in the Activity Hazard Analysis.
- Dust concentrations must be kept below applicable permissible exposure limits. Exposure evaluations or other means should be established to determine PEL's.
- Blast operators will wear a down draft hood and a NIOSH approved, air-fed respirator with breathing air that meets grade D quality standards. A respiratory protection program meeting applicable requirements must be submitted to Hensel Phelps prior to beginning this operation.
- Blasting operations must take place after normal work hours or the area must be contained so only authorized personnel are allowed.
- Blasting media must be cleaned up at the end of each shift.
- Do not blast objects that are not properly secured.
- Blasting of areas used to store flammable materials is not allowed.
- Hose couplings safety pins and air hose whip checks must be installed on all air and blast hoses.
- Do not aim the nozzle towards anyone.

Pressurized Pot Procedures:

- Do not perform any maintenance on any abrasive blaster or blasting equipment while it is pressurized. Depressurize the blaster and pot before loading abrasive material or performing any maintenance. Disconnect the air supply prior to performing maintenance or loading abrasive.
- Inspect the pot and hoses before each use to ensure there is no damage, leaks, corrosion, or worn parts.
- Follow the manufacturer's instructions on maximum allowable working pressure. Do not exceed the pressure recommended by the manufacturer.
- All safety devices including pressure relief devices must be operational.

16. Respirable Crystalline Silica

It is the responsibility of each employer whose employees are potentially exposed to respirable crystalline silica above 25 µg/m3, as an 8-hour time weighted average (TWA), and under any foreseeable conditions, to establish a written Exposure Control Plan in accordance with applicable regulations.

Applicable employers must identify and provide a competent person that is able to identify existing and foreseeable respirable crystalline silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or control them. Each jobsite operation will be evaluated through the Activity Hazard Analysis process that could potentially result in the generation of crystalline silica. The designated competent person will also make frequent and regular inspections of the project, materials and equipment to effectively implement the written exposure control plan.

Exposure Controls:
Acceptable engineering and/or work practice controls must be used to reduce the level of exposure to employees and others in the work area. If applicable, employers may use OSHA's Specific Exposure Control Methods - Table 1 (Form C14.01) if the controls are properly and fully implemented.

If all controls are not properly or fully implemented or if the task is not listed in OSHA's Specific Exposure Control Methods - Table 1 (Form C14.01):

- The employer may also assess and limit the exposure to the workers and others in the area to respirable silica above the permissible exposure limit of 50 µg/m3, as an 8-hour time weighted average (TWA).
- Conduct exposure assessments in accordance with applicable regulatory requirements.

When engineering controls are not feasible and/or not effective in the reduction of crystalline silica the use of respiratory protection will be used, and the contractor's written respiratory protection plan implemented. Note that general dilution ventilation is not a solution to controlling silica dust.

Where respiratory protection is required, each employer must submit a written Respiratory Protection Program to Hensel Phelps and must meet all applicable regulatory requirements. Refer to section 10 for additional information.

Monitoring for Crystalline Silica:
The project will be visually inspected for operations that may produce airborne crystalline silica. Any suspect operations will be communicated to the Superintendent and applicable trade partner. The Activity Hazard Analysis for the operation will be reviewed and amended as necessary to reduce the potential of over exposure to crystalline silica.

Air monitoring by an Industrial Hygienist may be requested to determine effectiveness of controls for airborne crystalline silica. Trade partners and/or tier contractors will be responsible for arranging any necessary testing at their own cost.

Any trade partner responsible for conducting air monitoring shall provide to Hensel Phelps a copy of the air monitoring results to determine effectiveness of control methods. A copy of the air monitoring report shall be maintained and placed in the safety point file system.

Where air monitoring is performed to comply with the requirements of this section, provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to respirable crystalline silica.

Within five working days after completing an exposure assessment, post the results in an appropriate location accessible to all affected employees. If an exposure assessment indicates that employee exposure is above the PEL, describe in writing, the corrective action being taken to reduce employee

exposure below the PEL and submit this to Hensel Phelps. Work cannot be performed until an acceptable plan is developed.

Housekeeping:
To prevent the dispersal of silica dust, housekeeping practices will be implemented to reduce the buildup of silica dust. Dry sweeping, use of blowers and the use of compressed air for the cleaning of floors, clothing and other surfaces is prohibited where crystalline silica is present. If vacuuming is used, the exhaust air shall be HEPA filter protected to prevent generation of airborne respirable silica concentrations. Gentle wash down of surfaces is preferred but not in areas where mold generation could occur. Processes such as dry sweeping and dry scraping of fire proofing is also prohibited if silica is present in the product.

Medical Surveillance:
Medical surveillance must be available at no cost to the employee, and at a reasonable time and place, for each employee who will be required under this section to use a respirator for 30 or more days per year. These medical examinations must be performed by a PLHCP and in accordance with applicable regulations.

General Guidelines - Miscellaneous:

- Medical surveillance will be provided in accordance with applicable regulatory requirements.
- Respirable crystalline silica should be incorporated into the Hazard Communication Program.
- Workers covered by this section must be able to demonstrate knowledge and understanding of:
    - The health hazards associated with exposure to respirable crystalline silica.
    - Specific tasks that could result in exposure to respirable crystalline silica.
    - Measures that have been implemented to limit exposure.
    - The identity of the employer's competent person.
    - The purpose and description of the medical evaluation procedures.
- Appropriate recordkeeping must be maintained in accordance with applicable regulatory requirements.
- Access to areas where respirable silica dust is being produced will be controlled to minimize the number of people exposed, when necessary. Examples of acceptable methods to control access include:
    - Creating a controlled access area with the use of hard barricades, danger tape, snow fence, or another equally effective method. Signage must be in place informing personnel to keep out because silica dust producing operations are being performed.
    - Performing operations at times when other personnel are not on the project such as night shift or weekends.
- Prior to reopening an area to other personnel, it is required that any silica dust that was produced during the operations be removed through HEPA vacuuming or dry sweeping to minimize any potential exposure to others.
- Compressed air or leaf blowers are not to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air or no alternative method is feasible.

17. Barricades

It is the responsibility of the contractor performing work in an area where access is restricted or where personnel need to be warned of a potential hazard and are required to install, maintain and remove the barricade once work is complete. Warning type barricades are not allowed to be used when there is a fall exposure or potential of serious injury. In these cases, a protective type of barricade must be used.

General Guidelines:

- Personnel are not allowed to cross any barricade unless they are authorized to do so and fully understand the hazards associated with crossing into a barricaded area.
- Maintain barricades so they effectively keep unauthorized personnel out of the area.
- Barricades are required and will be used around unprotected roof edges, and under overhead work.
- In some circumstances, an area may be barricaded warning personnel of multiple hazards. An example of this is a barricade around numerous excavations.
- Types of barricades include:
    - Warning – These call your attention to a hazard and keep people away from the area but offer no physical protection.
    - Caution Tape (yellow) implies that personnel can enter the area using caution after they have determined what the hazards are.
    - Danger Tape (red) indicates a high degree of hazard and that only authorized people associated with the work being performed can enter the area.
        - Danger tape is not a substitute for protective barriers, guardrails or hole protection.
        - Signage should be placed in danger areas indicating the hazard and responsible supervisor with contact information.
    - Snow Fence (orange) may also be used as a barricade in certain situations.
    - Protective – These barricades provide physical protection from falling and other hazards and must never be crossed without special consent and precautions. Examples of protective barricades include guardrail systems.

18. Lighting

Periodic safety audits will be used for the identification and review of the lighting requirements for work and access areas. Personnel will not be allowed to work in an area that doesn't have sufficient light. When light levels are found to be in question, a light meter will be used to measure light readings and the levels will be recorded.

It is the responsibility of the foreman to ensure that temporary lighting brought to the project meets the minimum lighting requirements as identified below.

It is the responsibility of the trade partner to provide task/temporary lighting, temporary illumination devices will meet applicable requirements for employees to work in a properly lighted environment.

Facility or Function	Foot Candles
General construction area lighting	5
General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling and field maintenance	3
Indoors: warehouses, corridors, hallways and exits	5

Tunnels, shafts and general underground work areas	5
General construction plant and shops	10
First aid stations, infirmaries and offices	30

19. Traffic Control

Traffic control on roads shall be accomplished in accordance with DOT Federal Highway Administration's MUTCD and local regulatory requirements. A traffic control plan developed by a qualified person must be submitted prior to the start of this work.

General Guidelines:

- Personnel exposed to traffic will wear, at a minimum, ANSI Class II high visibility vests or equivalent. There may be situations where a higher rated vest is required (night work, high traffic speed, low visibility).
- Only trained flaggers will be used to control traffic.
- Flaggers must be positioned so that they are not exposed to traffic or equipment approaching them from behind.
- Traffic control systems must be maintained and conform to MUTCD requirements.
- Pedestrian exposure must be controlled.
- When leaving a traffic control system unattended, such as at night or on weekends, verify all signage and controls are in place and the system is in proper condition.

20. Fire Prevention

All contractors must take the necessary steps to prevent a fire from occurring on the project. General guidelines for preventing fires on the project are detailed below.

Fire Extinguishers:

Fire extinguishers will be located around the project for general emergency use. In addition, fire extinguishers shall be provided by each trade partner performing hot work at points of hot work and fuel areas. Hensel Phelps will supply fire extinguishers as required in storage and building areas for general use. All extinguishers will be inspected, serviced and maintained in accordance with applicable regulatory regulations. Monthly Inspections will be documented on the tag attached to each extinguisher and extinguishers will be serviced annually. The number, type and location of fire extinguishers are outlined below. Note that local fire codes may have more strict requirements. Personnel should be trained on the use of fire extinguishers at least annually.

Location	Type	Minimum Number
Vehicles and Equipment	2.5 ABC	1
Field Offices	10 ABC	1
Material Storage	10 ABC	1
Where flammable liquid or gas is being used	10 ABC	1 within 30 feet
All other buildings	10 ABC	One per each 3,000 square feet or not more than 75 feet from any location

Hot Work Permits:
A Hot Work Permit must be obtained from the designated Hensel Phelps representative prior to commencing work activities that generate heat, i.e. welding, cutting, brazing, torching, Etc. (hot work). The hot work permit is valid for the workday and must be closed out when hot work is complete.

Fire Watches:
A dedicated fire watch shall be maintained for the required time after the conclusion of each hot work activity. This requirement may be extended as conditions warrant. Fire watch shall include the entire work area. Vertical and horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to ensure that exposed areas are monitored. Individual(s) designated to fire watch shall have fire extinguishing equipment with a minimum rating suitable for the hot work operation available and shall be trained in the use of such equipment. Where hose lines are required, they shall be connected, charged and ready for operation.

Flammable Liquids:
All flammable liquids, including paints, will be handled and stored in a manner to conform to applicable regulations. The storage area will be located at a designated area with a designated fire extinguisher near the area. “No Smoking within 50 Feet” signs will be posted in and on all required storage areas and materials. Only authorized personnel will be allowed access to these areas. When access is not required, the area will be secured.

21. Electrical Safety

This procedure establishes general guidelines for electrical safety.

Cords:
- All cords must be inspected prior to each use. Damaged cords must be immediately removed from service, red tagged or made inoperable. Do not use the cord.
- Extension cords must be a minimum of 12 gauge and rated for hard duty or extra hard duty.
- All extension cords must have a ground prong.
- Do not repair cords with tape. Only qualified personnel may make repairs. Follow manufacturer instructions.
- When feasible, suspend cords overhead with nonconductive material like zip ties or cover and protect in walkways. Keep cords out of access areas where they are a trip hazard or will be damaged by equipment.
- Cord connections should not rest in wet conditions such as puddles.
- If a cord must pass through a door or other pinch point, protect the cord to prevent damage.

Ground Fault Circuit Interrupters:
- Ground fault circuit interrupters (GFCI) must be used at the source for all activities requiring power on a jobsite, including plugging into permanent power.
- Test the GFCI before each use by pressing the “test” button and then the “reset” button.

Generators:
- Follow manufacture recommendations for grounding. Some generators are internally grounded.
- When refueling generators, make sure to shut off the power and use a funnel to avoid potential fuel spills and fire.

- Follow applicable requirements that are specified in the Storm Water Pollution Prevention Program.

Overhead Power Line:

- Keep equipment, cranes and other material away from energized overhead power lines.
- If you must work within 20 feet of overhead power lines, notify Hensel Phelps prior to engaging in the work activity.

Arc Flash Hazard Analysis:

- No work is allowed on or near any unprotected energized electrical systems greater than 50 volts. If this work is required and there are no other feasible options to de-energize a system, the following must be submitted to Hensel Phelps:
    - Written confirmation from the project owner allowing work to occur on the energized system.
    - The qualified electrical contractor performing this work must submit justification as to why de-energizing the system is not feasible.
    - An arc flash hazard analysis prepared in accordance with NFPA 70-E must be submitted to Hensel Phelps. This must include minimum working space that will be maintained.
    - Qualifications of the personnel performing the work and of the person that developed the hazard analysis.
- PPE that provides appropriate arc flash protection is required for all personnel working on or near exposed energized electrical equipment operating at 50 volts or more.

Temporary Power:

- Each contractor responsible for temporary power systems outlined below must inspect these systems using a qualified electrician at least monthly. Inspections must be documented and submitted to Hensel Phelps following the inspection.
    - Temporary power panels
    - Spider boxes, temporary power stations and cords connected to these stations.
- When installing temporary power, do not install temporary power in locations where they could be deteriorated by wet conditions.

22. Hazardous Energy

If any contractor will be working on or near any equipment or system and it is necessary to prevent unexpected energization, start-up, or release of stored energy, a written lockout/tagout program for the control of hazardous energy that meets or exceeds applicable standards must be submitted to Hensel Phelps for review before the work begins. An Activity Hazard Analysis for the specific operation must also be developed and submitted to Hensel Phelps.

General Guidelines:

- No work is to be done on any operable equipment until a zero-energy state is achieved and verified.
- Danger tags and locks will be used to prohibit operation of a valve, switch, or piece of power equipment.
- Only authorized personnel will place locks and tags.
- When tags are used, they will be single use and filled out completely. The tag should include the date, signature and the name of the person using the tag. Tags will be attached securely.

- Tags are never to be reused but destroyed immediately on removal. No alterations are permitted.
- No device shall be operated with tag or lock attached.
- Employees must affix their own lock/tag.
- Only a qualified person will place “multi-lock” devices when other crafts are involved in the shutdown.
- No one can remove the lock except the person who put it in place.
- Moveable parts shall be mechanically blocked or locked out prior to cleaning, servicing, or adjusting operations.
- Employees who are authorized and affected by the Lockout/ Tagout program shall be trained in the provisions set forth by their employer’s program and applicable regulations.

23. Conveyors

This section provides planning guidance for general safe work practices for conveyor safety. Prior to any activity on, over, under or next to conveyors, a detailed plan will be developed by the affected trade partner prior to starting work. Hensel Phelps management review and acceptance of the following documents is required.

- Activity Hazard Analysis/Method of Procedure which outlines the anticipated hazards, methods of control for each definable feature of work.
- Hazard Assessment and Application of Lock Out Tag Out is required to confirm the presence of hazardous energy and determine the sources.
- Review safety training requirements for personnel executing work.
- A communication plan to inform personnel and the public of pending operations.

Hazards Specific during Maintenance or Check Out:
Be aware of pinch points due to belts over pulleys and chains over sprockets. Sensing devices such as photo-eyes may be or may become out of adjustment causing unpredictable operation. Loads or product may be running on the system. During check out this may be unpredictable. Assembly or servicing equipment that is elevated or in difficult to reach locations. Potential for falling objects from overhead systems. Notify Hensel Phelps of any removed or missing Conveyor System guards.

General Conveyor Safety:

- Ensure communication is in place to inform personnel and the public of pending operations.
- Conveyor systems may start and stop without notice. Energy isolation procedures shall be accomplished in accordance with the most stringent program in place for the work location.
- Remove or cover loose clothing, hair and jewelry to prevent entanglement. Please note that some gloves could be a hazard.
- Guards and barriers must be in place and maintained while working on, over or in the immediate proximity of operating conveyors. A 36-inch clearance zone shall be maintained around moving conveyors, belts, pulleys or rollers.
- Stop work immediately if it is discovered that any guard has been removed.
- If guarding cannot be accomplished, a conveyor shall be shut down, locked, and tagged out prior to any work within the 36” clearance zone.

- If guarding must be removed while the conveyor is operational (testing and balancing operations), a specific AHA must be developed to address the project specific hazards.
- Emergency stops are only for emergencies and are not to be utilized as an isolation device.
- Manufacturer's warning signs are placed at various points on the equipment to alert personnel of potential hazards.

24. Cranes

This section provides general guidance for all crane activity.

General Guidance:

- All cranes assembled on site must receive a 3rd-party crane inspection by a qualified inspector prior to commencing initial lifting operations.
- Any crane involved in a near miss or accident that could cause damage to the crane must receive a 3rd-party crane inspection by a qualified inspector prior to commencing lifting operations.
- Load charts must be maintained on the crane and specific to the model, crane type, car body, counterweights, boom, jib configuration, wire rope size and blocks selected.
- Crane operators must be certified and familiarized with the crane.
- Crane operators must be evaluated by an individual who has the knowledge, training and experience necessary to assess the operator. During this evaluation, the evaluator will verify that the operator has sufficient training on the equipment they will be using. Documentation of the most recent evaluation must be maintained.
- Crane operators are responsible to monitor weather conditions and stop crane operations when in accordance with crane manufacturer guidelines or when crane operations cannot be performed safely.
- Methods for transmission of crane signals must be planned and signal personas trained. Signal person qualification paperwork must be maintained.
- Only qualified riggers can be used to perform rigging operations.
- Barricade the swing radius of cranes to keep unauthorized keep personnel away from pinch points.
- Follow all crane manufacturer's recommendations including inclement weather such as maximum wind velocity.
- Do not fly loads over personnel.
- Verify that whenever there is a safety concern, the operator shall have the authority to stop and refuse to handle loads until a qualified person has determined that safety has been ensured.
- Crane inspections must be completed daily and prior to use.
- Maintain a copy of all documentation, including the annual certification, with the crane.

Ground Conditions:

- Define the manufacturer's ground bearing pressure requirements for the specific configuration of the selected crane; include crane weight, load weight and radius of loads.
    - The crane manufacturer has calculators to compute this, attach sheets to your plan.

- The equipment shall not be assembled or used unless ground conditions are firm, drained (except for marshes/wetlands), and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials (blocking, mats, cribbing), the equipment manufacturer's specifications for adequate support and degree of level of the equipment are met.
- Reference the Geotechnical subsurface exploration information which identifies the allowable soil bearing pressure (Hard or Soft Conditions).
- The user of the equipment and the operator must know the location of hazards beneath and adjacent to the equipment set-up/operation area (voids, tanks, trenches, utilities).
- Verify each question on the "Crane Ground Condition's Checklist" is accurately answered, provide documentation as required. Complete a separate form for each crane.

Crane Submittal Documents (Cranes Assembled Onsite):
Prior to mobilizing any crane onsite, the following documents must be submitted to Hensel Phelps:

- Manufacturer's Crane Data and instruction manual
- Information used by the qualified person to select the crane including crane dimensions, footprint, capacity, assembly sections, etc.
- If above ground power lines are present, before assembling or disassembling a crane, determine if any part of the crane, load line or load (including rigging and lifting accessories) could get within 20 feet of a power line during the assembly/disassembly process. If yes, the following forms are required:
    - Power Line Planning Meeting Agenda
    - Power Line Safety Preparatory Agenda
    - Notification of Equipment Working Near Overhead Power Lines
- Detailed information of areas to be used and impacted, including:
    - Dates, times, and sequence of crane section delivery
    - Traffic impacts
    - Staging area of arriving trucks
    - Truck unloading area
    - Storage area of crane components
    - Crane assembly area
    - Load test area
    - FAA permits
    - Information on support equipment (Forklifts) needed to support the crane component delivery. (Operator Training Certification, Inspections, Cribbing, Barricades).
- Crane Assembly / Disassembly
    - Assembly/disassembly procedures to be used for each crane, if using the manufacturer's assembly procedures provide documentation of the procedures.
    - If using Crane Company procedure, provide approved procedure and verification of the credentials of the approving authority.
    - Documentation, including source of certification, for the A&D Director.
    - Training records and documentation of training for assembly crew, qualified riggers, qualified signal persons and crane operators.

    - Fall Protection plan for assembly crew. If aerial work platforms will be used provide training certifications/documentation, type of equipment, inspection records.
- List the assist crane loads, rigging requirements, boom pick points. Include details of each pick, rigging angles, weights of all rigging, actual loads seen on rigging, overall height of rigging from bottom of crane hook to bottom of the load, and rigging inspections.
- AHA specific for the assembly, inspection and pre-operational testing of the cranes to be used on this project.

25. Critical Lifts

This plan establishes the requirements to be followed for critical lifts using load handling equipment, which are non-routine lifts requiring detailed planning and additional safety precautions.

Critical lifts include any of the following:

- Lifts are made when the load weight is 75% (or greater) of the rated capacity of the crane.
- Lifts that require the load to be lifted, swung or placed out of the operator's view.
- Lifts involving more than one crane
- Lifts involving non-routine or technically difficult rigging arrangements.
- Lifts involving the hoisting of personnel.
- Lifts involving hazardous materials (e.g., explosives, highly volatile substances).
- Lifts involving submerged loads.
- Lifts without the use of outriggers using "On-Rubber Tire" load charts.
- Lifts where the center of gravity of the load could change.
- Any lift that the crane operator believes should be considered critical.
- Any lift that the crane operator believes should be considered critical.

Prior to making a critical lift, a qualified person shall prepare a critical lift plan. The crane operator, lift supervisor and rigger shall participate in the plan preparation. A Critical Lift Planning Worksheet shall be filled out by the trade partner or tier-contractor and submitted for review before work may begin. As a minimum, the plan shall specify:

- The specific make and model of each piece of load handling equipment, the line, boom and swing speeds.
- The exact size and weight of the load to be lifted and all load handling equipment and rigging components that add to the weight. The manufacturer's maximum load limits for the entire range of the lift, as listed in the load charts.
- The plan shall specify the lift geometry and procedures, including the load handling equipment position, height of the lift, the load radius, and the boom length and angle for the entire range of the lift.
- Site drawing shall be included to identify placement/location(s) of load handling equipment, adjacent equipment and/or facilities, etc.
- The operator, lift supervisor and rigger and include their qualifications.
- A rigging plan that shows the lift points and describes rigging procedures and hardware requirements.
- The ground conditions, outrigger or crawler track requirements, and, if necessary, the design of mats, necessary to achieve a level, stable foundation of sufficient bearing capacity for the lift.

- For floating load handling equipment, the plan shall describe the operating base (platform) condition and any potential maximum list / trim.
- Environmental conditions under which lift operations are to be stopped.
- Coordination and communication requirements for the lift operation.
- For tandem lifts, identify the requirements for an equalizer beam if applicable.

26. Rigging

This procedure establishes general guidelines for rigging.

General Guidelines:

- Only qualified and authorized personnel may perform rigging. These personnel must be identified in the Activity Hazard Analysis.
- An activity hazard analysis (AHA) shall be completed prior to any rigging activity being performed and shall be reviewed by all personnel involved in the rigging/hoisting operation(s) to be performed.
- Rigging equipment shall be inspected as specified by the manufacturer, by a Qualified Person, before each use on each shift, and as necessary thereafter to ensure that it is safe.
- Never use a sling or lifting device that is damaged or missing the manufacturer supplied tag or label. All tags and labels must be legible.
- Keep unauthorized personnel out from under suspended loads. This may require barricading an area or using horns.
- Ensure that no sling will come in contact with a sharp edge or surface when it is loaded. Padding or other softeners must be used to prevent this condition from happening and must be of sufficient material/strength to protect the sling.
- The use and maintenance of rigging equipment shall be in accordance with the rigging and equipment manufacturer. Rigging equipment shall not be loaded more than its working load limit (WLL). Always reference the manufactures data for multipoint rigging. Slings and hardware lose capacity as the angle changes.
- All hooks must have a safety latch. An exception to this is shakeout hooks used to unload material that is not being lifted overhead.
- Custom fabricated slings, grabs, hooks, clamps or other lifting accessories (e.g., equalizing beams, lifting or spreader beams, etc.) for such units as modular panels, prefabricated structures and similar materials shall be designed by a Registered Professional Engineer (RPE), marked to indicate the WLL, and shall be proof tested before initial use to 125% of their WLL.
- Chain slings must be rated for lifting and have a manufacturer supplied tag on them indicating capacity.
- Rigging equipment, when not in use, shall be removed from the immediate work area and properly stored and maintained in a safe condition.
- A tag line(s) shall always be used unless it creates an unsafe condition as determined by a qualified person. Note that some technologies are available on the market to control loads without a tag line and might be acceptable as an alternate.
- Never tie a knot or a loop in a tag line and ensure that it is free from entanglement. Tag lines should be of appropriate length to adequately control the load.

27. Fall Protection

This procedure establishes general guidelines for fall protection and control measures for situations that potentially contain fall hazards.

The supervisor for the contractor performing the work is responsible for the assessment, planning, training, implementation and monitoring for every task that requires the use of fall protection. If personnel on the project must wear personal fall protection equipment, a designated competent person must be onsite to oversee the operation and be designated in the Activity Hazard Analysis.

Contractors that install fall protection systems such as guardrails or hole / opening covers are responsible for the maintenance of these systems unless ownership is transferred to another company on the project.

Planning:
Prior to the use of fall protection systems, alternative methods to protect workers must be evaluated through the AHA process. Examples of alternative methods of fall protection include guardrails or scaffolds equipped with guardrails. The AHA must contain:

- The specific practices, equipment and control measures used to protect workers from falling.
- Identification of competent and qualified persons with proof of competency attached to the Activity Hazard Analysis.
- Training, inspection and maintenance requirements of the fall protection equipment.
- Anticipated hazards and fall prevention and control.
- Rescue plan and procedures.
- Design of anchorages/fall arrest and horizontal lifelines systems.

The Activity Hazard Analysis for activities requiring the use of fall protection systems must address the safe use of these systems. During this planning process, the following items should be considered:

- Walking/Working Surfaces: Determine if the walking/working surfaces on which employees work have the strength and structural integrity to support employees safely. Employees shall be allowed to work on those surfaces only when the surfaces have the requisite strength and structural integrity.
- Unprotected Sides and Edges: Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is six feet four feet (WA) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, personal fall arrest systems, or other acceptable systems. This may apply to:
    - Leading edges, floor / roof / wall openings
    - Hoist areas
    - Framework, reinforcing and structural steel
    - Ramps, runways, walkways and walking/working surfaces not otherwise addressed
    - Dangerous equipment
    - Overhand bricklaying and related work
    - Roofing work
    - Precast concrete erection

Design of Anchorages, Fall Arrest and Horizontal Lifeline Systems:

It is the responsibility of the competent person to verify that any anchorage being used for fall arrest will hold at least 5,000 pounds per person attached. Fall arrest and horizontal lifeline systems must be designed by a qualified person or purchased from a manufacturer qualified in the design and building of these systems. Areas where anchorage systems will be installed will be verified to be able to support at least a 5,000 pound load.

Inspection, Maintenance and Storage of Fall Protection Equipment:
All fall protection equipment shall be inspected prior to each use. Equipment must be cleaned and maintained in accordance with the manufacturer's recommendations. Field repairs are not allowed on fall protection equipment or devices.

Fall protection equipment shall not be stored in the sun where UV damage can deteriorate the equipment. The equipment shall not be stored around other equipment that may accidentally result in damage such as cuts and abrasions. Where possible, the equipment should be stored in jobsite trailers, conex boxes, specialty manufacture bags, dry locations and away from sun light.

Floor, Roof, Wall Openings:
All covers used to protect floor, roof or wall openings must be able to hold at least two times the maximum intended load; including any equipment in the area. Covers must be clearly labeled and physically secured to prevent inadvertent movement of the cover.

Rescue Plan and Procedure:
When personnel are required to wear a personal fall arrest system, a fall rescue plan shall be developed. The rescue plan should be reviewed during the Activity Hazard Analysis for that operation. Devices such as suspension trauma safety straps may be used to increase the time before orthostatic intolerance develops on a suspended victim; however, they cannot be the primary solution.

Self-rescue involves the employee rescuing themselves by pulling up or stepping to a surface removing them from a position of hanging in the harness. This type of rescue is completely dependent on the location of the fall and whether the victim is conscious or unconscious.

Assisted rescue involves rescue internally on the jobsite by trained personnel and will only be performed where relatively low skill sets are required. Proper training on the capabilities and requirements shall be completed prior to reliance on those systems for rescue. The following are examples of assisted rescues that could be performed by supervisory personnel from the jobsite:

- Manufactured rescue systems
- Moving a ladder into position that permits an employee to stand on it and disconnect from a lanyard or retractable
- Rolling mobile scaffolding under a suspended victim
- Utilizing an aerial lift to retrieve someone

Rescue that requires personnel to perform complicated forms of rescue such as repelling down interior building shafts or the exterior of a building is not allowed. Assisted rescue using External Emergency Services cannot be relied on as the only means of fall rescue.

28. Excavation and Trenching

This procedure establishes requirements concerning the inspection, barricading, shoring and sloping of excavations. A designated competent person must inspect any excavation or trench, prior to each shift, before work begins, and as conditions warrant. An Activity Hazard Analysis must be developed for operations involving any excavation or trenching activities and submit to Hensel Phelps before the operation can begin. This competent person must be designated in the Activity Hazard Analysis and present during that operation.

General Guidelines:

- Underground installations such as sewer, telephone, fuel, electric, water lines or any other underground installations shall be located prior to start of actual excavation. An Excavation Utility Permit (Form C30.01) shall be completed by each contractor prior to the start of each excavation / trench.
- The One-Call Center request will only be valid for a short period of time from the date and time the request was submitted. Verify the timeframes before making the request. If the operation requires more time to complete, then the One-Call Center must be updated at least two days (Saturday and Sunday excluded) prior to the expiration of the current staking request. In addition, if an operation is to be placed on stand-by or abandoned for a period of time the One-Call Center should be kept updated through the down time. This will prevent any delay in the restart of an operation.
- Newly constructed work is not covered by the One-Call Centers (e.g., drainage, ITS, electrical trade partner new / temporary installations). As built drawings and plans must be maintained and will need to be referred to for locations of this work.
- Utilities located by the One-Call Center will have a safe zone that is determined by the authority having jurisdiction. Verify with the One-Call Center the measurement of your safe zone. Generally, this is 18 inches (24 inches in California).
- Before excavating operations begin, potholing for existing utilities will be performed by the contractor performing the installation of a new utility.
- A minimum of 36 inches must be maintained between a marked and unexposed underground utility and the cutting edge or point of any power operated excavation equipment. If excavation is required within 36 inches parallel of any marking, the excavation will be performed with care utilizing hand tools and/or vacuum excavation techniques.
- Rescue procedures must be preplanned when workers are at depths greater than five feet.
- Operations near high priority subsurface installations (e.g., high pressure pipelines, natural gas/petroleum pipelines, electrical lines greater than 60,000 volts) that are located within 10 feet of the proposed excavation will require a meeting with the owner of the line or utility prior to the start of the operation.
- Means of egress from trench excavations of four or more feet in depth will consist of a stairway, ladder or ramp located within 25 feet of employees working in the excavation/trench.
- Ladders used as an access egress shall extend from the bottom of the excavation to not less than three feet above the surface. The bottom and top of the ladder shall be secured and a rope shall be provided for the hoisting of tools.
- Spoil piles and equipment must be maintained at least two feet from the edge on excavations.

- Adequate stop logs or berms will be used if equipment is required to be working near an excavation or trench.
- Excavations must be sloped, benched, or shored when five feet in depth or greater or at depths less than five feet when the competent person determines protective measures are necessary due to existing conditions.
- Any trench or excavation greater than 20 feet in depth requires engineering for all protective systems.
- Where excavations are to be performed in areas known or suspected to contain explosives, unexploded munitions, or military ordnance, surface, and subsurface clearance by qualified explosive ordnance disposal (EOD) personnel shall be accomplished prior to excavation work.

29.Confined Space Entry

Employers that will be working in permit required confined spaces shall have a written permit required confined space entry program that meets or exceeds applicable standards. This program must be submitted to Hensel Phelps for review before the work begins. Any potential hazards that may be confronted or created in or around the space must be communicated to Hensel Phelps.

Prior to work at the project site, each trade partner must ensure that a competent person identifies all confined spaces in which one or more employees it directs may work, and identifies each space that is a permit space, through consideration and evaluation of the elements of that space, including testing as necessary. It is the responsibility of each trade partner to supply the necessary equipment that is required for confined space testing and entry at no cost to their employees or Hensel Phelps.

General Guidelines – All Confined Spaces:

- All employees involved in confined space entry will be trained in their applicable duties before entering a confined space. Employees will be retrained when conditions change or when there are deviations from the established procedures or when there are inadequacies in the employee's knowledge of the procedures.
- All persons entering the confined space shall be instructed as to the hazards involved, the precautions to be taken, the use of protective and emergency equipment, and the use of rescue equipment, as necessary.
- A means of quick, safe entry and exit shall be provided and be available during the occupancy of the confined space.
- When there are fall hazards (e.g., manholes) guardrails will be installed. If a guardrail cannot be installed or will interfere with the work being performed, personal fall arrest must be used if personnel are exposed to a fall.
- Protection will be provided for falling objects if there is a potential that something may fall into the space.
- Prior to employees entering a confined space, atmospheric testing for oxygen, combustible gases and vapors, and potential toxic air contaminants will be completed with a calibrated instrument that the user has been trained on how to use. Testing will be conducted before changes to the space's natural ventilation are made. Any party entering the confined space will be allowed to observe atmospheric testing and see the results of the test. Any party involved in the entry can request that we reevaluate a confined space.

- Cylinders containing oxygen or acetylene or other fuel gas shall not be brought into confined spaces.
- If there is a hazard observed or detected at any time while in the confined space, all entrants must exit the space immediately.
- Lighting equipment must meet the requirements of 1926.56, that is approved for the ignitable or combustible properties of the specific gas, vapor, dust or fiber (intrinsically designed) that will be present, and that is sufficient to enable employees to see well enough to work safely and exit the space quickly in an emergency.

Permit Required Confined Spaces:

- All permit required confined spaces must be adequately protected to keep unauthorized personnel from entering the space. Caution or danger tape is not an acceptable barricade. Entry employers are responsible to ensure that adequate measures are taken before, during and after an entry.
- The entrance to permit space must have danger signs identifying the existence and location of each permit space.
- If more than one entity enters a space or when permit space entry is performed at the same time as other activities that could result in a hazard in the space, Hensel Phelps will assist in coordinating the entry.
- Before entry operations begin, each entry employer must:
    - Obtain all the Hensel Phelps information regarding permit space hazards and entry operations.
    - Inform Hensel Phelps of the permit space program that the entry employer will follow including any hazards likely to be confronted or created in the space.
- Prior to anyone entering a permit space, the entry employer's competent person must identify and evaluate the hazards of the space. No one is allowed to enter the space until acceptable entry conditions are met, and the conditions are documented on the entry employer's permit and the entry supervisor signs the document. The conditions on the permit will be verified by the competent person and Hensel Phelps Area and Project Superintendent.
- Executed permits must be posted at the entrance to the confined space. A copy of the terminated permit must be supplied to Hensel Phelps once work in the space is complete.
- Executed permits are only valid for the specified work, location and time period indicated on the permit.
- Continuous air monitoring will be conducted for all permit required confined spaces and any permit space that has been declassified to a non-permit space.
- After entry into a confined space, all entry employers must inform Hensel Phelps of the program that was followed, and any hazards confronted or created in the space during the entry.
- A continuous means of communication shall be maintained between the entrants and the attendant. If electronic communication equipment is used (e.g., radios) the must also be intrinsically designed. Communication methods will be outlined on the confined space permit.
- Conditions in the permit space must be maintained and verified as acceptable for entry throughout the duration of entry and there may be no hazardous atmosphere within the space at any time when an employee is inside the space.

- Sufficient manpower shall be available outside the confined space to help rescue if it becomes necessary. At least one standby attendant, having available the same protective equipment and clothing as the person inside the confined space, shall be present at the entry point throughout the occupancy and must maintain communications with the persons inside. The rescue system used for the space must be rehearsed prior to entry into the space.

List of Permit Required Confined Spaces:
The following is a list of the identified permit required confined spaces on the project. This list will be communicated to everyone on the project through the Site-Specific Safety Orientation. Workers will be reminded of these spaces and informed when this list changes through tailgate meetings. Concerns about potential permit required confined spaces must be brought to the attention of Hensel Phelps so this list can be updated, and the appropriate action taken.

Permit Space	Location	Hazard	Precautions
72" waterline vaults			
Elevator pits			

30. Ladders

This section contains general guidance for ladder safety. It is encouraged to access work at height with an alternate means such as a scissor lift or scaffold, when feasible.

General Information:

- Ladder users must be trained and understand how to safely use a ladder before use.
- Ladders must be inspected before use. Never use a damaged ladder. Tag the ladder "DO NOT USE" and remove it from service.
- Ladders are to be secured or barricaded where they could be displaced by traffic or other work activities.
- Ladders must be set up on firm, level and stable ground. Access at the top and bottom of the ladder must be kept clear and free of trip hazards.
- If it is necessary to place a ladder in a doorway, barricade the door and post warning signs.
- Review and follow manufacturer guidelines.
- Check the capacity of the ladder and verify that you will not exceed it. Be sure to include the weight of any tools or material that you will be handling.
- Ladders must be rated as Type I or greater.
- When handling material, consider using a boom lift or scaffold instead of a ladder.
- Do not paint or modify ladders.
- Ladders can only be used for their designed purpose. As an example, do not use ladders for skids, braces, workbenches or scaffold plank supports.
- Do not carry anything in your hands when climbing up or down a ladder. Maintain at least three points of contact. If necessary, use a rope to raise tools or equipment to an elevated level.
- Face the ladder at all times.

- Portable metal ladders are not allowed.
- Keep your body within the rails of the ladder. Do not reach out too far.
- Fall protection is required when working in areas near a shaft, over a guardrail, or adjacent to stairs where a six-foot or greater fall exposure exists and over dangerous equipment in operational status.
- An alternative may be to work from a rolling scaffold or boom lift.

Step Ladders:

- Step ladders must be fully opened with the spreaders locked in place. A step ladder should never be leaned against a wall unless it is a hybrid ladder and approved by the manufacturer.
- Do not stand on or above the top rung. Follow the warning label for maximum working height.
- Do not straddle a ladder.
- Do not leave tools or material on the top cap of the ladder.
- Do not sit or stand on the top cap of the ladder.
- Only stand and climb on designated ladder rungs.

Straight and Extension Ladders:

- Do not set up ladders near live overhead power lines.
- Set up ladders at a 4:1 ratio.
- Ladders used to access an elevated level must extend at least three feet above the landing.
- An off-set handrail system must be erected at the point of access to upper-level landing.
- When used for access, secure ladder at the top and the bottom.
- Do not separate extension ladders.
- Maintain the rope and pulley system on extension ladders.
- Once an extension ladder has been raised to the desired height, check to see that the safety latches are engaged.
- Maintain adequate overlap of extension ladder sections. Manufacturer requirements may vary, but generally require three or four rungs of overlap.
- Do not stand on the top three steps of an extension ladder.

Job-Made Ladders:

- Only trained and authorized personnel can construct job-made ladders.
- Job-made ladders must be made in accordance with applicable OSHA requirements.
- Use of job-made ladders is the same as straight ladders.

31. Scaffolds

This procedure establishes general guidelines for scaffold use. It is required that a registered professional engineer design any scaffold when it exceeds 50 feet in height. Their stamped drawings must be submitted to Hensel Phelps before scaffold erection. This does not apply to stair towers.

General Guidelines:

- Only personnel that have been trained can access scaffolds.
- Only personnel that are trained, authorized and directed by the competent person qualified in scaffold erection can modify scaffolds.

- A competent person must inspect each scaffold before use and be onsite when any work on the scaffold is being performed.
- A scaffold tag is required at each access point.
    - A green tag with a current inspection noted on the tag indicates the scaffold is safe for use.
    - A red tag indicates that the scaffold is not safe.
        - Never access a scaffold with a red tag.
- Do not work on scaffolds during high winds, during storms or when covered with ice or snow.
- Guardrails or other adequate fall protection must be provided at heights above six feet. Cross braces cannot be used as a complete guardrail system. They can be used as either a top rail or mid rail, but not both.
- Planks must be scaffold grade. Manufactured aluminum planks can only be used on scaffolds designed for their use and must be used in accordance with manufacturer recommendations.
- Scaffold must be fully planked with no holes or openings.
- Scaffolds planks cannot be damaged. Examples of damage include cracks or saw cuts on the scaffold plank.
- The base of the scaffold must be on firm footing (baseplates with mudsills or casters).
- Adjusting screws must not be overextended. As a general rule, no more than 12 inches of thread should be showing.
- Safe access must be provided to scaffolds. Examples of safe access includes stair towers or ladders.
- Debris, tools and material are not allowed to accumulate on the scaffold or at access points.
- Never exceed a scaffold's rated capacity.
- Scaffold must be supported to keep it from falling or tipping by means of ties to the structure or bracing. Note this is only required if the scaffold exceeds a 3:1 height to width ratio.
- Scaffolds must be level, square and plumb.
- Toeboards or adequate falling object protection must be provided when personnel may pass next to or under the scaffold.
- All wheels must be locked on mobile scaffolds when in use. Surfing or self-propelling is not allowed.
- Scaffold parts and sections made by different manufacturers cannot be used together unless the components fit together without force and the structural integrity is maintained.
- Work on suspended scaffolds requires specialized training. Personnel are required to have guardrails and tie off on suspended scaffolds.
- Mobile scaffolds are required to have a diagonal brace or decking installed in accordance with manufacturer recommendations to prevent racking.

32. Powered Industrial Equipment

This procedure establishes general guidelines for using powered industrial equipment.

General:

- Only qualified and authorized employees may operate equipment. If applicable, proof of training must be submitted to Hensel Phelps with the Activity Hazard Analysis for the operation.

- Trade partners, suppliers and delivery companies are prohibited from borrowing equipment from Hensel Phelps unless a Hensel Phelps' trained and authorized operator runs the equipment.
- Hensel Phelps prohibits borrowing equipment from trade partners unless the trade partner provides a qualified operator.
- Keep personnel away from moving equipment and out of pinch points.
- All machinery must be inspected at the beginning of each shift. Unsafe equipment must be tagged and taken out of service immediately. Refer to operator manual for inspection criteria.
- Backup alarms must be operational and able to be heard above surrounding noise.
- Never allow riders on the machine.
- The operator's manual and load charts (if applicable) must be available on the machine.
- Equipment attachments must be allowed by the manufacturer and reflected in the load chart.
- Personal protective equipment must be worn within the cab unless all doors and windows are closed, and the cab is fully enclosed.
- All lifting equipment, including spreaders, must have the capacity clearly marked on the equipment.
- No modifications to equipment are allowed unless authorized by the manufacturer. Proof of authorization is required to be with the equipment.

Operating Practices:

- Seatbelts must be worn at all times.
- Before digging, obtain a dig permit and know the location of all aboveground and underground utilities. Ensure they are properly marked.
- Use a spotter in tight or congested areas and in areas with a limited view.
- When driving, keep the boom, blade or bucket low to the ground to improve stability and to avoid hitting overhead obstructions.
- Keep machinery far enough away from trenches to keep them from collapsing.
- Park equipment on a level surface and lower the blades / bucket or boom. Set the parking brakes and put the controls in park / neutral.
- Remove the keys from the equipment when not in use.

33. Boom and Scissor Lifts

This procedure establishes general guidelines for using boom and scissor lifts. Aerial boom lifts require a daily permit and risk assessment (Form C18.03) be completed prior to use and be available on the equipment during operation. This permit is in addition to the pre-operation inspection that must be conducted by the users. A daily risk assessment for scissor lifts must also be conducted but is not required to be documented.

General Guidelines:

- Only trained and authorized personnel are allowed to operate boom or scissor lifts.
- Trade partners, suppliers and delivery companies are prohibited from borrowing Hensel Phelps equipment unless a Hensel Phelps trained, and authorized operator operates the equipment.
- Hensel Phelps prohibits borrowing equipment from trade partners unless the trade partner provides a qualified operator.

- Lifts must be inspected prior to use. Make sure the controls and all safety devices are working properly. Equipment that is not safe will be taken out of service immediately.
- Tie off is required using fall restraint in boom lifts. Follow manufacturer instructions for tie off procedures in scissor lifts.
- Personnel are only allowed to stand on and work from the work platform.
- Survey the work area before each operation. Be aware of ground conditions, overhead conditions, obstructions and power lines.
- Holes, trenches, excavations, drop-offs and similar hazards must be protected using stop logs, rated barricades, or in-fill materials during boom and scissor lifts use.
- No modifications to equipment is allowed unless authorized by the manufacturer. Proof of authorization is required to be with the equipment.
- Charge equipment in well-ventilated areas to eliminate gases from accumulating from batteries.

34. Hazard Communication Plan

Responsibilities:
The Superintendent at each job is designated as the person responsible for implementing this written program. The elements of this program may be delegated to other personnel on the project with oversight from the Project Superintendent.

Definitions:
- Chemical: any substance, or mixture of substances.
- Hazardous chemical: any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas or hazard not otherwise classified.
- Hazard statement: a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
- Pictogram: a composition that may include a symbol plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information about the hazards of a chemical.
- Precautionary statement: a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.
- Safety Data Sheet (SDS): a written or printed material concerning a hazardous chemical that is prepared by the producer of the chemical.
- Signal word: a word used to indicate the relative level of severity of hazard and alter the reader to a potential hazard on the label.

Compliance Procedures:
This written Hazard Communication Program is available upon request to employees and their designated representative at any time. The location of the Hazard Communication Program will be discussed in the site-specific safety orientation. Trade partners are required to have a Hazard Communication Plan and applicable Safety Data Sheets for chemicals they will be using.

Each project will maintain a list of chemicals that are on each jobsite using MSDS Online. Safety Data Sheets (SDS) for all chemicals on the jobsite will be retained in this system.

Train employees on chemicals they work with utilizing the SDS and manufacturer supplied labels. Provide information and training to all employees relative to the Hazard Communication Regulation and

about any known potential exposure to hazardous chemicals. Trade partners are responsible to train their employees.

Records of employee accidental overexposure to hazardous chemicals will be retained in the incident reporting site.

Make available to and share with other contractors or trade partners the SDS information on hazardous chemicals on the jobsite.

Identification of Hazardous Substances:
All chemicals used on this project (including trade partners) will be entered into MSDS Online. Trade partner chemicals brought onto site will be entered into MSDS Online and entered into the "ebinder" under their name for that project. Those chemicals that meet the definition of "hazardous waste" and fall into the criteria of the site-specific contingency plan will be noted accordingly in the Safety Data Sheet "ebinder" by checking the hazardous material box.

Safety Data Sheet (SDS):
SDSs for all chemicals that employees may be exposed are kept in the jobsite "ebinder" or other designated location. Safety Data Sheets will be available to employees wherever they are working. This will primarily be accomplished using signage posted around the site with a QR code (form A03.04) allowing access for anyone to view the SDS. All personnel will be trained in this system during Safety Orientation. In some circumstances it may be necessary to have a printed copy of this information available. Each project should also create a backup of the project's SDS Log and "ebinder" on a designated computer after the SDS inventory is updated. In some cases, this back up may need to be available on a designated computer available to all personnel.

When ordering chemicals, all supervisors will request an SDS for that chemical. If an SDS is missing or incomplete, a new SDS will be requested from the manufacturer or supplier. Hazardous Communication Safety Data Sheets (SDS) (Form A03.05) describes all required elements of a SDS. The Superintendent or their designated representative will review incoming safety data sheets for new and significant health and safety information. They will ensure that any new information is passed on to the affected employees.

Safety Data Sheet (SDS) Access During Emergencies:
Each project should create a backup of the project's SDS Log and "ebinder" on a designated computer after the SDS inventory is updated. This will be done so that this information is available in the event wifi or power is down. In some circumstances it may be necessary to have a printed copy of this information available. Note that if a SDS is not available during an emergency, or you need exposure support, you can call our 24/7/365 Chemical Emergency Response Hotline at 1.800.255.3924 to get a copy of a SDS. You will need to provide the manufacturer name, product name, and an email or fax number.

Labeling:
Material received at the jobsite must be properly labeled by the manufacture or supplier (refer Hazard Communication Standard Labels (Form A03.06) for an example). If labels are not provided, illegible or incomplete, do not accept the material. Labels must never be removed and should be replaced if they become illegible.

Manufacture supplied labels must provide the following:

- Identity of the chemical products or substances in the container;
- Signal word;
- Hazard statement(s);
- Pictogram(s) (Form A03.07 shows Hazard Communication Standard Pictograms);
- Precautionary statement(s); and
- Name, address, and telephone of the chemical manufacturer, importer or other responsible party.

Only those chemicals that can be classified as "Immediate use" and are under the control of the person who transferred it are exempt from the labeling procedures detailed above. These containers must be labeled with the contents of the container.

Training:

Employee training will be conducted at various frequencies, including:

- Site-Specific Safety Orientation;
- Toolbox Meetings;
- Activity Hazard Analysis review;
- Safety Task Assignment; and
- Formal safety training.

Depending on the scope of the training, training topics may include information on the following:

- An overview of the requirements contained in the Hazard Communication Program, labeling requirements and overview of the safety data sheet.
- Inform employees of any operation in their work area where hazardous chemicals are present.
- Location and availability of the written Hazard Communication Program.
- Location of Safety Data Sheets and the associated list of hazardous chemicals on the project.
- Physical and health effects of the hazardous chemicals.
- Methods and observation techniques used to determine the presence of or the release of hazardous chemicals in the work area.
- How to lessen or prevent exposure to these hazardous substances through the use of engineering controls, work practices and/or the use of personal protective equipment.
- Steps the company has taken to lessen or prevent exposure to these chemicals.
- Emergency and first-aid procedures to follow if employees are exposed to hazardous substances.
- How to read labels and review a SDS to obtain appropriate hazard information.

For non-routine tasks, employees will be trained on the hazards through a tailgate meeting, activity hazard analysis review or through a Safety Task Assignment.

General Contractor and Trade Partner Responsibilities:

When employees of a trade partner may be exposed to hazardous chemicals on the jobsite, Hensel Phelps will make available a list of the hazardous chemicals and the applicable SDSs. Each trade partner is required to have their own Hazard Communication Program.

Trade partners must provide the appropriate SDSs to Hensel Phelps for all chemicals being used by their company at the jobsite. They must also retain a copy of any SDS for all chemicals being used by their employees. Trade partners will complete the Trade Partner Chemical Questionnaire (Form A03.08) and the Trade Partner SDS Log (Form A03.09). The chemicals that the trade partners submit to Hensel Phelps will be transferred to the project's Safety Data Sheet "ebinder" in MSDS Online.

Each employer is responsible for the appropriate training of his or her employees.

Recordkeeping:
The following documentation is required to be maintained at each project for review by any employee or their designated representative upon request:

- Safety Data Sheet Log (MSDS Online);
- Trade Partner Chemical Questionnaire (Form A03.08);
- Safety Data Sheets for all chemicals being used on the project;
- Records of any employee accidental over-exposure to a hazardous chemical;
- Records of any atmospheric testing;
- This written Hazard Communication Program; and
- Employee training records.

35.Hazardous Materials and Waste Site-Specific Contingency Plan

This plan applies to the performance of any work related to the project which will directly or indirectly result in the handling of hazardous materials or generation of hazardous waste. Project personnel (including Hensel Phelps employees and trade partners and their employees) are responsible for complying with this plan.

Identification of Waste / Generation Activities:
Trade partners must provide the appropriate SDSs to Hensel Phelps for all chemicals being used by their company at the jobsite. They must also retain a copy of any SDS for all chemicals being used by their employees. Trade partners will complete the Trade Partner Chemical Questionnaire (Form A03.08) and the Trade Partner SDS Log (Form A03.09). The chemicals that the trade partner submits to Hensel Phelps will be transferred to the project's "ebinder" in MSDS Online. Each employer is responsible for the appropriate training of his or her employees.

The project will use MSDS Online to maintain the Safety Data Sheet Log from Hensel Phelps' Hazard Communication Program to track hazardous materials on the jobsite. Check the "hazardous" box if the material falls into this program.

The project may generate hazardous waste from the following sources:.

- Scope of work includes the abatement and/or remediation of the known hazardous materials.
- Certain trade partners' work will require the use of hazardous materials and/or the generation of hazardous waste. The trade partners have been notified through the use of the Trade Partner Chemical Questionnaire (Form A03.08) that the safe management of hazardous materials and proper disposal of hazardous waste is the sole responsibility of the trade partner.

- Hensel Phelps, during project closeout, will likely generate a small amount of hazardous waste from surplus hazardous materials that cannot be transferred to another jobsite or returned for beneficial use.

Note: A container that once stored a hazardous material and is now "empty" does not require any special handling or disposal as a hazardous waste. Empty is defined as: a) an aerosol or otherwise pressurized container that approaches atmospheric pressure; b) No more than one inch of unused product at the bottom of the container; or c) three percent by weight for containers less than 110 gallons and 0.3 percent by weight if the container is greater than 110 gallons.

Each trade partner is responsible to dispose of their waste in accordance with applicable regulatory requirements. If the owner has agreed to provide an EPA generator ID, contact Hensel Phelps for this number.

General Requirements:
The storage areas for hazardous materials for the project are identified on "The Site Plan" included within this plan. Storage areas designated for storage of hazardous materials shall have the following qualities:

- Two points of egress from the area in the event of a release or spill, or from the storage area if larger than 500 square feet.
- Appropriate protection from severe or inclement weather.
- Well-ventilated and, if required, based on local climatic conditions and materials involved, temperature controlled.
- Appropriate separation from other general traffic project areas.
- The entrance to the storage area shall clearly indicate the storage of hazardous materials and that access is restricted.
- All storage containers shall have appropriate labels describing the contents and nature of each container (to prevent mixing of incompatible materials).
- All containers will be labeled with the trade partner's name.

Prior to and during use, hazardous materials shall be stored in the manufacturer supplied containers or in storage containers approved by the manufacturer or supplier and by applicable regulation. Secondary containment shall be used in the storage area if a hazardous material spill has the potential for entering floor drains or the ground, or for creating additional hazards. All containers must remain closed when not in use.

Upon completion of a project and the determination that surplus hazardous materials will require off-site disposal, hazardous waste stored in the storage area shall be removed from the site for disposal by a qualified hazardous waste disposal company to a qualified disposal facility in accordance with manufacturers' recommendations and regulatory requirements.

Hazardous waste shipped off-site must be transported by a qualified and licensed transporter to a qualified and licensed storage or disposal facility. Hensel Phelps will not transport hazardous waste materials. A manifest will accompany any hazardous waste offered for shipment off-site.

Spill Containment Equipment:

Spill containment equipment shall be strategically located within 50 feet of the storage area to allow immediate response to small spills or fires. The following spill containment equipment is recommended:

- ABC-type fire extinguisher (20 lb.) for ordinary combustibles, flammable liquids and gases, and electrical equipment fires
- One air horn for sounding alarm
- One 55-gallon drum of dry sorbent material (i.e., sawdust) for containing and preventing the spread of spills
- One empty 55-gallon drum for collection of spill-soaked sorbent material
- One scoop shovel for clean-up purposes
- Personal protective equipment as required and as described by the chemical SDS sheet

The inventory of spill containment equipment shall be stored outside of the storage area. Signs will be posted to identify the location of emergency response equipment and the storage area.

Recordkeeping:

The following recordkeeping must be maintained, and copies submitted to Hensel Phelps:

- The contractor responsible for characterizing, packaging, transporting and disposing of hazardous waste for a project shall provide copies of all manifests and land disposal restriction notifications.
- The signed, returned manifest from the qualified Treatment, Storage and Disposal Facility (TSDF) acknowledging the receipt of hazardous waste shipment.
    - If a signed manifest is not received within 35 days, contact the TSDF by telephone to verify shipment status
    - If a signed manifest has not been received within 45 days, prepare and submit an exception report, as required by the EPA
- Safety Data Sheets (SDS) shall be readily available.

Trade Partner Data:

The Project Superintendent and Project Manager shall be responsible for obtaining completed Trade Partner Chemical Questionnaires and Trade Partner SDS Logs to identify potential sources of hazardous materials and the subsequent generation of hazardous waste that occur during the performance of the trade partner's work. An example Trade Partner Chemical Questionnaire (Form A03.08) is provided in this SSCP. The associated trade partner Safety Data Sheet Log must also be completed by each trade partner, identifying all hazardous materials by checking the "hazardous material column" (Form A03.09). Deciding Whether Hazardous Waste Regulations Apply to You (Form A03.10) should be attached to the trade partner SDS Log when sent to the trade partner to help them identify their hazardous material. Once the trade partner submits their SDS Log to Hensel Phelps, the information will be transferred to the project's e-binder so a complete list of chemicals on the site is maintained.

Audits/Inspections:

Weekly inspections of the hazardous materials storage areas and emergency equipment storage areas will be conducted by Hensel Phelps. The inspection reports shall be maintained in the project safety records. A Hazardous Materials Storage Area Weekly Inspection Summary (Form A03.11) is included in this SSCP. Trade partners are responsible to inspect their storage areas and the corresponding emergency equipment.

Upon completion of a project the following documents shall be distributed and maintained for the period of time indicated.

A complete record of disposal manifests, land ban restrictions, and incident reports shall be submitted to the owner, or the responsible entity identified as the Generator (listed on application for an identification number).

Emergency Response Procedures:
If a spill, fire or explosive condition is observed during regular working hours, the person observing the condition shall follow notification chain (below). The Project Superintendent (or most senior person onsite) will determine the urgency of the situation and take appropriate action according to "Containment / Clean-up" (below).

In the event of an emergency, the following persons shall be notified in order of appearance:

- All personnel in the vicinity of the hazard shall be warned of the hazardous situation
- If a situation exists that is immediately dangerous to life and health (such as a fire or explosive situation) or a serious injury has occurred, call emergency telephone
- Notify the following personnel, as applicable:
    - Project Superintendent, Jon Ricketts 619-549-1242
    - Site Safety Managerr, Nick Roehr 858-401-0326
    - Mathew Strutz, Hensel Phelps Environmental Manager, 970.371.6976
    - Hensel Phelps Corporate Legal Department, 970.352.6565
- Note that if a SDS is not available during an emergency, or you need exposure support, you can call our 24/7/365 Chemical Emergency Response Hotline at 1.800.255.3924 to get a copy of an SDS. You will need to provide the manufacturer name, product name and an email or fax number.

Evacuation Plan:
An evacuation of the building shall be called if a hazardous situation exists that immediately threatens the life or health of the occupants. The building shall be evacuated according to The Emergency Response Plan. The evacuation routes may be deviated from, depending on the location of the hazard. Generally, evacuation shall be away from the hazard to the nearest available exit.

No one will be permitted back inside the building until the fire department, emergency response unit, or the Project Superintendent has evaluated and determined that the hazardous situation is no longer present.

Containment/Clean-up:
In case of unplanned release or spill of hazardous or potentially hazardous materials:

- To the air:
    - Ventilate the space
    - Reseal/close containers
- To the soil:
    - Contain/stop the flow of hazardous liquid
    - Use sorbent material to minimize release into ground
    - Place contaminated soil and sorbent material into empty 55-gallon disposal drum

    - Contact a qualified hazardous materials disposal contractor to remove all contaminated material
- To the groundwater:
    - Contain/stop the flow of hazardous liquid
    - Use sorbent material to minimize release and impact to groundwater
    - Conduct site characterization to assess the extent of impact
- To surface water:
    - Contain/stop the flow of hazardous liquid
    - Use sorbent material to minimize release to surface waters
    - Place contaminated water and sorbent material into empty 55-gallon disposal drum
    - Contact a qualified hazardous materials disposal contractor to remove all contaminated material
- In case of fire:
    - Sound alarm and evacuate area
    - Extinguish fire with ABC-type extinguisher (unless you are uncertain of the nature of the fire)
    - Do not breathe in vapors or smoke
    - Be aware of explosive hazards
    - If explosive hazard is present, evacuate and call the emergency number
    - If fire cannot be extinguished, call the emergency number
    - After fire is extinguished, clean-up debris and place into empty 55-gallon disposal drum
- In case of explosion or potential explosion:
    - If explosion occurs:
        - If fire erupts, follow fire procedures (above)
        - If spill results, follow applicable section above
    - If explosion potential exists:
        - Sound alarm and evacuate area
        - Call the emergency number

Training:
Hensel Phelps personnel shall be made aware of the Hazardous Materials and Waste Management Program and the project's Site-Specific Contingency Plan through Hensel Phelps' existing Hazard Communication training and the Hazardous Material and Waste Management Awareness Training. Trade partner employees must be trained by their employer in accordance with applicable regulations.

36. Severe Weather

Severe Weather - Cal/OSHA Wildfire Smoke (Form A03.12)

Severe Weather – WA State Wildfire Smoke (Form A03.15)

Severe Weather – Hurricane (Form A03.13)

Severe Weather – Tornado (Form A03.14)

Severe Weather – Earthquake (Form A03.16)

Severe Weather – Lightning (Form A03.21)

37. Heat and Cold Stress

The purpose of this plan is to define hazards associated with working in inclement weather environments, to prevent injury, temperature related illness, establish protocols for treating affected employees, and to establish adequate controls.

Hot Environments:
This plan should be implemented when the heat index exceeds 80 degrees Fahrenheit. When working in hot environments, the Project Superintendent is responsible to monitor temperature and implement this plan when necessary. Drinking water will be made available as outlined in the site sanitation plan. Each trade partner is responsible for providing water for their crew. In hot environments, reasonably cool drinking water will be available to personnel, and they will be encouraged to drink water frequently. Drinking water must be suitably cool in temperature and all common drinking water containers must be supplied with potable water, individual drinking cups and a trash can. Employees will be encouraged to drink plenty of fluids throughout the workday.

Training will be conducted as necessary using formal training, toolbox meetings and / or Safety Task Assignments. Employee training will be in a language each employee can understand and include:

- Hazards of heat related illness
- Prevention methods
- Recognizing signs and symptoms of heat illness
- First aid and emergency response
- The effects of certain prescription / illegal drugs, alcohol, caffeine, certain medical conditions and other factors that may increase the risk of heat illness
- Procedures in place at the site

Heat stress will be addressed in Activity Hazard Analysis, as applicable. Considerations in the development of the Activity Hazard Analysis will include:

- Work conducted on days when the heat index exceeds 80 degrees Fahrenheit
    - Considerations for unique situations where the temperature needs to be lowered such as work in nonbreathable clothing such as chemical resistant suits
- Hot / dry or hot / humid environments
- Work in semi-permeable or impermeable clothing and/or heavy clothing such as arc-rated suits;
- Work in confined spaces
- Work in areas with limited or no air movement
- Work around heat-producing equipment, furnaces, boilers, asphalt pots, engines, compressors, etc.

The following are examples of controls that should be used to help prevent heat illness, as applicable:

- Acclimatization of new or returning workers and acclimatization during heat waves or during first hot temperatures of the year. Closely monitor employees not acclimatized for 14 days.
- Rescheduling work for cooler parts of the day will be implemented, when feasible
- Take frequent breaks
- Shade sources located adjacent to work
    - Provide enough shade so all employees on a rest period can sit fully in the shade
- Increase the location of water stations in work areas

- Use of fans, misters or other air moving equipment
- Employee rotation
- Buddy system
- Wear loose fitting clothes that help disperse heat and cool the body
- Work / rest regiments
- Encourage employees to take preventative cool-down rest periods

If someone is showing signs or symptoms of heat illness it is important to activate the project's emergency action plan immediately.

38. Workplace Violence Prevention Plan

a. Purpose:

The purpose of the Workplace Violence Prevention Program is to ensure that the Alvarado Water Quality Laboratory project provides employees and trade partners a place to work free of threats, intimidation, harassment and acts of violence.

b. Policy:

It shall be the policy of the Alvarado Water Quality Laboratory project to take appropriate actions to protect, as fully as possible, employees, trade partners and members of the public from acts of violence, threats, intimidation and harassment which may occur at state workplaces, and during the performance of their duties. The project will involve state, federal or local law enforcement in pursuing prosecution through judicial or other appropriate administrative remedies when such incidents occur, as necessary.

This plan will be reviewed at least annually for effectiveness. Additionally, when a deficiency is observed or becomes apparent, and after a workplace violence incident, this plan will be reviewed and updated, as necessary. Plan revisions will be communicated to all project personnel and authorized employee representatives allowing them to actively participate in the review and development of the plan.

c. Definitions:

Emergency – Unanticipated circumstances that can be life threatening or pose a risk of significant injuries to employees or other persons.

Engineering Controls – An aspect of the built space or device that removes a hazard from the workplace or creates a barrier between the worker and the hazard.

Log – The Workplace Violence Incident Log (Form A03.18) required by California Labor Code Section 6401.9.

Plan – The Workplace Violence Prevention Plan (Form A03.17) required by California Labor Code Section 6401.9.

Serious injury or illness – Any injury or illness occurring in a place of employment or in connection with any employment that requires inpatient hospitalization for other than medical observation or diagnostic testing, or in which an employee suffers an amputation, the loss of an eye, or any serious degree of

permanent disfigurement, but does not include any injury or illness or death caused by an accident on a public street or highway, unless the accident occurred in a construction zone.

Threat of Violence – Any verbal or written statement, including, but not limited to, texts, electronic messages, social media messages or other online posts, or any behavioral or physical conduct that conveys an intent, or that is reasonably perceived to convey an intent, to cause physical harm or to place someone in fear of physical harm, and that serves no legitimate purpose.

Work Practice Controls – Procedures and rules which are used to effectively reduce Workplace Violence hazards.

Workplace Violence – Any act of violence or threat of violence that occurs in a place of employment.

Workplace Violence includes, but is not limited to, the following:

- The threat or use of physical force against an employee that results in, or has a high likelihood of resulting in, injury, psychological trauma or stress, regardless of whether the employee sustains an injury.
- An incident involving a threat or use of a firearm or other dangerous weapon, including the use of common objects as weapons, regardless of whether the employee sustains an injury.
- Workplace violence does not include lawful acts of self-defense or defense of others.

Workplace Violence Type - The four major types of Workplace Violence are:

- Type I – Workplace Violence committed by a person who has no legitimate business at the worksite and includes violent acts by anyone who enters the workplace or approaches workers with the intent to commit a crime.
- Type II – Workplace Violence directed at employees by customers, clients, patients, students, inmates or visitors.
- Type III – Workplace Violence against an employee by a present or former employee, supervisor or manager.
- Type IV – Workplace Violence committed in the workplace by a person who does not work there but has, or is known to have had, a personal relationship with an employee.

d. Responsibility:

All work sites and locations in California are required to maintain this Workplace Violence Prevention Program. It is the joint responsibility of the project superintendent and project manager for implementing this plan.

Supervision – All supervisors are responsible for ensuring compliance with the provisions of the Workplace Violence Prevention Program.

Employee – All employees are expected to immediately report all acts of Workplace Violence to their supervisor. All reports must be taken seriously, and no retaliatory action will be taken against the person making the report. Employees will also be asked to participate in this program by identifying, evaluating and correcting Workplace Violence hazards, and in designing and implementing training.

Trade Partners – Each employer on site employer, including trade partners of any tier, service providers, consultants and vendors is responsible for developing and submitting (to Hensel Phelps) a workplace violence prevention plan (including a workplace violence incident log) which, at a minimum, meets the requirements of California Labor Code Section (c)(2), and providing effective training to employees on Workplace Violence prevention. If a trade partner employee experiences a Workplace Violence incident,

the incident must be captured on the trade partner's 'log and a copy of that log shall be provided to Hensel Phelps. All employers are prohibited from taking adverse employment action against employees who make reports of Workplace Violence or disallowing or taking retaliatory action against an employee for seeking assistance or intervention from law enforcement or emergency services.

e. Coordination:

Hensel Phelps will coordinate implementation of this plan with other employers and trade partners by training all project personnel in the site-specific safety orientation. This training will ensure that employers and employees understand their respective roles, as provided in the plan. Hensel Phelps will also require that all Workplace Violence incidents are reported to the project superintendent or project manager. Once an incident is reported, it will be investigated and recorded. Retaliation of any sort by any supervisor or employer against an employee who makes a report of workplace violence is strictly prohibited. Any employee or person working on the site can obtain a copy of the plan, and/or volunteer to participate in the development and implementation of this plan, by contacting the project superintendent or project manager.

f. Reporting and Responding to Workplace Violence:

All threats or acts of workplace violence must be reported to the employee's supervisor. If that's not possible, report incidents to the Hensel Phelps project manager or project superintendent. If an employee believes there is an immediate threat, contact the police by calling 911 and then notify a supervisor or the Hensel Phelps project manager or superintendent. Once a Workplace Violence threat has been reported, the following actions must take place.

- The supervisor must call 911 if there is a conflict, Emergency, or if someone has been seriously injured and then notify Hensel Phelps.
- Determine if evacuation or shelter in place actions are necessary.
- Alert employees of the presence, location, nature of Workplace Violence Emergency, and actions to take. Place project specific communication plan here (e.g., WhatsApp message)
- The immediate supervisor must complete an Incident Report Form and give it to the Hensel Phelps project manager or superintendent.

g. Hazard Assessments:

Workplace Violence hazards will be evaluated using quarterly inspections to identify unsafe conditions, work practices, and to seek out employee reports or concerns. Inspections shall be conducted when: (1) the plan is first established, (2) after each workplace violence incident, and (3) whenever the employer is made aware of a new or previously unrecognized hazard. Hazard assessments are to be documented using the Workplace Violence Hazard Assessment (Form A03.20). Examples of hazard assessments that may be conducted include:

- Exterior and interior of the workplace for its attractiveness to robbery.
- The need for security surveillance measures, such as mirrors or cameras.
- Procedures for reporting suspicious persons or activities.
- Security systems, such as door locks, security windows, physical barriers and restraint systems.
- Lighting systems.
- Effectiveness of systems and procedures to warn others of a security danger or to summon assistance.
- Communication effectiveness of the Workplace Violence Prevention Plan.

- Frequency and severity of worker reports of incidents of physical or verbal abuse by managers, supervisors or other employees.
- Any prior violent acts, threats of physical violence, verbal abuse, property damage or other signs of strain or pressure in the workplace.

h. Report of Unsafe Conditions:

Employees are to report violent incidents, threats or other workplace violence matters to their supervisor. All such reports must be investigated as outlined in the Hazard Assessments section above. The results of the investigation, and any corrective actions to be implemented as a result of the employee report, must be communicated to the reporting employee.

i. Hazard Correction:

Hazards, which threaten the security of employees, shall be corrected by the employer in a timely manner (not mor than __ days) based on severity from when they are first observed or discovered. Corrective measures for workplace security hazards can include:

- Making the workplace unattractive to theft and other criminal acts.
- Utilizing security guards and surveillance measures, such as cameras or mirrors, to provide information as to what is going on outside and inside the workplace.
- Reporting procedures for notifying designated employees of suspicious persons or activities.
- Posting emergency telephone numbers for law enforcement, fire and medical services where employees have access to a telephone with an outside line.
- Training on emergency action procedures for employees, supervisors and managers.
- Using alarm systems and access control systems.
- Applying Crime Prevention through Environmental Design practices.
- Worker training in recognizing and handling threatening or hostile situations.
- Effective systems to warn others of a security danger or to summon assistance.
- Ensuring adequate emergency escape routes.
- Controlling access to, and freedom of movement within, the workplace by nonemployees.
- Eliminate hiding places in areas surrounding the building (e.g., overgrown shrubs, dark areas).
- Locks on restroom doors.
- Caller ID on phones.

j. Post-Incident Investigations:

Hensel Phelps requires a Workplace Violence Investigation Report (Form A03.19) be completed following all Workplace Violence incidents. Trade partners may complete this report on their own form. Each supervisor for all companies involved in an incident must complete this investigation within one week after a Workplace Violence incident. During the investigation, the following actions, to the extent possible, will be taken:

- Visit the scene of an incident and documenting conditions in the area.
- Obtain video or photography of the event from nearby cameras.
- Interview involved employees and witnesses.
- Examine the workplace for security risk factors associated with the incident, including any previous reports of inappropriate behavior by the perpetrator.
- Determine the cause of the incident.
- Taking and document corrective action to prevent similar Workplace Violence incidents from occurring.

- Obtain any reports completed by law enforcement.
- Record the investigative findings and ensure corrective actions are taken.
- Findings of the investigation will be recorded in a workplace violence incident log. Information that must be documented includes date, time, location, people involved, relationship (client, employee, customer, family, friend, stranger), circumstances of event, type of incident, and consequences of the incident. The log shall be reviewed during the periodic reviews of the plan.
    - The employer performing an investigation shall take care to omit any element of personal identifying information sufficient to allow identification of any person involved in a violent incident, such as the person's name, address, electronic mail address, telephone number, social security number, or other information that, alone or in combination with other publicly available information, reveals the person's identity.
    - The employer whose employees experience a Workplace Violence incident shall record the information in a Violent Incident Log.

k. Training:

Each employer is responsible to provide effective training to employees on Workplace Violence prevention with content and vocabulary to the educational level, literacy and language of its employees. The employer shall provide employees with initial training when their Workplace Violence Prevention Plan is first established, for new hires, and annually thereafter. Additional training shall be provided when a new or previously unrecognized Workplace Violence hazard has been identified and when changes are made to the plan. The additional training may be limited to addressing the new Workplace Violence hazard or changes to the plan. Training must include all of the following:

- The definitions and requirements of Cal/OSHA.
- How to report Workplace Violence incidents or concerns to the employer or law enforcement without fear of reprisal.
- Workplace Violence hazards specific to the employees' jobs, the corrective measures the employer has implemented, how to seek assistance to prevent or respond to violence, and strategies to avoid physical harm.
- The violent incident log required by Cal/OSHA and how to obtain copies of required records.
- An opportunity for interactive questions and answers with a person knowledgeable about the employer's plan.

l. Compliance by Supervisory and Nonsupervisory Employees:

To ensure compliance with the Workplace Violence Prevention Plan, both supervisory and nonsupervisory employees are subject to disciplinary measures. Failure to comply with the plan may result in disciplinary action, up to and including termination of employment. To facilitate ongoing compliance, initial and periodic refresher training will be provided to individuals who may require reinforcement of the plan's principles. Employees actively participating in and promoting the plan will be recognized in a positive fashion. This recognition serves to acknowledge and appreciate the commitment of those who contribute to the culture of safety and security within the workplace. This balanced approach, combining clear consequences for non-compliance with positive reinforcement for active participation, aims to foster a workplace where the prevention plan is not only understood but actively embraced by all employees.

m. Records:

The project superintendent and project manager are jointly responsible for maintaining all records required by Cal/OSHA. At a minimum, the following will be maintained:

- Records of Workplace Violence hazard identification, evaluation and correction must be maintained for five years.
- Training records shall be created and maintained for a minimum of one year and include training dates, contents or a summary of the training sessions, names and qualifications of persons conducting the training, and names and job titles of all persons attending the training sessions.
- Violent incident logs shall be maintained for a minimum of five years.
- Records of Workplace Violence incident investigations shall be maintained for a minimum of five years (These records must not contain any medical information).

39.Forms

- Activity Hazard Analysis (AHA) Form – Form B06.01
- Weekly Safety Audit Form – Form B08.01
- Boom Permit Risk Assessment – Form C18.03
- Specific Exposure Control Methods – Table 1 – Form C14.01
- Excavation Utility Permit – Form C30.01
- Hazard Communication Safety Data Sheets (SDS) – Form A03.05
- Hazardous Communication Standard Labels – Form A03.06
- Hazard Communication Standard Pictograms – Form A03.07
- Trade Partner Chemical Questionnaire – Form A03.08
- Trade Partner SDS Log – Form A03.09
- Determining Whether Hazardous Materials Regulations Apply to You – Form A03.10
- Hazardous Materials Storage Area Weekly Inspection Summary – Form A03.11
- Drone Incident Report – Form FOG1241
- Drone Post-Accident Contact Information – Form FOG1242



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