

Cit

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CONTRACTOR'S NAME: _____

ADDRESS: _____

TELEPHONE NO.: _____

CITY CONTACT: ELEIDA FELIX-YACKEL - Contract Specialist, Email: efelixyackel@sandiego.gov

Ph No. (619) 533-3449 - Fax No. (619) 533-3633

JDIAB/NBATT/LS

**CONTRACT
DOCUMENTS**

COPY

FOR



PALISADES PARK COMFORT STATION

VOLUME 1 OF 2

BID NO.: L-14-5562-DBB-2

SAP NO. (WBS/IO/CC): S-10026

CLIENT DEPARTMENT: 2113

COUNCIL DISTRICT: 2

PROJECT TYPE: GF

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- COMPETITION RESTRICTED TO: SLBE-ELBE FIRMS ONLY.
- PREVAILING WAGE RATES APPLY: STATE FEDERAL

BID DUE DATE:

1:30 PM

OCTOBER 23, 2013

CITY OF SAN DIEGO

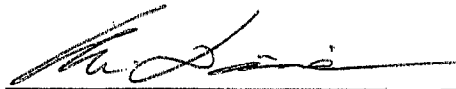
PUBLIC WORKS CONTRACTING GROUP

1010 SECOND AVENUE SUITE 1400, MS 614C

SAN DIEGO, CA 92101

ENGINEER OF WORK

Pursuant to California Business and Professions Code Section 6735, the Plans, Specifications, and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:



For City Engineer

9/16/13

Date

Seal:

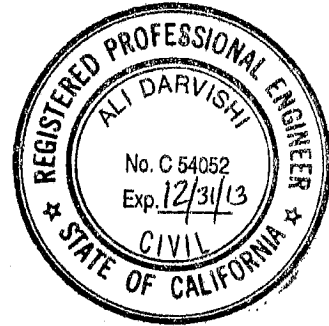


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CITY OF SAN DIEGO, CALIFORNIA

NOTICE INVITING BIDS

1. **LIMITED COMPETITION:** This contract may only be bid by the Contractors on the City's approved SLBE-ELBE Construction Contractors List. For information regarding the SLBE-ELBE Construction Program and registration visit the City's web site: <http://www.sandiego.gov>.
2. **RECEIPT AND OPENING OF BIDS:** Bids will be received at the Public Works Contracting Group at the location, time, and date shown on the cover of these specifications for performing work on **Palisades Park Comfort Station** (Project).
3. **DESCRIPTION OF WORK:** The Work involves furnishing all labor, materials, equipment, services, and other incidental works and appurtenances for the construction of the Project as described below:

Demolish the existing comfort station, which is approximately 180 sq. ft. and replace with a new one approximately 284 sq. ft. Proposed work shall include the construction of 1 unisex accessible restroom stall and 3 unisex restroom stalls, and a maintenance room. ADA accessible way, a drinking fountain and lavatories are also proposed.

- 3.1 The Work shall be performed in accordance with:

This Notice Inviting Bids and Plans numbered **36598-1-D** through **36598-46-D**, inclusive.

4. **EQUAL OPPORTUNITY**

- 4.1 To The WHITEBOOK, Chapter 10, Sections D and E, DELETE in their entirety and SUBSTITUTE with the following:

D. CITY'S EQUAL OPPORTUNITY COMMITMENT.

1. Nondiscrimination in Contracting Ordinance.

1. The Contractor, Subcontractors and Suppliers shall comply with requirements of the City's Nondiscrimination in Contracting Ordinance, San Diego Municipal Code §§22.3501 through 22.3517.

The Contractor shall not discriminate on the basis of race, gender, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring, or treatment of subcontractors, vendors, or suppliers. The Contractor shall provide equal opportunity for subcontractors to participate in subcontracting opportunities. The Contractor 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.

The Contractor shall include the foregoing clause in all contracts between the Contractor and Subcontractors and Suppliers.

2. Disclosure of Discrimination Complaints. As part of its Bid or Proposal, 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 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.
3. Upon the City's request, the Contractor agrees to provide to the City, within 60 days, a truthful and complete list of the names of all Subcontractors and Suppliers that the Contractor has used in the past 5 years on any of its contracts that were undertaken within San Diego County, including the total dollar amount paid by the Contractor for each subcontract or supply contract.
4. The Contractor further agrees 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. The Contractor understands and agrees that violation of this clause shall be considered a material breach of the Contract and may result in remedies being ordered against the Contractor up to and including contract termination, debarment and other sanctions for violation of the provisions of the Nondiscrimination in Contracting Ordinance. The Contractor further understands and agrees 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. The Contractor, Subcontractors and Suppliers shall comply with the City's Equal Employment Opportunity Outreach Program, San Diego Municipal Code §§22.2701 through 22.2707.

The Contractor shall not discriminate against any employee or applicant for employment on any basis prohibited by law. Contractor shall provide equal opportunity in all employment practices. Prime Contractor shall ensure their subcontractors comply with this program. Nothing in this section shall be interpreted to hold a prime contractor liable for any discriminatory practice of its subcontractors.

The Contractor shall include the foregoing clause in all contracts between the Contractor and 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 of Contract forms to the City for approval as specified in the Notice of Intent to Award letter from the City.

3. If a Work Force Report is submitted, and the City determines there are under-representations when compared to County Labor Force Availability data, the selected Bidder shall submit an Equal Employment Opportunity Plan.
4. If the selected Bidder submits an Equal Employment Opportunity Plan, it shall include the following assurances:
 1. The Contractor shall maintain a working environment free of discrimination, harassment, intimidation and coercion at all sites and in all facilities at which the Contractor's employees are assigned to work.
 2. The Contractor reviews its EEO Policy, at least annually, with all on-site supervisors involved in employment decisions.
 3. The Contractor disseminates and reviews its EEO Policy with all employees at least once a year, posts the policy statement and EEO posters on all company bulletin boards and job sites, and documents every dissemination, review and posting with a written record to identify the time, place, employees present, subject matter, and disposition of meetings.
 4. The Contractor reviews, at least annually, all supervisors' adherence to and performance under the EEO Policy and maintains written documentation of these reviews.
 5. The Contractor discusses its EEO Policy Statement with subcontractors with whom it anticipates doing business, includes the EEO Policy Statement in its subcontracts, and provides such documentation to the City upon request.
 6. The Contractor documents and maintains a record of all bid solicitations and outreach efforts to and from subcontractors, contractor associations and other business associations.
 7. The Contractor disseminates its EEO Policy externally through various media, including the media of people of color and women, in advertisements to recruit, maintains files documenting these efforts, and provides copies of these advertisements to the City upon request.
 8. The Contractor disseminates its EEO Policy to union and community organizations.
 9. The Contractor provides immediate written notification to the City when any union referral process has impeded the Contractor's efforts to maintain its EEO Policy.
 10. The Contractor maintains a current list of recruitment sources, including those outreaching to people of color and women, and provides written notification of employment opportunities to these recruitment sources with a record of the organizations' responses.

11. The Contractor maintains 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.
12. The Contractor encourages all present employees, including people of color and women employees, to recruit others.
13. The Contractor maintains all employment selection process information with records of all tests and other selection criteria.
14. The Contractor develops and maintains documentation for on-the-job training opportunities, participates in training programs, or both for all of its employees, including people of color and women, and establishes apprenticeship, trainee, and upgrade programs relevant to the Contractor's employment needs.
15. The Contractor conducts, at least annually, an inventory and evaluation of all employees for promotional opportunities and encourages all employees to seek and prepare appropriately for such opportunities.
16. The Contractor ensures 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.

5. SUBCONTRACTING PARTICIPATION PERCENTAGES.

- 5.1 The City has incorporated voluntary subcontractor participation percentage to enhance competition and maximize subcontracting opportunities as follows.
- 5.2 The following voluntary subcontractor participation percentage for DBE, DVBE, WBE, MBE, SLBE, and ELBE certified Subcontractors shall apply to this contract:

Total voluntary subcontractor participation percentage for this project is 9.1%.

6. PRE-BID MEETING:

- 6.1 There will be a Pre-Bid Meeting to discuss the scope of the Project, bidding requirements, pre-qualification process, and Equal Opportunity Contracting Program requirements and reporting procedures in the Public Works Contracting Group, Conference Room at 1010 Second Avenue, Suite 1400, San Diego, CA 92101 at **10:00 A.M., on OCTOBER 2nd, 2013.**
- 6.2 All potential bidders **are encouraged** to attend.
- 6.3 To request a copy of the agenda on an alternative format, or to request a sign language or oral interpreter for this meeting, call the Public Works Contracting Group at (619) 533-3450 at least 5 Working Days prior to the Pre-Bid Meeting to ensure availability.

7. CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM:

7.1 **Prior** to the Award of the Contract or each Task Order, you and your Subcontractors and Suppliers **must** register with Prism®, the City’s web-based contract compliance portal at:

<https://pro.prismcompliance.com/default.aspx>.

7.2 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.

8. CONSTRUCTION COST: The City’s estimated construction cost for this contract is **\$320,000.00**.

9. LOCATION OF WORK: The Work is located at Ocean Boulevard and Law Street.

10. CONTRACT TIME: The Contract Time for completion of the Work shall be **99 Working Days**.

11. CONTRACTOR'S LICENSE CLASSIFICATION: In accordance with the provisions of California Law, the Contractor shall possess valid appropriate license(s) at the time that the Bid is submitted. Failure to possess the specified license(s) shall render the Bid as **non-responsive** and shall act as a bar to award of the Contract to any Bidder not possessing required license(s) at the time of Bid.

11.1 The City has determined the following licensing classification for this contract:

- **CLASS B**

12. JOINT VENTURE CONTRACTORS. Provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 10 Working Days after receiving the Contract forms. See 2-1.1.2, “Joint Venture Contractors” in The WHITEBOOK for details.

13. STATE REQUIREMENTS FOR CONTRACTS SUBJECT TO STATE PREVAILING WAGE REQUIREMENTS.

13.1 In accordance with the provisions of California Labor Code Sections 1770, et seq. as amended, the Director of the Department of Industrial Relations has determined the general prevailing rate of per diem wages in accordance with the standards set forth in such Sections for the locality in which the Work is to be performed. Copies of the prevailing rate of per diem wages may be found at http://www.dir.ca.gov/dlsr/statistics_research.html. The Contractor shall post a copy of the above determination of the prevailing rate of per diem wages at each job site and shall make them available to any interested party on request.

13.2 Pursuant to Sections 1720 et seq., and 1770 et seq., of the California Labor Code the Contractor any Subcontractor shall pay not less than said specified rates determined by the Director of the California Department of Industrial Relations to all workmen employed by them in the execution of the Work.

- 13.3** The wage rates determined by the Director of Industrial Relations and published in the Department of Transportation publication entitled, "General Prevailing Wage Rates", refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, said 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 Department of Industrial Relations, 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.
- 13.4** The successful bidder intending to use a craft or classification not shown on the prevailing rate determinations may be required to pay the rate of the craft or classification most closely related to it.

14. INSURANCE REQUIREMENTS:

- 14.1** All certificates of insurance and endorsements required by the contract are to be provided upon issuance of the City's Notice of Intent to Award letter.
- 14.2** Refer to sections 7-3, "LIABILITY INSURANCE", and 7-4, "WORKERS' COMPENSATION INSURANCE" of the Supplementary Special Provisions (SSP) for the insurance requirements which must be met.

15. PREQUALIFICATION OF CONTRACTORS:

- 15.1** Contractors submitting Bid must be pre-qualified for the total amount proposed, inclusive of 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 will be deemed **non-responsive** and ineligible for award. Complete information and prequalification questionnaires are available at:

<http://www.sandiego.gov/cip/bidopps/prequalification.shtml>

- 15.2** The completed questionnaire, financial statement, and bond letter or a copy of the contractor's SLBE-ELBE certification and bond letter, must be submitted no later than 2 weeks prior to the bid opening to the Public Works Department - Public works Contracting Group, Prequalification Program, 1010 Second Avenue, Suite 1400, San Diego, CA 92101. For additional information or the answer to questions about the prequalification program, contact David Stucky at 619-533-3474 or dstucky@sandiego.gov.

- 16. 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”)	2012	PITS070112-01
City of San Diego Standard Specifications for Public Works Construction (“The WHITEBOOK”)*	2012	PITS070112-02
City of San Diego Standard Drawings*	2012	PITS070112-03
Caltrans Standard Specifications	2010	PITS070112-04
Caltrans Standard Plans	2010	PITS070112-05
California MUTCD	2012	PITS070112-06
City Standard Drawings - Updates Approved For Use*	Varies	Varies
Standard Federal Equal Employment Opportunity Construction Contract Specifications and the Equal Opportunity Clause Dated 09-11-84	1984	769023
NOTE: *Available online under Engineering Documents and References at: http://www.sandiego.gov/publicworks/edocref/index.shtml		

- 17. CITY'S RESPONSES AND ADDENDA:** The City at its option, may respond to any or all questions submitted in writing, via letter, or FAX in the form of an addendum. No oral comment shall be of any force or effect with respect to this solicitation. The changes to the Contract Documents through addendum are made effective as though originally issued with the Bid. The Bidders shall acknowledge the receipt of Addenda on the form provided for this purpose in the Bid.
- 18. CITY'S RIGHTS RESERVED:** The City reserves the right to cancel the Notice Inviting Bids at any time, and further reserves the right to reject submitted Bids, without giving any reason for such action, at its sole discretion and without liability. Costs incurred by the Bidder(s) as a result of preparing Bids under the Notice Inviting Bids shall be the sole responsibility of each bidder. The Notice Inviting Bids creates or imposes no obligation upon the City to enter a contract.
- 19. CONTRACT PRICING FORMAT:** This solicitation is for a Lump Sum and Unit Price contract as set forth in the Bid Proposal Form(s), Volume 2.
- 20. SUBMITTAL OF “OR EQUAL” ITEMS:** See Section 4-1.6, “Trade Names or Equals” in The WHITEBOOK and as amended in the SSP.
- 21. AWARD PROCESS:**
- 21.1** The Award of this contract is contingent upon the Contractor’s compliance with all conditions precedent to Award.
- 21.2** Upon acceptance of a Bid, the City will prepare contract documents for execution within approximately 21 days of the date of the Bid opening and award the Contract

approximately within 7 days of receipt of properly executed Contract, bonds, and insurance documents.

- 21.3** This contract will be deemed executed, and effective, only upon the signing of the Contract by the Mayor or designee of the City.
- 22. SUBCONTRACT LIMITATIONS:** The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 2-3, "SUBCONTRACTS" in The WHITEBOOK and as amended in the SSP which requires the Contractor to self perform the amount therein stipulated. Failure to comply with these requirements may render the Bid **non-responsive** and ineligible for award.
- 23. AVAILABILITY OF PLANS AND SPECIFICATIONS:** 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 the City Clerk or Public Works Contracting Group.
- 24. QUESTIONS:**
- 24.1** The Director (or designee), of the Public Works Department is the officer responsible for opening, examining, and evaluating the competitive Bids 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 procurement action shall be addressed to the Public Works Contracting Group, Attention Contract Specialist, 1010 Second Avenue, Suite 1400, San Diego, California, 92101, and Telephone No. (619) 533-3450.
- 24.2** Questions received less than 14 days prior to the date for opening of Bids may not be answered.
- 24.3** Interpretations or clarifications considered necessary by the City in response to such questions will be issued by Addenda which will be uploaded to the City's online bidding service.
- 24.4** Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. It is the Bidder's responsibility to become informed of any Addenda that have been issued and to include all such information in its Bid.
- 25. ELIGIBLE BIDDERS:** No person, firm, or corporation shall be allowed to make, file, or be interested in **more** than one (1) Bid for the same work unless alternate Bids are called for. A person, firm or corporation who has submitted a sub-proposal to a Bidder, or who has quoted prices on materials to a Bidder, is not hereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or from submitting a Bid in its own behalf. Any Bidder who submits more than one bid will result in the rejection of all bids submitted.
- 26. SAN DIEGO BUSINESS TAX CERTIFICATE:** The Contractor and 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 and submit to the Contract Specialist upon request or as specified in the Contract Documents. Tax Identification numbers for both the Bidder and the listed Subcontractors must be submitted on the City provided forms with the Notice Inviting Bids and Contract forms.

27. PROPOSAL FORMS: Bid shall be made only upon the Bidding Documents i.e., Proposal form attached to and forming a part of the specifications. The signature of each person signing shall be in longhand.

27.1 Bidder shall complete and submit all pages in the "Bidding Document" Section (see Volume 2) as their Bid per the schedule given under "Required Documents Schedule," (see Volume 1). Bidder is requested to retain for their reference other portions of the Contract Documents that are not required to be submitted with the Bid. The entire specifications for the bid package do not need to be submitted with the bid.

27.2 The City may require any Bidder to furnish a statement of experience, financial responsibility, technical ability, equipment, and references.

27.3 Bids and certain other forms and documents as specified in the Volume 2 of 2 of the Contract Documents shall be enclosed in a sealed envelope and shall bear the title of the work and name of the Bidder and the appropriate State Contractors License designation which the Bidder holds.

27.4 Bids may be withdrawn by the Bidder prior to, but not after, the time fixed for opening of Bids.

28. BIDDERS' GUARANTEE OF GOOD FAITH (BID SECURITY):

28.1 With the exception of the contracts valued \$5,000 or less, JOC and Design-Build contracts, and contracts subject to the Small and Local Business Program of \$250,000 or less e.g., ELBE contracts, each Bidder shall accompany its Bid with either a cashier's check upon some responsible bank, or a check upon such bank properly certified or an approved corporate surety bond payable to the City of San Diego, for an amount of not less than 10% of the aggregate sum of the Bid, which check or bond, and the monies represented thereby shall be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into such contract and furnish the required final bonds.

28.2 The Bidder agrees that in case of Bidder's refusal or failure to execute this contract and give required final bonds, the money represented by a cashier's or certified check shall remain the property of the City, and if the Bidder shall fail to execute this contract, the Surety agrees that it will pay to the City damages which the City may suffer by reason of such failure, not exceeding the sum of 10% of the amount of the Bid.

28.3 A Bid received without the specified bid security will be rejected as being **non-responsive**.

29. AWARD OF CONTRACT OR REJECTION OF BIDS:

29.1 This contract may be awarded to the lowest responsible and reliable Bidder.

29.2 Bidders shall complete the entire Bid schedule (also referred to as "schedule of prices" or Proposal form). Incomplete price schedules will be rejected as being non-responsive.

- 29.3** The City reserves the right to reject any or all Bids, and to waive any informality or technicality in Bids received and any requirements of these specifications as to bidding procedure.
- 29.4** Bidders will not be released on account of their errors of judgment. Bidders may be released only upon receipt by the City from the Bidder within 3 Working Days, excluding Saturdays, Sundays, and state holidays, after the opening of Bids, of written notice which includes proof of honest, credible, clerical error of material nature, free from fraud or fraudulent intent, and of evidence that reasonable care was observed in the preparation of the Bid.
- 29.5** A non-selected Bidder may protest award of the Contract to the selected Bidder by submitting a written “Notice of Intent to Protest” including supporting documentation which shall be received by Public Works Contracting Group no later than 10 days after the City’s announcement of the selected Bidder or no later than 10 days from the date that the City issues notice of designation of a Bidder as non-responsible in accordance with San Diego Municipal Code Chapter 2, § 22.3029, “Protests of Contract Award.”
- 29.6** The City of San Diego will not discriminate with regard to race, religious creed, color, national origin, ancestry, physical handicap, marital status, sex or age, in the award of contracts.
- 29.7** Each Bid package properly executed as required by these specifications shall constitute a firm offer, which may be accepted by the City within the time specified in the Proposal.
- 29.8** The City reserves the right to evaluate all Bids and determine the lowest Bidder on the basis of any proposed alternates, additive items or options, at its discretion that will be disclosed in the Volume 2 of 2.

30. BID RESULTS:

- 30.1** The Bid opening by the City shall constitute the public announcement of the Apparent Low Bidder. In the event that the Apparent Low Bidder is subsequently deemed non-responsive or non-responsible, a public announcement will be posted in the City’s web page: <http://www.sandiego.gov/cip/index.shtml>, with the name of the newly designated Apparent Low Bidder.
- 30.2** To obtain Bid results, either attend Bid opening, review the results on the City’s web site, or provide a self-addressed, stamped envelope, referencing Bid number, and Bid tabulation will be mailed to you upon verification of extensions. Bid results cannot be given over the telephone.

31. THE CONTRACT:

- 31.1** The Bidder to whom award is made shall execute a written contract with the City of San Diego and furnish good and approved bonds and insurance certificates specified by the City within 14 days after receipt by Bidder of a form of contract for execution unless an extension of time is granted to the Bidder in writing.

- 31.2** If the Bidder takes longer than 14 days to fulfill these requirements, then the additional time taken shall be added to the Bid guarantee. The Contract shall be made in the form adopted by the City, which includes the provision that no claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.
- 31.3** If the Bidder to whom the award is made fails to enter into the contract as herein provided, the award may be annulled and the Bidder's Guarantee of Good Faith will be subject to forfeiture. An award may be made to the next lowest responsible and reliable Bidder who shall fulfill every stipulation embraced herein as if it were the party to whom the first award was made.
- 31.4** Pursuant to the San Diego City Charter section 94, the City may only award a public works contract to the lowest responsible and reliable Bidder. The City will require the Apparent Low Bidder to (i) submit information to determine the Bidder's responsibility and reliability, (ii) execute the Contract in form provided by the City, and (iii) furnish good and approved bonds and insurance certificates specified by the City within 14 Days, unless otherwise approved by the City, in writing after the Bidder receives notification from the City, designating the Bidder as the Apparent Low Bidder and formally requesting the above mentioned items.
- 31.5** The award of the Contract is contingent upon the satisfactory completion of the above mentioned items and becomes effective upon the signing of the Contract by the Mayor or designee. If the Apparent Low Bidder does not execute the Contract or submit required documents and information, the City may award the Contract to the next lowest responsible and reliable Bidder who shall fulfill every condition precedent to award. A corporation designated as the Apparent Low Bidder shall furnish evidence of its corporate existence and evidence that the officer signing the Contract and bond for the corporation is duly authorized to do so.
- 32. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK:** The Bidder shall examine carefully the Project Site, the Plans and Specifications, other materials as described in the Special Provisions, Section 2-7, and the proposal forms (e.g., Bidding Documents). The submission of a Bid shall be conclusive evidence that the Bidder 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, and as to the requirements of the Bidding Documents Proposal, Plans, and Specifications.
- 33. CITY STANDARD PROVISIONS.** This contract is subject to the following standard provisions. See The WHITEBOOK for details.
- 33.1** The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.
- 33.2** The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.
- 33.3** The City of San Diego Municipal Code §22.3004 for Pledge of Compliance.

- 33.4** The City of San Diego’s Labor Compliance Program and the State of California Labor Code §§1771.5(b) and 1776.
- 33.5** 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.
- 33.6** The City’s Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).
- 33.7** The City’s Information Security Policy (ISP) as defined in the City’s Administrative Regulation 90.63.

34. PRE-AWARD ACTIVITIES:

- 34.1** The selected contractor by the City to execute a contract for this Work shall provide the information required within the time specified in “Required Documents,” of this bid package. Failure to provide the information within the time specified may result in the Bid being rejected as **non-responsive**.
- 34.2** If the Bid is rejected as non-responsive, the selected contractor by the City to execute a contract for this Work shall forfeit the required Bid. The decision that the selected contractor by the City to execute a contract for this Work is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

35. REQUIRED DOCUMENT SCHEDULE:

- 36.1** The Bidder’s attention is directed to the City’s Municipal Code §22.0807(e), (3)-(5) for important information regarding grounds for debarment for failure to submit required documentation.
- 36.2** 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/index.shtml>

ITEM	WHEN DUE	FROM	DOCUMENT TO BE SUBMITTED
1.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Bid
2.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Bid Bond
3.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Non-collusion Affidavit to be Executed By Bidder and Submitted with Bid under 23 USC 112 and PCC 7106
4.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Contractors Certification of Pending Actions

ITEM	WHEN DUE	FROM	DOCUMENT TO BE SUBMITTED
5.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Equal Benefits Ordinance Certification of Compliance
6.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Form AA35 - List of Subcontractors
7.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Form AA40 - Named Equipment/Material Supplier List
8.	WITHIN 3 WORKING DAYS OF BID OPENING WITH GOOD FAITH EFFORT DOCUMENTATION	ALL BIDDERS	Proof of Valid DBE-MBE-WBE-DVBE Certification Status e.g., Certs.
9.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Names of the principal individual owners of the Apparent Low Bidder
10.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	If the Contractor is a Joint Venture: <ul style="list-style-type: none"> • Joint Venture Agreement • Joint Venture License
11.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Form BB05 - Work Force Report
12.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Agreement
13.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Payment and Performance Bond
14.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Certificates of Insurance and Endorsements
15.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - Drug-Free Workplace
16.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - American with Disabilities Act
17.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractors Standards - Pledge of Compliance

CONTRACT FORMS
AGREEMENT

CONTRACT FORMS AGREEMENT

CONSTRUCTION CONTRACT

This contract is made and entered into between THE CITY OF SAN DIEGO, a municipal corporation, herein called "City", and ATLAS DEVELOPMENT, herein called "Contractor" for construction of **Palisades Park Comfort Station**; Bid No. **L-14-5562-DBB-2**, in the amount of THREE HUNDRED NINETY-SEVEN THOUSAND TWO HUNDRED DOLLARS AND 00/100 (\$397,200.00), which is comprised of the Base Bid alone.

IN CONSIDERATION of the payments to be made hereunder and the mutual undertakings of the parties hereto, City and Contractor agree as follows:

1. The following are incorporated into this contract as though fully set forth herein:
 - (a) The attached Faithful Performance and Payment Bonds.
 - (b) The attached Proposal included in the Bid documents by the Contractor.
 - (c) Reference Standards listed in the Notice Inviting Bids and the Supplementary Special Provisions (SSP).
 - (d) Phase Funding Schedule Agreement and Supplemental Agreements.
 - (e) That certain documents entitled **Palisades Park Comfort Station**, on file in the office of the Public Works Department as Document No. **S-10026**, as well as all matters referenced therein.
2. The Contractor shall perform and be bound by all the terms and conditions of this contract and in strict conformity therewith shall perform and complete in a good and workmanlike manner **Palisades Park Comfort Station**; Bid No. **L-14-5562-DBB-2**, San Diego, California.
3. For such performances, the City shall pay to Contractor the amounts set forth at the times and in the manner and with such additions or deductions as are provided for in this contract, and the Contractor shall accept such payment in full satisfaction of all claims incident to such performances.
4. No claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.
5. This contract is effective as of the date that the Mayor or designee signs the agreement.

CONTRACT FORMS (continued)

AGREEMENT

IN WITNESS WHEREOF, this Agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to Municipal Code §22.3102(d) authorizing such execution.

THE CITY OF SAN DIEGO

APPROVED AS TO FORM AND LEGALITY

Jan I. Goldsmith, City Attorney

By: Stephen Samara
Stephen Samara
Senior Contract Specialist
Public Works Contracting Group

By: Mark M. Mene
Print Name: Mark M. Mene
Deputy City Attorney

Date: 1/14/2014

Date: 1/15/14

CONTRACTOR

By: M. Atefi
Print Name: Mark Atefi
Title: President
Date: 12/13/13

City of San Diego License No.: 2010000550

State Contractor's License No.: 858038

CONTRACT/AGREEMENTS
ATTACHMENTS

CONTRACT ATTACHMENT
PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

ATLAS DEVELOPMENT, a corporation, as principal, and
Great American Insurance 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
THREE HUNDRED NINETY-SEVEN THOUSAND TWO HUNDRED DOLLARS AND 00/100
(\$397,200.00), for the faithful performance of the annexed contract, and in the sum of THREE
HUNDRED NINETY-SEVEN THOUSAND TWO HUNDRED DOLLARS AND 00/100
(\$397,200.00), for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract Palisades Park Comfort Station; Bid No. L-14-5562-DBB-2, 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 Chapter 3 of Division 5 of Title I of the Government Code of the State of California or under the provisions of Section 3082 et seq. 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.

CONTRACT ATTACHMENT (continued)
PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

The Surety shall pay reasonable attorney's fees should suit be brought to enforce the provisions of this bond.

Dated December 4, 2013

Approved as to Form and Legality

Atlas Development Corporation
Principal

By M. Atefi

Mark Atefi
Printed Name of Person Signing for Principal

Jan I. Goldsmith, City Attorney

By [Signature]
Deputy City Attorney

Great American Insurance Company
Surety

By [Signature]
Tara Bacon, Attorney-in-fact

Approved:

By: [Signature]
Stephen Samara
Senior Contract Specialist
Public Works Contracting Group

750 The City Drive South, Suite 470
Local Address of Surety

Orange, CA 92868
Local Address (City, State) of Surety

800-531-7512
Local Telephone No. of Surety

Premium \$ 7,428.00

Bond No. 2119146

ACKNOWLEDGMENT

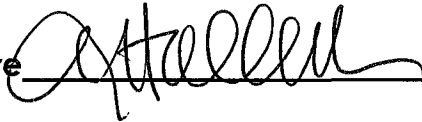
State of California
County of San Diego

On December 4, 2013 before me, Maria Hallmark, Notary Public, personally appeared Tara Bacon, who proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her authorized capacity, and that by her signature on the instrument the person, or the entity upon behalf of which the person 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.

Signature _____



(Seal)

GREAT AMERICAN INSURANCE COMPANY®

Administrative Office: 301 E 4TH STREET • CINCINNATI, OHIO 45202 • 513-369-5000 • FAX 513-723-2740

The number of persons authorized by this power of attorney is not more than FIVE

No. 0 14839

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the GREAT AMERICAN INSURANCE COMPANY, a corporation organized and existing under and by virtue of the laws of the State of Ohio, does hereby nominate, constitute and appoint the person or persons named below, each individually if more than one is named, its true and lawful attorney-in-fact, for it and in its name, place and stead to execute on behalf of the said Company, as surety, any and all bonds, undertakings and contracts of suretyship, or other written obligations in the nature thereof, provided that the liability of the said Company on any such bond, undertaking or contract of suretyship executed under this authority shall not exceed the limit stated below.

Name	Address	Limit of Power
DALE G. HARSHAW	KYLE KING	ALL OF
GEOFFREY SHELTON	JOHN R. QUALIN	SAN DIEGO,
TARA BACON	CALIFORNIA	\$75,000,000.00

This Power of Attorney revokes all previous powers issued on behalf of the attorney(s)-in-fact named above.

IN WITNESS WHEREOF the GREAT AMERICAN INSURANCE COMPANY has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 22ND day of APRIL, 2013
Attest GREAT AMERICAN INSURANCE COMPANY



Assistant Secretary

David C. Kitchin

Divisional Senior Vice President

DAVID C. KITCHIN (877-377-2405)

STATE OF OHIO, COUNTY OF HAMILTON - ss:

On this 22ND day of APRIL, 2013, before me personally appeared DAVID C. KITCHIN, to me known, being duly sworn, deposes and says that he resides in Cincinnati, Ohio, that he is a Divisional Senior Vice President of the Bond Division of Great American Insurance Company, the Company described in and which executed the above instrument; that he knows the seal of the said Company; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by authority of his office under the By-Laws of said Company, and that he signed his name thereto by like authority.



KAREN L. GROSHEIM
NOTARY PUBLIC, STATE OF OHIO
MY COMMISSION EXPIRES 02-20-16

Karen L. Grosheim

This Power of Attorney is granted by authority of the following resolutions adopted by the Board of Directors of Great American Insurance Company by unanimous written consent dated June 9, 2008.

RESOLVED: That the Divisional President, the several Divisional Senior Vice Presidents, Divisional Vice Presidents and Divisional Assistant Vice Presidents, or any one of them, be and hereby is authorized, from time to time, to appoint one or more Attorneys-in-Fact to execute on behalf of the Company, as surety, any and all bonds, undertakings and contracts of suretyship, or other written obligations in the nature thereof; to prescribe their respective duties and the respective limits of their authority; and to revoke any such appointment at any time.

RESOLVED FURTHER: That the Company seal and the signature of any of the aforesaid officers and any Secretary or Assistant Secretary of the Company may be affixed by facsimile to any power of attorney or certificate of either given for the execution of any bond, undertaking, contract of suretyship, or other written obligation in the nature thereof, such signature and seal when so used being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

CERTIFICATION

I, STEPHEN C. BERAHA, Assistant Secretary of Great American Insurance Company, do hereby certify that the foregoing Power of Attorney and the Resolutions of the Board of Directors of June 9, 2008 have not been revoked and are now in full force and effect.

Signed and sealed this 4th day of December, 2013



Assistant Secretary

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

PROJECT TITLE: Palisades Park Comfort Station

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 7-13.3, "Drug-Free Workplace", of the project specifications, and that;

Atlas Development
(Name under which business is conducted)

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.

Signed M Atafi

Printed Name Mark Atafi

Title President

CONTRACTOR CERTIFICATION

AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

PROJECT TITLE: Palisades Park Comfort Station

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-4 regarding the American With Disabilities Act (ADA) outlined in the WHITEBOOK, Section 7-13.2, "American With Disabilities Act", of the project specifications, and that;

Atlas Development
(Name under which business is conducted)

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.

Signed M Atefi

Printed Name Mark Atefi

Title President

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

PROJECT TITLE: Palisades Park Comfort Station

I declare under penalty of perjury that I am authorized to make this certification on behalf of Atlas Development, as Contractor, that I am familiar with the requirements of City of San Diego Municipal Code § 22.3224 regarding Contractor Standards as outlined in the WHITEBOOK, Section 7-13.4, ("Contractor Standards"), of the project specifications, and that Contractor has complied with those requirements.

I further certify that each of the Contractor's subcontractors whose subcontracts are greater than \$50,000 in value has completed a Pledge of Compliance attesting under penalty of perjury of having complied with City of San Diego Municipal Code § 22.3224.

Dated this 16 Day of 12, 2013.

Signed M. Atefi

Printed Name Mark Atefi

Title President

AFFIDAVIT OF DISPOSAL

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

Palisades Park Comfort Station
(Name of Project)

as particularly described in said contract and identified as Bid No. **L-14-5562-DBB-2**; SAP No. (WBS/IO/CC) **S-10026** 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 _____, _____.

Contractor
by

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

SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

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

- 1) Standard Specifications for Public Works Construction (The GREENBOOK) currently in effect.
- 2) The City of San Diego Standard Specifications for Public Works Construction (The WHITEBOOK).

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

1-2 TERMS AND DEFINITIONS.

Normal Working Hours - To the City Supplement, ADD the following:

The Normal working hours shall be **7:30AM to 3:30PM**.

SECTION 2 - SCOPE AND CONTROL OF WORK

2-3.2 Self Performance. DELETE in its entirety and SUBSTITUTE with the following:

1. The Contractor shall perform, with its own organization, Contract work amounting to at least **50 percent** of the base bid alone or base bid and any additive or deductive alternate(s) that together when added or deducted form the basis of determining the Apparent Low Bidder as specified.
2. The self performance percentage requirement will be waived for contracts when a “B” License is required or allowed.

2-7 SUBSURFACE DATA. ADD the following:

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

1. Report of Geotechnical Design Services dated September 23, 2010 by Ninyo & Moore and Associates.
2. Addendum to Geotechnical Design Services dated July 28, 2011 by Ninyo & Moore and Associates.

Refer to the Contract Appendix to review the reports listed above.

2-9.2 Survey Services. DELETE in its entirety and SUBSTITUTE with the following:

The Contractor shall be responsible for all surveying services or as may be specified in these special provisions.

The payment for survey services shall be included in the various Bid items unless a Bid item for Survey Services has been provided.

SECTION 4 - CONTROL OF MATERIALS

4-1.3.4 I Inspection Paid for by the Contractor. To the City Supplement, ADD the following:

The Contractor shall employ and pay for the services of qualified inspection entity to perform specialty inspection as required (per Sheet **36598-21-D** of Construction plans).

4-1.6 Trade Names or Equals.

ADD the following:

You must submit your list of proposed substitutions for “an equal” (“or equal”) item(s) **no less than 15 Working Days prior to Bid due date** and on a City form when provided by the City.

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK

6-2.1 Moratoriums. To the City Supplement, ADD the following:

- a) No Work shall be allowed in the areas where there is currently a moratorium issued by the City. A construction moratorium shall be observed from Memorial Day to Labor Day inclusive.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-3 LIABILITY INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

The insurance provisions herein must not be construed to limit your indemnity obligations contained in this contract.

ADD:

7-3.1 Policies and Procedures.

1. You must 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 must maintain this insurance for the duration of this contract and at all times thereafter when you are correcting, removing, or replacing Work in accordance with this contract. Your liabilities under this contract, e.g., your indemnity obligations, will is not deemed limited to the insurance coverage required by this contract.

4. Payment for insurance is included in the various items of Work as bid by you, and except as specifically agreed to by the City in writing, you are not entitled to any additional payment. Do not begin any work under this contract until you have provided and the City has approved all required insurance.
5. Policies of insurance must provide that the City is entitled to 30 days (10 days for cancellation due to non-payment of premium) prior written notice of cancellation or non-renewal of the policy. Maintenance of specified insurance coverage is a material element of this contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of this contract may be treated by the City as a material breach of contract.

ADD:

7-3.2

Types of Insurance.

7-3.2.1

Commercial General Liability Insurance.

1. Commercial General Liability Insurance must 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 must 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 must be no endorsement or modification limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. You must maintain the same or equivalent insurance for at least 10 years following completion of the Work.
4. All costs of defense must be outside the policy limits. Policy coverage must be in liability limits of not less than the following:

<u>General Annual Aggregate Limit</u>	<u>Limits of Liability</u>
Other than Products/Completed Operations	\$2,000,000
Products/Completed Operations Aggregate Limit	\$2,000,000
Personal Injury Limit	\$1,000,000
Each Occurrence	\$1,000,000

7-3.2.2

Commercial Automobile Liability Insurance.

1. You must 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 must be outside the limits of the policy.

7-3.2.5 Contractors Builders Risk Property Insurance.

1. You must provide at your expense, and maintain until Final Acceptance of the Work, a Special Form Builders Risk Policy or Policies. This insurance must 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 must be 100% of this contract value of the Work plus 15% to cover administrative costs, design costs, and the costs of inspections and construction management.
2. Insured property must include material or portions of the Work located away from the Site but intended for use at the Site, and must cover material or portions of the Work in transit. The policy or policies must include as insured property scaffolding, falsework, and temporary buildings located at the Site. The policy or policies must cover the cost of removing debris, including demolition.
3. The policy or policies must provide that all proceeds thereunder must be payable to the City as Trustee for the insured, and must name the City, you, Subcontractors, and Suppliers of all tiers as named insured. We as Trustee will collect, adjust, and receive all monies which may become due and payable under the policy or policies, may compromise any and all claims thereunder, and will apply the proceeds of such insurance to the repair, reconstruction, or replacement of the Work.
4. Any deductible applicable to the insurance must be identified in the policy or policies documents and responsibility for paying the part of any loss not covered because of the application of such deductibles must 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 must 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 must be entitled to 100% of its loss. You must pay the City any portion of that 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 must be responsible for 100% of the loss not insured because of the deductible. Except as provided for under California law, the policy or policies must provide that the City is entitled to 30 days prior written notice (10 days for cancellation due to non-payment of premium) of cancellation or non-renewal of the policy or policies.

ADD: 7-3.3

Rating Requirements. Except for the State Compensation Insurance Fund, all insurance required by this contract as described herein must 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, and that have been approved by the City.

7-3.3.1 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 and is included on the List of Eligible Surplus Lines Insurers (LESLI list).

All policies of insurance carried by non-admitted carriers must be subject to all of the requirements for policies of insurance provided by admitted carriers described herein.

ADD:

7-3.4 Evidence of Insurance. Furnish to the City documents e.g., certificates of insurance and endorsements evidencing the insurance required herein, and furnish renewal documentation prior to expiration of this insurance. Each required document must be signed by the insurer or a person authorized by the insurer to bind coverage on its behalf. We reserve the right to require complete, certified copies of all insurance policies required herein.

ADD:

7-3.5 Policy Endorsements.

7-3.5.1 Commercial General Liability Insurance.

7-3.5.1.1 Additional Insured.

1. You must provide at your expense policy endorsement written on the current version of the ISO Occurrence form CG 20 10 11 85 or an equivalent form providing coverage at least as broad.
2. To the fullest extent allowed by law e.g., California Insurance Code §11580.04, the policy must be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured.
3. The additional insured coverage for projects for which the Engineer’s Estimate is \$1,000,000 or more must include liability arising out of: (a) Ongoing operations performed by you or on your behalf, (b) Your products, (c) Your work, e.g., your completed operations performed by you or on your behalf, or (d) premises owned, leased, controlled, or used by you.
4. The additional insured coverage for projects for which the Engineer’s Estimate is less than \$1,000,000 must include liability arising out of: (a) Ongoing operations performed by you or on your behalf, (b) Your products, or (c) premises owned, leased, controlled, or used by you.

7-3.5.1.2 Primary and Non-Contributory Coverage. The policy must 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 must provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives must be in excess of the Contractor’s insurance and must not contribute to it.

7-3.5.1.3 Project General Aggregate Limit. The policy or policies must 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 must reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit must be in addition to the aggregate limit provided for the products-completed operations hazard.

7-3.5.2 Commercial Automobile Liability Insurance.

7-3.5.2.1 Additional Insured. Unless the policy or policies of Commercial Auto Liability Insurance are written on an ISO form CA 00 01 12 90 or a later version of this form or equivalent form providing coverage at least as broad, the policy must be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured, with respect to liability arising out of automobiles owned, leased, hired or borrowed by you or on your behalf. This endorsement is limited to the obligations permitted by California Insurance Code §11580.04.

7-3.5.5 Builders Risk Endorsements.

7-3.5.5.1 Waiver of Subrogation. The policy or policies must 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.

7-3.5.5.2 Builders Risk – Partial Utilization. If we desire to occupy or use a portion or portions of the Work prior to Acceptance in accordance with this contract, we will notify you and you must immediately notify your Builder's Risk insurer and obtain an endorsement that the policy or policies must not be cancelled or lapse on account of any such partial use or occupancy. You must obtain the endorsement prior to our occupation and use.

ADD:

7-3.6 Deductibles and Self-Insured Retentions. You are responsible for the payment of all deductibles and self-insured retentions. Disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.

ADD:

7-3.7 Reservation of Rights. We reserve 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. We 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.

ADD:

7-3.8 Notice of Changes to Insurance. You must notify the City 30 days prior to any material change to the policies of insurance provided under this contract.

**ADD:
7-3.9**

Excess Insurance. Policies providing excess coverage must follow the form of the primary policy or policies e.g., all endorsements.

**ADD:
7-3.10**

Architects and Engineers Professional Insurance (Errors and Omissions Insurance).

1. For contracts with required engineering services (e.g., Design-Build, preparation of engineered Traffic Control Plans (TCP), etc. by you) for all of your employees or Subcontractors who provide professional engineering services under this contract, you must keep or must require your Subcontractor keep in full force and effect, Professional Liability coverage with a limit of **\$1,000,000** per claim and **\$2,000,000** annual aggregate.
2. You must ensure both that: (a) the policy retroactive date is on or before the date of commencement of the Project; and (b) the policy will be maintained in force for a period of 3 years after completion of the Project or termination of this 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 must (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 above.

7-4

WORKERS' COMPENSATION INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

7-4.1.1

Workers' Compensation Insurance and Employers Liability Insurance.

1. In accordance with the provisions of §3700 of the California Labor Code, you must provide at its 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 the requirements of this section.
2. Limits for this insurance must be not less than the following:

Workers' Compensation	Statutory Employers Liability
Bodily Injury by Accident	\$1,000,000 each accident
Bodily Injury by Disease	\$1,000,000 each employee
Bodily Injury by Disease	\$1,000,000 policy limit
3. By signing and returning this contract you certify that you are aware of the provisions of §3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code and you will comply

with such provisions before commencing the Work as required by § 1861 of the California Labor Code.

7-4.1.1 Waiver of Subrogation. The policy or policies must 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.

7-5 PERMITS, FEES, AND NOTICES. To the City Supplement, ADD the following:

The City will obtain, at no cost to the Contractor, the following permits:

- a) Site Development Permit No. 852120
- b) Coastal Permit No. 951673

7-5.1 BUILDING PERMITS. ADD the following:

The Contractor shall complete Development Services Department form #DS-313 and get the approval prior to any off-site precast fabrication of the roof. The contractor shall submit this completed form after the NTP and prior to obtaining the building permit. Off site fabricator shall be certified by applicable organization for fabrication of specified item: ICBO, ACI, AISC, etc.

7-8.6 Water Pollution Control. ADD the following:

Based on a preliminary assessment by the City, this contract is subject to WPCP.

7-10.2.2 ENGINEERED Traffic Control Plans Provided by the Contractor. To the City Supplement, ADD the following:

Engineered “D” size TCP shall be required for the following areas:

- a) Ocean Boulevard between Law Street and Crystal Drive

ADD:

7-10.4.8 Asbestos & Lead Materials.

7-10.4.8.1 General.

- A. The City of San Diego's Asbestos and Lead Management Program (ALMP) has performed an asbestos and lead inspection for the replacement of the Palisades Park Comfort Station involved with this contract. The Contractor that is awarded this contract shall not include any costs associated with mitigation of the asbestos and lead materials as it will be performed by a separate City contract with the work being performed at the beginning of the project.

- B. The inspection and sampling performed by the ALMP was conducted without using destructive methods. Therefore, it is possible for the Contractor to encounter additional suspected hazardous materials as the walls are opened during demolition. The Contractor and his staff shall continue looking for suspected materials throughout this process.
 - 1. If additional suspected asbestos materials or loose and flaky lead paint are identified beyond that which has been stabilized, stop work in that area and immediately notify the Engineer.
 - 2. As soon as possible, the City will undertake confirmation of the materials and determine if additional abatement is required. If abatement is required, the City will conduct such abatement of the hazard at no cost to the Contractor.
 - 3. The Contractor shall remain out of that work area if abatement is required. There will be no additional financial compensation to the Contractor during the removal of ACM or loose and flaky lead-based paint.
- C. Coatings that have lead content below the 5000 parts per million (ppm) thresholds for lead-based paint.
 - 1. If the Contractor salvages components or building materials that have intact lead containing coatings on them, the contractor shall ensure the lead is disclosed to all persons accepting their salvaged material. Submit to the City a letter of evidence from the person accepting the lead coated salvaged material.
 - 2. Where the paint or component contains lead above 600 ppm but below the 5000 ppm the contractor shall use "lead safe work practices" to protect their employees.
 - 3. After demolition is complete, all loose paint chips present shall be collected by the Contractor, have a waste characterization performed, and then properly disposed of.
 - 4. Debris generated from demolition that will be salvaged via crushing shall be segregated into separate piles for lead containing and non-lead containing debris. The Contractor shall perform testing for lead on all crushed concrete and other aggregate materials they may be reusing or selling.

7-10.5.3 Steel Plate Covers. Table 7-10.5.3(A), REVISE the plate thickness for 5'-3" trench width to read 1 3/4".

7-15 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT. To the City Supplement, fourth paragraph, last sentence, DELETE in its entirety and SUBSTITUTE with the following:

Your duty to indemnify and hold harmless does not include any claims or liability arising from the established active or sole negligence, or willful misconduct of the City, its officers, or employees.

SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

8-2 FIELD OFFICE FACILITIES. To the City Supplement, DELETE in its entirety.

SECTION 9 - MEASUREMENT AND PAYMENT

9-3.2.5 Withholding of Payment. To the City Supplement, item i), DELETE in its entirety and SUBSTITUTE with the following:

- i) Your failure to comply with 7-2.3, "PAYROLL RECORDS" and 2-16, "CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM."

ADD:

9-3.7 Compensation Adjustments for Price Index Fluctuations. This Contract is not subject to the provisions of The WHITEBOOK for Compensation Adjustments for Price Index Fluctuations for the paving asphalt.

SECTION 203 – BITUMINOUS MATERIALS

203-15 RUBBER POLYMER MODIFIED SLURRY (RPMS). To the City Supplement, REVISE the section numbering from 203-15 to 203-16 in its entirety. RPMS may be used on this contract.

SECTION 300 – EARTHWORK

300-1.4 Payment. To the City Supplement, Item # 2., DELETE in its entirety and SUBSTITUTE with the following:

2. Payment for existing pavement removal and disposal of up to 12" thick, within the excavation e.g., trench limits, shall be included in the Bid item for installation of the mains or the Work item that requires pavement removal.

SECTION 302 – ROADWAY SURFACING

302-3 Preparatory Repair Work. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

302-3 Preparatory Repair Work.

1. Prior to roadway resurfacing or the application of slurry, the Contractor shall complete all necessary preparation and repair work to the road segment e.g., tree trimming, weed spray, weed abatement, crack sealing, asphalt repair, hump removal, miscellaneous asphalt patching, removal of raised pavement markers, removal of pavement markings, etc. and as specified in the Special Provisions.
2. Preparatory work shall include, but not be limited to, tree trimming, weed spray, weed abatement, crack sealing, asphalt repair i.e., mill and pave, hump removal, miscellaneous asphalt patching, removal of raised pavement markers, removal of pavement markings, etc.
3. The Contractor shall repair areas of distressed asphalt concrete pavement by milling or removing damaged areas of pavement to a minimum depth of 2” for Residential streets, and a minimum depth of 3” for all others to expose firm and unyielding pavement. The Contractor shall prepare subgrade as needed and install a minimum of 2” for residential streets, and a minimum of 3” for all others, of compacted asphalt concrete pavement over compacted native material as directed by the Engineer.
4. If, in order to achieve the minimum specified depth, the base material is exposed, the material shall be compacted to 95% relative compaction to a depth 10” below the finished grade (dig out). Compaction tests shall be made to ensure compliance with the specifications. The Engineer will determine when and where the test will occur. The City will pay for the soils testing required by the Engineer, which meets the required compaction. The Contractor shall reimburse the City for the cost of retesting failing compaction tests. If additional base material is required, the Contractor shall use Crushed Aggregate Base in accordance with 200-2.2, “Crushed Aggregate Base.”
5. Recycled base material shall conform to 200-2.4Crushed Miscellaneous Base Material.
6. Prior to replacing asphalt, the area shall be cleaned by removing all loose and damaged material, moisture, dirt, and other foreign matter and shall be tack coated in accordance with 302-5.4 “Tack Coat.”
7. The Contractor shall install new asphalt within the repair area or for patches in accordance with 302-5, “ASPHALT CONCRETE PAVEMENT.” Asphalt concrete shall be C2-PG 64-10 in compliance with 400-4, “ASPHALT CONCRETE.”
8. No preparatory asphalt work shall be done when the atmospheric temperature is below 50 °F or during unsuitable weather.
9. Following the asphalt placement, the Contractor shall roll the entire area of new asphalt in both directions at least twice. The finished patch shall be level and smooth in compliance with 302-5.6.2 “Density and Smoothness.”

After placement and compaction of the asphalt patch, the Contractor shall seal all finished edges with a 4" wide continuous band of SS-1H.

10. The minimum dimension for each individual repair shall be 4' x 4' and shall be subject to the following conditions:
 - a) If the base material is exposed to achieve the required minimum removal thickness, the base material shall be prepared conforming to 301-1, "SUBGRADE PREPARATION."
 - b) When additional base material is required, then the contractor shall use Crushed Aggregate Base in accordance with 200-2.2, "Crushed Aggregate Base." Recycled base material shall conform to 200-2.4, "Crushed Miscellaneous Base."
 - c) The Contractor may use grinding as a method for removal of deteriorated pavement when the areas indicated for removal are large enough (a minimum of the machine drum width) and when approved by the Engineer.
 - d) For both scheduled and unscheduled base repairs, failed areas may be removed by milling or by excavation provided that the edges are cut cleanly with a saw. The areas shall be cleaned and tack coated in accordance with 302-5.4, "Tack Coat" before placing the asphalt. The areas for scheduled repairs have been marked on the street.

302-3.1 Asphalt Patching.

1. Asphalt patching shall consist of patching potholes, gutter-line erosion, and other low spots in the pavement that are deeper than ½" per 302-5.6.2, "Density and Smoothness." These areas are generally smaller and more isolated than those areas in need of mill and pave.
2. The areas requiring patching have been identified in the Contract Documents, marked on the streets, or as directed by the Engineer. The Contractor shall identify any new areas that may require patching prior to slurry work to ensure the smoothness and quality of the finished product.
3. The Contractor shall identify and repair any areas that may require patching, prior to the placement of slurry seal for smooth finished product.
4. Asphalt overlay shall not be applied over deteriorated pavement. Preparatory asphalt work shall be completed and approved by the Engineer before proceeding with asphalt overlay.
5. The Contractor shall remove distressed asphalt pavement either by saw cutting or milling, to expose firm and unyielding pavement; prepare subgrade (as needed); and install compacted asphalt concrete pavement over compacted native material as directed by the Engineer.
6. Prior to replacing asphalt, the area shall be cleaned and tack coated per 302-5.4, "Tack Coat".
7. Following the asphalt placement, the Contractor shall roll the entire patch in both directions covering the patch at least twice.
8. After placement and compaction of the asphalt patch, the Contractor shall seal all finished edges with a 4" wide continuous band of SS-1H.

9. Base repairs shall not exceed 20% RAP in content.

302-3.2

Payment.

1. Payment for replacement of existing pavement when required shall be included in the unit bid price for Asphalt Pavement repair for the total area replaced and no additional payment shall be made regardless of the number of replacements completed. No payment shall be made for areas of over excavation or outside trench areas in utility works unless previously approved by the Engineer. No payment for pavement replacement will be made when the damage is due to the Contractor's failure to protect existing improvements. The Contractor shall reimburse the City for the cost of retesting all failing compaction tests.
2. At the end of each day, the Contractor shall submit to the Engineer an itemized list of the asphalt pavement repair work completed. The list shall include the location of the work and the exact square footage of the repair.
3. Preparatory repair work and tack coating will be paid at the Contract unit price per ton for Asphalt Pavement Repair. No payment shall be made for areas of over excavation unless previously approved by the Engineer.
4. Milling shall be included in the Bid item for Asphalt Pavement Repair unless separate Bid item has been provided.
5. Payment for miscellaneous asphalt patching shall be included in the Contract unit price for slurry and no additional payment shall be made therefore.

302-5.1.1

Damaged AC Pavement Replacement. To the City Supplement, DELETE in its entirety.

302-5.1.2

Measurement and Payment. To the City Supplement, DELETE in its entirety.

SECTION 306 – UNDERGROUND CONDUIT CONSTRUCTION

306-1

OPEN TRENCH OPERATIONS. To the City Supplement, CORRECT certain section numbering as follows:

OLD SECTION NUMBER	TITLE	NEW SECTION NUMBER
306-1.8	House Connection Sewer (Laterals) and Cleanouts	306-1.9
306-1.7.1	Payment	306-1.9.1
306-1.7.2	Sewer Lateral with Private Replumbing	306-1.9.2
306-1.7.2.1	location	306-1.9.2-1
306-1.7.2.2	Permits	306-1.9.2-2
306-1.7.2.3	Submittals	306-1.9.2-3
306-1.7.2.4	Trenchless Construction	306-1.9.2-4
306-1.7.2.5	Payment	306-1.9.2-5
306-1.7.3.6	Private Pump Installation	306-1.9.2-6
306-1.7.3.7	Payment	306-1.9.2-7

306-1.6 Basis of Payment for Open Trench Installations. ADD the following:

Payment for imported backfill when the Contractor elects to import material from a source outside the project limits and when authorized by the Engineer shall be included in the Bid unit price for Imported Backfill. The price shall include the removal and disposal of unsuitable materials.

306-14 WATER SERVICES. To The City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

ADD: 306-14 WATER SERVICES. Each service shall be copper and have its own meter unless specified otherwise on the Plans. Water Services shall conform to 207-26, "PIPE APPURTENANCES."

306-20.8 Carrier Pipe. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Carrier pipe materials shall be approved by the Engineer. The Contractor shall use only HDPE. The Contractor shall furnish and install a structurally sound, leak-proof, fusible high density polyethylene pipe, for all piping identified for installation by horizontal directional drilling. The Contractor shall be responsible for the sizing of the carrier pipe to withstand all installation forces, curvature, and residual forces and final in place loading. The selected material shall have an inside diameter no less than stated on the drawings. Individual pipe lengths shall be assembled by butt-fusion unless otherwise specified.

306-22 Pipe Fusion. DELETE in its entirety.

ADD: PART 7 – ENVIRONMENTAL WORKS

SECTION 705 – WATER DISCHARGES

705-2.6.3 Community Health and Safety Plan. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

705-2.6.3 Community Health and Safety Plan. See 703-2, "Community Health and Safety Plan."

705-2.6.1 General. Paragraph (3), CORRECT reference to Section 803 to read "Section 703."

SECTION 707 – RESOURCE DISCOVERIES

ADD:

707-1.1 Environmental Document. The City of San Diego Environmental Analysis Section (EAS) of the Development Services Department has prepared **Notice of Exemption** for **Palisades Park Comfort Station**, Project No. **235889**, as referenced in the Contract Appendix. The Contractor shall comply with all requirements of the **Notice of Exemption** as set forth in Contract Appendix.

END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

TECHNICAL SPECIFICATIONS

**PALISADES PARK
COMFORT STATION
TECHNICAL SPECIFICATION**

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SECTION 02 4100

DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Building demolition excluding removal of hazardous materials and toxic substances.
- B. Selective demolition of built site elements.
- C. Abandonment and removal of existing utilities and utility structures.
- D. Salvaging items for reuse by Owner.

1.02 RELATED REQUIREMENTS

- A. See GREENBOOK and provisions for Demolition and Site Clearing operations.
- B. Section 31 1000 - Site Clearing: Vegetation and existing debris removal.
- C. Section 31 2200 - Grading: Topsoil removal.
- D. Section 31 2323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.
- E. Section 31 2323 - Fill: Filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.
- B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2009.

1.04 DEFINITIONS

- A. Demolish: Completely remove and legally dispose of off-site.
- B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, salvage or recycled.
- C. Recycle: Recovery of demolition waste for subsequent processing in preparation for reuse.
- D. Remove: Detach items from existing construction and legally dispose of off-site unless indicated to be removed and salvaged or recycled.

- E. Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner. Include fasteners and/or brackets needed for reattachment elsewhere.
- F. Topsoil: Natural or cultivated surface soil layer containing organic matter and sand, silt and clay particles; friable, pervious, and black or a darker shade of brown, gray or red than underlying subsoil; reasonably free of subsoil and weeds, roots, exotic materials or other nonsoil materials.
- G. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.05 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of the Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.
 - 2. See GREENBOOK and , Section 707 for Resource Discoveries.

1.06 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Proposed Protection Measures: Submit informational 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.
 - 1. Adjacent Buildings: Detail specific measures proposed to protect adjacent buildings to remain.
- C. Schedule of Building Demolition Activities: Indicate the following:
 - 1. Detailed sequence of demolition work, with starting and ending dates for each activity.
 - 2. Temporary interruption of utility services.
 - 3. Shutoff and capping or re-routing of utility services.

- D. Site Plan: Showing:
 - 1. Vegetation to be protected.
 - 2. Areas for temporary construction and field offices.
 - 3. Areas for temporary and permanent placement of removed materials.
 - 4. Locations of temporary protection and means of egress for adjacent occupied buildings and fire truck access.
- E. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
 - 1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
 - 2. Identify demolition firm and submit qualifications.
 - 3. Include a summary of safety procedures.
- F. Inventory: Submit a list of items to be salvaged and deliver to Owner prior to start of demolition.
- G. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by building demolition operations. Submit to Construction Manager and Inspector before the Work begins.
- H. Post-demolition Photographs: Sufficiently detailed, of existing conditions of trees and plantings, adjoining buildings and construction, and site improvements that might be misconstrued as damage caused by site clearing.
- I. 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.

1.07 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: Company specializing in the type of work required, similar in material and extent to that indicated for this Project.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities have jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.

- E. Pre-demolition Conference: Conduct conference at Project site. Review methods and procedures related to building demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be demolished.
 - 2. Review structural load limitations of existing structures.
 - 3. Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review and finalize protection requirements.
 - 5. Review areas where existing construction is to remain and requires protection.
 - 6. Review procedures for noise control and dust control.
 - 7. Review items to be salvaged and returned to Owner.

1.08 PROJECT CONDITIONS

- A. Environmental Services Department conducted an asbestos and lead inspection and confirmed the existence of lead base paint. Refer to Section 7-10.4.8 and Appendix F for additional information.
- B. Buildings to be demolished will be vacated and their use discontinued before Start of Work.
- C. Owner and Public will occupy Park immediately adjacent to the demolition area. Conduct building demolition so park use will not be disrupted.
 - 1. Provide not less than 72 hours notice to Owner of activities that will affect Owner's operations.
 - 2. Maintain access to existing walkways, exits or other occupied or used facilities. Do not close or obstruct without written permission from authorities having jurisdiction.
- D. Owner assumes no responsibility for buildings and structures to be demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 2. Prior to building demolition, Owner will remove all salvaged items except as noted and listed in the salvage list.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Hazardous Materials: Hazardous materials are present in the buildings and structures to be demolished. A report on the presence of hazardous materials is on file for your

review and use. Examine the report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere and is to be performed prior to demolition.
 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
 3. Owner will provide material safety data sheets for materials that are known to be present in buildings and structures to be demolished because of building operations or processes performed there.
- G. Traffic: Minimize interference with adjoining roads, streets, walks and other adjacent occupied or used facilities during site-clearing operations.
1. Do not close or obstruct streets, walks or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- H. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- I. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- J. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

1.09 COORDINATION

- A. Arrange demolition schedule so as not to interfere with Owner's on-site operations.
- B. Coordinate utility outages to not disrupt park operations. Shut downs and cross-overs are to take place on weekends as arranged with resident engineer.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Fill Material: As specified in Section 31 2200 - Grading

PART 3 EXECUTION

3.01 SCOPE

- A. Remove the entire building designated Existing Restroom Building, including adjacent concrete slabs, stair and drinking fountain located at the site.

- B. Demolish existing buildings and site improvements completely within Limit of Demolition, unless otherwise indicated on Drawings.
- C. Remove paving and curbs as required to accomplish new work.
- D. Within area of new construction, remove foundation walls and footings to a minimum of 5 feet below finished grade.
- E. See Demolition drawings for further clarification of scope of demolition and site-clearing requirements.
- F. Remove other items indicated, for salvage, relocation, and storage.

3.02 EXAMINATION

- A. Survey existing conditions and correlate with requirements indicated to determine extent of demolition required.
- B. Verify that utilities have been disconnected and capped before starting building demolition operations.
- C. Review Project Record Documents of existing construction provided by Owner. Owner does not guarantee the existing conditions are same as those indicated in Project Record Documents.
- D. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by demolition salvage operations.
- E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

3.03 PREPARATION

- A. Remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction before starting demolition.
- B. Existing Utilities: Locate, identify, disconnect and seal or cap off indicated utilities serving buildings and structures to be demolished.
 - 1. Owner will arrange to shut off indicated utilities when requested by Contractor.
 - 2. Arrange to shut off indicated utilities with utility companies.
 - 3. If removal, relocation or abandonment of utility services will affect adjacent occupied buildings, then provide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity of service to other buildings and structures.

4. Cut off pipe or conduit a minimum of 24 inches below grade. Cap, valve or plug and seal remaining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdiction.
 5. Utilities are to be completely removed where not designated to remain or to be abandoned in place. Include trenching and backfill in demolition.
- C. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished or trenches where utilities or underground construction is to be demolished.
1. Strengthen or add new supports when required during progress of demolition.
- D. Salvaged Items: Comply with the following:
1. Clean salvaged items of dirt and demolition debris.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to storage area designated by Owner.
 5. Protect items from damage during transport and storage.
- E. Protect and maintain benchmarks and survey control points from disturbance during construction.
- F. Locate and clearly flag trees and vegetation to remain or to be relocated.
- G. Protect existing site improvements to remain from damage during construction.
1. Restore damaged improvements to their original condition, as acceptable by Owner.

3.04 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. See GREENBOOK and City Supplement, Section 7-8.6 and 701 for Water Pollution Control measures.
- B. Inspect, repair and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.05 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries and other building facilities during demolition operations.

- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during construction.
- C. Existing Utilities: Maintain utility services indicated to remain and protect them against damage during demolition operations.
- D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies and covered passageways where required by authorities having jurisdiction and as required for pedestrian safety.
 - 1. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 2. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
 - 3. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise and dirt migration to occupied portions of adjacent buildings and athletic field.
- E. Remove temporary barriers and protections when hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.
- F. Park Area and Coastal Bluffs: Protect adjacent park area and coastal bluffs from erosion, sedimentation and debris due to demolition operations.

3.06 TREE PROTECTION

- A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.
 - 1. Do not store construction materials, debris, or excavated materials within fenced area.
 - 2. Do not permit vehicles, equipment or foot traffic within fenced area.
 - 3. Maintain fenced area free of weeds and trash.
- B. Do not excavate within tree protection zones, unless otherwise indicated.
- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots and cleanly cut roots as close to excavation as possible.
 - 1. Cover exposed roots with burlap and water regularly.
 - 2. Temporary support and protect roots from damage until they are permanently redirected and covered with soil.

3. Coat cut faces of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
4. Backfill with soils as soon as possible.

3.07 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 1. Obtain required permits.
 2. Comply with applicable requirements of NFPA 241.
 3. Use of explosives is not permitted.
 4. Use of cutting torches:
 - a. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 - b. Maintain fire watch during and for at least four hours after flame-cutting operations.
 - c. Maintain adequate ventilation when using cutting torches.
 5. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, framing.
 6. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 7. Provide, erect, and maintain temporary barriers and security devices.
 8. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
 9. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 10. Do not close or obstruct roadways or sidewalks without permit.
 11. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 12. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

13. Remove decayed, vermin-infested or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 14. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 15. Dispose of demolished items and materials promptly.
- B. Do not begin removal until receipt of notification to proceed from Owner.
 - C. Protect existing structures and other elements that are not to be removed.
 1. Provide bracing and shoring.
 2. Prevent movement or settlement of adjacent structures.
 3. Stop work immediately if adjacent structures appear to be in danger.
 - D. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.
 - E. If hazardous materials are discovered during removal operations, stop work and notify Construction Manager and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.
 - F. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.08 REPAIRS

- A. See GREENBOOK and City Supplement, Section 7-9 for Protection and Restoration of Existing Improvements.
- B. Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
- C. Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.

3.09 RECYCLING DEMOLISHED MATERIALS

- A. General: Separate recyclable demolished materials from other demolished materials to the maximum extent possible. Separate recyclable materials by type.
 1. Provide containers or other storage method approved by Owner for controlling recyclable materials until they are removed from Project site.
 2. Stockpile materials away from demolition area. Do not store within drip line of remaining trees.
 3. Store components off the ground and protect from weather.

4. Transport recyclable materials off property and legally dispose of them.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits and other incentives received for recycling building demolition materials shall accrue to Contractor.
- C. Asphalt: Break up and transport asphalt to asphalt recycling facility.
- D. Concrete: Remove reinforcement and other metals from concrete and sort with other metals. Pulverize concrete to maximum 1-1/2 inch size.
- E. Wood materials: Sort and stack members according to size, type and length. Separate dimensional lumber and engineered lumber, panel products and treated wood materials.
- F. Roofing: Separate organic and glass-fiber shingles and felts. Remove nails, staples and accessories.
- G. Door and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.
- H. Carpet: Store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency.
- I. Equipment: Drain tanks, piping and fixtures. Seal openings with caps or plugs.
- J. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinkler heads and other components by type and size.
- K. Lighting Fixtures: Separate lamps by type and protect from breakage.
- L. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panel boards, circuit breakers and other devices by type.
- M. Conduit: Reduce conduit to straight lengths and store by type and size.

3.10 DEBRIS AND WASTE REMOVAL

- A. See GREENBOOK and City Supplement, Section 7-8 for Work Site Maintenance.
- B. Remove debris, junk, and trash from site.
- C. Transport debris in manner that will prevent spillage on adjacent surfaces and areas.
- D. Burning of demolished materials is not permitted.
- E. Leave site in clean condition, ready for subsequent work.
- F. Clean up spillage and wind-blown debris from public and private lands.

3.11 CLEANING

- A. Clean adjacent structures, improvements and surfaces of dust, dirt and debris caused by building demolition operations. Return adjacent areas to condition existing before building demolition operations began.

END OF SECTION

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete formwork.
- B. Concrete reinforcement.
- C. Floors and slabs on grade.
- D. Joint devices associated with concrete work.
- E. Miscellaneous concrete elements, including equipment pads, light pole bases, flagpole bases, thrust blocks, and manholes.
- F. Mixture design.
- G. Placement procedures.
- H. Concrete curing.
- I. Concrete finishes.

1.02 RELATED REQUIREMENTS

- A. Section 07 9005 - Joint Sealers.
- B. Section 32 1313 – Concrete Paving: Concrete pavement and walks.
- C. Comply with Structural Drawings including general notes, details and project specific instructions.

1.03 REFERENCE STANDARDS

- A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2005.
- B. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 2004 (Errata 2007).
- C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 2000.
- D. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988 (Reapproved 2002).
- E. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2008.

- F. ASTM C 33 - Standard Specification for Concrete Aggregates; 2008.
- G. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2009a.
- H. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2009a.
- I. ASTM C 143/C 143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2009.
- J. ASTM C 150 - Standard Specification for Portland Cement; 2007.
- K. ASTM C 881/C 881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2002.
- L. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1999 (Reapproved 2008).
- M. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).
- N. ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2009.

1.04 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Submit manufacturers' data on each type of manufactured products indicated showing compliance with specified requirements.
- C. Design Mixes: 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.
 - 2. Submittal for each mix design shall include, at minimum, the following:
 - a. Compressive strength.
 - b. Water-cement ratio.
 - c. Slump.
 - d. Aggregate proportion.
 - e. Mix proportions of all ingredients.
 - f. Intended location(s) of use.

- D. 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.
- E. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - 1. Location of construction joints is subject to approval of the Architect.
- F. Samples for Pigment Color Selection (if applicable): Submit manufacturer's complete sample chip set, including pigment number and required dosage rate for each color.
- G. Samples: Submit samples of underslab vapor retarder to be used.
- H. Samples: Submit two, 4 inch long samples of waterstops and construction joint devices.
- I. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction for concrete accessories.
- J. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.
- K. Qualification Data: For installer.
- L. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Steel reinforcement and accessories.
 - 4. Waterstops.
 - 5. Curing compounds.
 - 6. Floor and slab treatments.
 - 7. Vapor retarders.
- M. Product Certificates: Signed by manufacturers of waterproofing system(s), roofing system(s) and floor-covering system(s) that interface directly with concrete, certifying that curing compounds are compatible with respective system.
- N. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements.
 - 1. Aggregates.
- O. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

- P. Field Quality Control Reports.
- Q. Batch tickets for Concrete containing Integral Waterproofing Admixtures: Batch tickets from concrete plant, validating inclusion of integral waterproofing admixture components into concrete mix.
- R. Minutes of Pre-installation Conference.

1.05 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. Manufacture certified according to NRMCA’s “Certification of Ready Mixed Concrete Production Facilities.”
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade I, according to ACI CP-1 or an equivalent certification program.
 - 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician – Grade II.
- D. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- E. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer’s plant. Obtain aggregate from a single source. Obtain admixtures from single source from single manufacturer.
- F. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, “Structural Welding Code – Reinforcing Steel.”
- G. Perform work of this section in accordance with ACI 301 and ACI 318, unless specifically modified by requirements in the Contract Documents.
- H. Follow recommendations of ACI 306R when concreting during cold weather.
- I. Pre-installation Conference: Before starting concrete construction, conduct conference at Project site.

1. Meet with Owner, Construction Manager, Architect, Owner's Insurer if applicable, testing and inspection agency representative, Contractor's superintendent, installer, independent testing agency representative responsible for concrete design mixtures, ready mix concrete manufacturer, concrete subcontractor, special concrete finish subcontractor, and installers whose work interfaces with or affects concrete construction, including installer of structural steel connections and rough plumbing.
2. Review methods and procedures related to concrete construction.
3. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials.
4. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment and facilities needed to make progress and avoid delays.
5. Review surface finish requirements for conditions and finishes.
6. Review special inspection and testing requirements and inspecting agency procedures for field quality control, concrete finishes and finishing, curing procedures, construction contraction and isolation joints, joint filler strips, semi-rigid joint fillers, vapor-retarder installation, floor and slab flatness and levelness measurement, concrete repair procedures and concrete protection.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Steel Reinforcement: Deliver, store and handle steel reinforcement in manner that prevents bending and damage.
- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil and other contaminants.

PART 2 PRODUCTS

2.01 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true and smooth concrete surfaces. Furnish in largest practical 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. High density overlay, Class 1 or better.
 - b. Medium density overlay, Class 1 or better; mill-release agent treated and edge-sealed.
 - c. Structural 1, B-B or better; mill-oiled and edge-sealed.

- d. B-B (Concrete Form), Class 1 or better; mill-oiled and edge-sealed.
- B. Rough Form-Finished Concrete: Plywood, lumber, metal or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete loads and other superimposed loads.
- D. Chamfer Strips: Wood, metal, PVC or rubber strips; $\frac{3}{4}$ x $\frac{3}{4}$ inch minimum.
- E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain or adversely affect concrete surface and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- F. Form Ties: Factory-fabricated, removable or snap-off metal or fiberglass-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 large than 1 inch in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.02 REINFORCEMENT

- A. ALL REINFORCEMENT USED ON PROJECT TO BE EPOXY-COATED AND IN COMPLIANCE WITH ASTM A 934/A 934 M.
- B. Reinforcing Bars: ASTM A 615/A 615M, grade 60, deformed.
- C. Low-Alloy Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- D. Stirrup Steel: ASTM A 82/A 82M steel wire, unfinished.
- E. Epoxy Coating: ASTM A 934/A 934 M.
- F. Reinforcement Accessories:
 - 1. Tie Wire: Annealed, minimum 16 gage.
 - 2. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain steel bars, cut true to length with ends square and free of burns.
 - 3. Bar Supports: Chairs, bolsters, spacer 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 and as follows:

- a. Sized and shaped for adequate support of reinforcement during concrete placement.
 - b. For concrete surface exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire of CRSI Class 2 stainless steel bar supports.
3. Provide stainless steel components for placement within 1-1/2 inches of weathering surfaces.

2.03 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type V, gray unless otherwise noted on Drawings, Portland type.
1. Use cementitious materials, of the same brand, type and source through the Project.
- B. Fly Ash: ASTM C 618, Class F.
- C. Silica Fume: ASTM C 1240, amorphous silica.
- D. Fine and Coarse Aggregates: ASTM C 33, Class 1N aggregate or better, graded.
1. Acquire all aggregates for entire project from single source with documented service record data of at least 10 years satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
 2. Maximum Course-Aggregate size: 1-1/2 inches nominal.
 3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- E. Water: ASTM C 94/C 94M, clean and not detrimental to concrete.

2.04 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.

4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.05 WATERSTOPS

- A. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Carlisle Coatings & Waterproofing, Inc.; MiraSTOP.
 - b. CETCO; Volclay Waterstop-RX.
 - c. Tremco; Superstop.
 - d. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.06 VAPOR RETARDER

- A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E 1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. Single ply polyethylene is prohibited.
 1. Basis of Design Product: Stego Industries, LLC; Stego Wrap, 15mils.
 - a. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions
 2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor retarder.
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D 448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.
- C. 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.

2.07 LIQUID FLOOR TREATMENT

- A. Penetrating Liquid Floor Hardener and Densifier: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
 - 1. Products: Subject to compliance with requirements, available products that shall be incorporated into the Work include, but are not limited to, the following:
 - a. Meadows, W. R., Inc.; LIQUI-HARD.
 - b. Dayton Superior Corporation; Day-Chem Sure Hard (J-17).
 - c. Euclid Chemical Company (The), an RPM company; Euco Diamond Hard.
 - d. See GREENBOOK and 2010 City Supplement, Section 4-1.6 for Substitutions.
- B. Penetrating Liquid Floor Sealer: Clear, high solids, penetrating waterborne solution that seals concrete surfaces without forming a film.
 - 1. Products: Subject to compliance with requirements, available products that shall be incorporated into the Work include, but are not limited to, the following:
 - a. Meadows, W. R., Inc.; PENESEAL W/B. Use SURE-STEP polymer slip-resistant additive at restrooms and wet areas.
 - b. Euclid Chemical Company (The), an RPM company; Barracade WB 244. Use with manufacturer's polymer slip-resistant additive at restrooms and wet areas.
 - c. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.08 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 - 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. Dayton Superior Corporation; Sure Film (J-74).
 - b. Euclid Chemical Company (The), an RPM company; Eucobar.
 - c. Meadows, W. R., Inc.; EVAPRE.
 - d. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth, 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, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dayton Superior Corporation; Day-Chem Rez Cure (J-11-W).
 - b. Euclid Chemical Company (The), an RPM company; TAMMSCURE WB 30C.
 - c. Meadows, W. R., Inc.; 1100-CLEAR.
 - d. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.
 - 2. Obtain product certificates prior to application, signed by manufacturers of waterproofing system(s), roofing system(s), and floor-covering systems, certifying that curing compounds are compatible. Submit certificates per Section 01 3000 Administrative Requirements.

2.09 BONDING AND JOINTING PRODUCTS

- A. Latex Bonding Agent: Non-dispersible acrylic emulsion or styrene butadiene , complying with ASTM C 1059/ C 1059 M, Type II.
- B. Epoxy Bonding System: Complying with ASTM C 881/C 881M and of Type required for specific application. Two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 - 1. Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.
- C. Joint Filler: Nonextruding, resilient asphalt impregnated fiberboard or felt, complying with ASTM D 1751, 1/4 inch thick and 4 inches deep; tongue and groove profile.
- D. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with minimum 1 inch diameter holes for conduit or rebars to pass through at 6 inches on center; ribbed steel stakes for setting.
 - 1. Provide removable plastic cap strip that forms wedge-shaped joint for sealant installation.
 - 2. Height: To suit slab thickness.

- E. Sealant and Primer: As specified in Section 07 9005.

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 MIX DESIGN

- 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, unless otherwise noted:
 - 1. Fly Ash: 25 percent.

2. Combined Fly Ash and Pozzolan: 25 percent.
 3. Silica Fume: 10 percent.
 4. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 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 or plasticizing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete shall be watertight, and concrete with a water to cementitious materials ratio below 0.50.

2.12 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

3.01 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. Chamfer exterior corners and edges of concrete that are to be wrapped with waterproofing.
- 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.

3.02 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."
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.

3.03 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work 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.

3.04 VAPOR RETARDER

- 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.

3.05 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.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.06 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. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 - 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 - 5. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 6. Use epoxy-bonding adhesive 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 groove tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- 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 Section 07 9005 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.

3.07 WATERSTOPS

- A. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.08 PLACING CONCRETE

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify Architect not less than 24 hours prior to commencement of placement operations.
- D. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- E. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- F. Repair underslab vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.
- G. Separate slabs on grade from vertical surfaces with joint filler.
- H. Place joint filler in floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- I. Extend joint filler from bottom of slab to within 1/2 inch of finished slab surface. Conform to Section 07 9005 for finish joint sealer requirements.
- J. Install joint devices in accordance with manufacturer's instructions.
- K. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- L. Apply sealants in joint devices in accordance with Section 07 9005.

- M. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- N. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- O. 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.
- P. Deposit and consolidate concrete for floors and slabs 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.
- Q. Do not interrupt successive placement; do not permit cold joints to occur.
- R. Saw cut joints within 24 hours after placing. Use 3/16 inch thick blade, cut into 1/4 depth of slab thickness.
- S. Screed slabs on grade level, maintaining surface flatness of maximum 1/4 inch in 10 ft.
- T. Cold-Weather Placement: Comply with ACI 306R 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.
- U. Hot-Weather Placement: Comply with ACI 305R 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.

3.09 FINISHING FORMED SURFACES

- A. Unexposed Form 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.
- B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
 1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- 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.

3.10 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
 1. Apply float finish to surfaces indicated, to receive trowel finish, and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing. Surfaces shall be formed true in plane, and without honeycombs, voids, dips, or sharp protrusions.

- C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighthen until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated, exposed to view, or to be covered with resilient flooring, carpet, terrazzo, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - 2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 - a. Slabs-on-Grade: Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17.
 - b. Suspended Slabs: Specified overall values of flatness, F(F) 35; with minimum local values of flatness, F(F) 24.
- D. Paving Finish: Portland cement concrete paving shall have a medium salted (medium broom) finish on all surfaces sloped less than 6% and slip resistant (heavy broom finish) on all surfaces sloped greater than 6%. CBC Section 1133B.7.1.
- E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.11 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.

3.12 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, including underside of beams, supported slabs, and other similar 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 Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - 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.
 - 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.

3.13 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Hardener and Densifier: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions. **Apply to concrete surfaces where indicated and where otherwise indicated to remain exposed to view.**
 - 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.
- B. Penetrating Liquid Floor Sealer: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller according to manufacturer's written instructions.

3.14 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions. Defer joint filling until concrete has aged at least two months. Do not fill joints until construction traffic has substantially ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semi-rigid 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.

3.15 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.
- 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.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.16 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Provide free access to concrete operations at project site and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.
- D. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

- E. Inspections:
1. Steel reinforcement placement.
 2. Steel reinforcement welding.
 3. Headed bolts and studs.
 4. Verification of use of required design mixture.
 5. Concrete placement, including conveying and depositing.
 6. Curing procedures and maintenance of curing temperature.
- F. 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. 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.
 5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 6. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of three standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of three standard cylinder specimens for each composite sample.
 - c. Obtain test samples for every 100 cu yd or less of each class of concrete placed.
 7. Compressive-Strength Tests: ASTM C 39/C 39M:
 - a. Test one set of three laboratory-cured specimens at 7 days and one set of three specimens at 28 days.

- b. Test one set of three field-cured specimens at 7 days and one set of three specimens at 28 days.
 - c. A compressive-strength test shall be the average compressive strength from a set of three 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, at Contractor's expense, 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.
- G. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

3.17 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

SECTION 03 4500

PRECAST ARCHITECTURAL CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Exterior architectural precast concrete roof.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 – Cast In Place Concrete.
- B. Section 07 9005 – Joint Sealers.

1.03 PERFORMANCE REQUIREMENTS

- A. Corrosion Protection: For connection materials that are outside of the weather barrier of the building, use exclusively stainless steel materials.
- B. Product Options: Information within Drawings and Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignments, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
 - 1. Do not revise intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
 - 2. Where façade is curving, precast architectural concrete units shall be radiused and NOT `faceted.

1.04 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: For each type of product indicated.
- C. Design Mixtures: For each precast concrete mixture. Include compressive strength and water-absorption tests.
- D. Shop Drawings: Detail fabrication and installation of architectural precast concrete units. Indicate locations, plans, elevations, dimensions, shapes, and cross sections of each unit. Indicate joints, reveals, and extent and location of each surface finish. Indicate details at building corners.
 - 1. Indicate welded connections by AWS standard symbols. Detail loose and cast-in hardware and connections.

2. Indicate locations, tolerances, and details of anchorage devices to be embedded in or attached to structure or other construction.
 3. Indicate locations and details of stone facings, anchors, and joint widths.
 4. Design Modifications: If design modifications are proposed to meet performance requirements and field conditions, submit design calculations and Shop Drawings. Do not adversely affect the appearance, durability, or strength of units when modifying details or materials and maintain the general design concept.
 5. Comprehensive engineering analysis signed and sealed by the qualified professional engineer responsible for its preparation. Show governing panel types, connections, and types of reinforcement, including special reinforcement. Indicate location, type, magnitude, and direction of loads imposed on the building structural frame from architectural precast concrete.
- E. Samples: For each type of finish indicated on exposed surfaces of architectural precast concrete units, in sets of 3, illustrating full range of finish, color, and texture variations expected; approximately 12 by 12 by 2 inches.
1. When other faces of precast concrete unit are exposed, include Samples illustrating workmanship, color, and texture of backup concrete as well as facing concrete.
- F. Welding certificates.
- G. Qualification Data: For fabricator.
- H. Material Test Reports: For aggregates.
- I. Material Certificates: For the following items, signed by manufacturers:
1. Cementitious materials.
 2. Reinforcing materials and prestressing tendons.
 3. Admixtures.
 4. Bearing pads.
 5. Structural-steel shapes and hollow structural sections.
 6. Anchors.
- J. Source quality-control test reports.
- K. Field quality-control test and special inspection reports.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: A precast concrete erector qualified and designated by PCI's Certificate of Compliance to erect Category A (Architectural Systems) for non-load-bearing members.
- B. Fabricator Qualifications: A firm that assumes responsibility for engineering architectural precast concrete units to comply with performance requirements. This responsibility includes preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
 - 1. Participates in PCI's plant certification program at time of bidding and is designated a PCI-certified plant for Group A, Category A1 - Architectural Cladding and Load Bearing Units or participates in APA's "Plant Certification Program for Production of Architectural Precast Concrete Products" and is designated an APA-certified plant.
- C. Source Limitations: Obtain precast architectural concrete and GFRC panels from a single source from a single manufacturer.
- D. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- E. Design Standards: Comply with ACI 318 and design recommendations of PCI MNL 120, "PCI Design Handbook - Precast and Prestressed Concrete," applicable to types of architectural precast concrete units indicated.
- F. Quality-Control Standard: For manufacturing procedures and testing requirements, quality-control recommendations, and dimensional tolerances for types of units required, comply with PCI MNL 117, "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products."
- G. Welding: Qualify procedures and personnel according to AWS D1.1/D.1.1M, "Structural Welding Code - Steel"; and AWS D1.4, "Structural Welding Code - Reinforcing Steel."
- H. Preinstallation Conference: Conduct conference at Project site.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver architectural precast concrete units in such quantities and at such times to limit unloading units temporarily on the ground.
- B. Support units during shipment on nonstaining shock-absorbing material.
- C. Store units with adequate dunnage and bracing and protect units to prevent contact with soil, to prevent staining, and to prevent cracking, distortion, warping or other physical damage.
- D. Place stored units so identification marks are clearly visible, and units can be inspected.

- E. Handle and transport units in a position consistent with their shape and design in order to avoid excessive stresses which would cause cracking or damage.
- F. Lift and support units only at designated points shown on Shop Drawings.

1.07 SEQUENCING

- A. Furnish loose connection hardware and anchorage items to be embedded in or attached to other construction without delaying the Work. Provide locations, setting diagrams, templates, instructions, and directions, as required, for installation.

PART 2 - PRODUCTS

2.01 MOLD MATERIALS

- A. Molds: Rigid, dimensionally stable, non-absorptive material, warp and buckle free, that will provide continuous and true precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required finishes.
 - 1. Mold-Release Agent: Commercially produced liquid-release agent that will not bond with, stain or adversely affect precast concrete surfaces and will not impair subsequent surface or joint treatments of precast concrete.
- B. Form Liners: Units of face design, texture, arrangement, and configuration to match those used for precast concrete design reference sample. Furnish with manufacturer's recommended liquid-release agent that will not bond with, stain, or adversely affect precast concrete surfaces and will not impair subsequent surface or joint treatments of precast concrete.
- C. Surface Retarder: Chemical set retarder, capable of temporarily delaying final hardening of newly placed concrete mixture to depth of reveal specified.

2.02 REINFORCING MATERIALS

- A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- C. Low-Alloy-Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- D. Epoxy Coating: ASTM A 934/A 934 M.
- E. Supports: Suspend reinforcement from back of mold or use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place according to PCI MNL 117.

2.03 CONCRETE MATERIALS

- A. Portland Cement: Subject to compliance with Performance Requirements. ASTM C 150, Type V, integral color, unless otherwise indicated.
 - 1. Color: Integral color admixture, to match masonry block color. Submit samples for review prior to fabrication.
- B. Supplementary Cementitious Materials:
 - 1. Fly Ash: ASTM C 618, Class C or F, with maximum loss on ignition of 3 percent.
 - 2. Metakaolin Admixture: ASTM C 618, Class N.
 - 3. Silica Fume Admixture: ASTM C 1240, with optional chemical and physical requirement.
 - 4. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- C. Normal-Weight Aggregates: Except as modified by PCI MNL 117, ASTM C 33, with coarse aggregates complying with Class 5S. Stockpile fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for Project.
 - 1. Face-Mixture-Fine Aggregates: Selected, natural or manufactured sand of same material as coarse aggregate, unless otherwise approved by Architect.
- D. Coloring Admixture: ASTM C 979, synthetic or natural mineral-oxide pigments or colored water-reducing admixtures, temperature stable, and nonfading.
 - 1. Color #1: Match Architect's sample.
- E. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 117.
- F. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
- G. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain calcium chloride, or more than 0.15 percent chloride ions or other salts by weight of admixture.
 - 1. Water-Reducing Admixtures: 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.
 - 4. Water-Reducing and Accelerating Admixture: ASTM C 494/C 494M, Type E.

5. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
6. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
7. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017 M.

2.04 STAINLESS-STEEL CONNECTION MATERIALS

- A. Provide exclusively stainless-steel connection materials at all exterior precast stairs, landing, and intermediate landings and other items indicated.
- B. Stainless-Steel Plate: ASTM A 666, Type 316, of grade suitable for application.
- C. Stainless-Steel Bolts and Studs: ASTM F 593, Alloy 316, hex-head bolts and studs; stainless-steel nuts; and flat, stainless-steel washers.
 1. Lubricate threaded parts of stainless-steel bolts with an antiseize thread lubricant during assembly.
- D. Stainless-Steel-Headed Studs: ASTM A 276, with minimum mechanical properties of PCI MNL 117, Table 3.2.3.
- E. Welding Electrodes: Comply with AWS standards.

2.05 BEARING PADS

- A. Provide one of the following bearing pads for architectural precast concrete units as recommended by precast fabricator for application:
 1. Elastomeric Pads: AASHTO M 251, plain, vulcanized, 100 percent polychloroprene (neoprene) elastomer, molded to size or cut from a molded sheet, Type A durometer hardness of 50 to 70, ASTM D 2240, minimum tensile strength 2250 psi, ASTM D 412.
 2. Random-Oriented, Fiber-Reinforced Elastomeric Pads: Preformed, randomly oriented synthetic fibers set in elastomer. Type A durometer hardness of 70 to 90, ASTM D 2240; capable of supporting a compressive stress of 3000 psi with no cracking, splitting, or delaminating in the internal portions of pad. Test one specimen for every 200 pads used in Project.
 3. Cotton-Duck-Fabric-Reinforced Elastomeric Pads: Preformed, horizontally layered cotton-duck fabric bonded to an elastomer; Type A durometer hardness of 80 to 100, ASTM D 2240; complying with AASHTO's "AASHTO Load and Resistance Factor Design (LRFD) Bridge Design Specifications, Division II, Section 18.10.2, or with MIL-C-882E.
 4. Frictionless Pads: Tetrafluoroethylene (Teflon), glass-fiber reinforced, bonded to stainless or mild-steel plate, of type required for in-service stress.
 5. High-Density Plastic: Multimonomer, nonleaching, plastic strip.

2.06 ACCESSORIES

- A. Reglets (Not exposed to public view): Stainless steel, Type 302 or 304, felt or fiber filled, or with face opening of slots covered
- B. Precast Accessories: Provide clips, hangers, plastic or steel shims, and other accessories required to install architectural precast concrete units.

2.07 GROUT MATERIALS

- A. Sand-Cement Grout: Portland cement, ASTM C 150, Type V, and clean, natural sand, ASTM C 144 or ASTM C 404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.
- B. Nonmetallic, Nonshrink Grout: Premixed, nonmetallic, noncorrosive, nonstaining grout containing selected silica sands, portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C 1107, Grade A for drypack and Grades B and C for flowable grout and of consistency suitable for application within a 30-minute working time.
- C. Epoxy-Resin Grout: Two-component, mineral-filled epoxy resin; ASTM C 881/C 881M, of type, grade, and class to suit requirements.

2.08 CONCRETE MIXTURES

- A. Prepare design mixtures for each type of precast concrete required.
 - 1. Limit use of fly ash and silica fume to 20 percent of portland cement by weight; limit metakaolin and silica fume to 10 percent of portland cement by weight.
- B. Design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at architectural precast concrete fabricator's option.
- C. Limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 318 or PCI MNL 117 when tested according to ASTM C 1218/C 1218M.
- D. Normal-Weight Concrete Mixtures: Proportion face and backup mixtures or full-depth mixtures, at fabricator's option by either laboratory trial batch or field test data methods according to ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:
 - 1. Compressive Strength (28 Days): 5000 psi minimum.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
- E. Water Absorption: 6 percent by weight or 14 percent by volume, tested according to PCI MNL 117.
- F. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 117.

- G. When included in design mixtures, add other admixtures to concrete mixtures according to manufacturer's written instructions.

2.09 MOLD FABRICATION

- A. Molds: Accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for prestressing and detensioning operations. Coat contact surfaces of molds with release agent before reinforcement is placed. Avoid contamination of reinforcement and prestressing tendons by release agent.
 - 1. Place form liners accurately to provide finished surface texture indicated. Provide solid backing and supports to maintain stability of liners during concrete placement. Coat form liner with form-release agent.
- B. Maintain molds to provide completed architectural precast concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances specified.
 - 1. Form joints are not permitted on faces exposed to view in the finished work.
 - 2. Edge and Corner Treatment: Uniformly chamfered.

2.10 FABRICATION

- A. Cast-in Anchors, Inserts, Plates, Angles, and Other Anchorage Hardware: Fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. Accurately position for attachment of loose hardware, and secure in place during precasting operations. Locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.
- B. Furnish loose hardware items including steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing architectural precast concrete units to supporting and adjacent construction.
- C. Cast-in reglets, slots, holes, and other accessories in architectural precast concrete units as indicated on the Contract Drawings.
- D. Cast-in openings larger than 10 inches in any dimension. Do not drill or cut openings or prestressing strand without Architect's approval.
- E. Reinforcement: Comply with recommendations in PCI MNL 117 for fabricating, placing, and supporting reinforcement.
 - 1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete. When damage to epoxy-coated reinforcing exceeds limits specified in ASTM A 934/A 934M, repair with patching material compatible with coating material and epoxy coat bar ends after cutting.
 - 2. Accurately position, support, and secure reinforcement against displacement during concrete-placement and consolidation operations. Completely conceal support devices to prevent exposure on finished surfaces.

3. Place reinforcement to maintain at least 3/4-inch minimum coverage. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.
 4. Place reinforcing steel and prestressing strand to maintain at least 3/4-inch minimum concrete cover. Increase cover requirements for reinforcing steel to 1-1/2 inches when units are exposed to corrosive environment or severe exposure conditions. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.
- F. Reinforce architectural precast concrete units to resist handling, transportation, and erection stresses.
 - G. Comply with requirements in PCI MNL 117 and requirements in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.
 - H. Place face mixture to a minimum thickness after consolidation of the greater of 1 inch or 1.5 times the maximum aggregate size, but not less than the minimum reinforcing cover specified.
 - I. Place concrete in a continuous operation to prevent seams or planes of weakness from forming in precast concrete units.
 1. Place backup concrete mixture to ensure bond with face-mixture concrete.
 - J. Thoroughly consolidate placed concrete by internal and external vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air on surfaces. Use equipment and procedures complying with PCI MNL 117.
 1. Place self-consolidating concrete without vibration according to PCI TR-6, "Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Prestressed Concrete Institute Member Plants."
 - K. Comply with PCI MNL 117 for hot- and cold-weather concrete placement.
 - L. Identify pickup points of architectural precast concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. Imprint or permanently mark casting date on each architectural precast concrete unit on a surface that will not show in finished structure.
 - M. Cure concrete, according to requirements in PCI MNL 117, by moisture retention without heat or by accelerated heat curing using low-pressure live steam or radiant heat and moisture. Cure units until compressive strength is high enough to ensure that stripping does not have an effect on performance or appearance of final product.
 - N. Discard and replace architectural precast concrete units that do not comply with requirements, including structural, manufacturing tolerance, and appearance, unless repairs meet requirements in PCI MNL 117 and Architect's approval.

2.11 FABRICATION TOLERANCES

- A. Fabricate architectural precast concrete units straight and true to size and shape with exposed edges and corners precise and true so each finished panel complies with PCI MNL 117 product tolerances as well as position tolerances for cast-in items.
- B. Fabricate architectural precast concrete units straight and true to size and shape with exposed edges and corners precise and true so each finished panel complies with the following product tolerances:
 - 1. Overall Height and Width of Units, Measured at the Face Exposed to View: As follows:
 - a. 10 feet or under, plus or minus 1/8 inch.
 - b. 10 to 20 feet, plus 1/8 inch, minus 3/16 inch.
 - c. 20 to 40 feet, plus or minus 1/4 inch.
 - d. Each additional 10 feet, plus or minus 1/16 inch.
 - 2. Overall Height and Width of Units, Measured at the Face Not Exposed to View: As follows:
 - a. 10 feet or under, plus or minus 1/4 inch.
 - b. 10 to 20 feet, plus 1/4 inch, minus 3/8 inch.
 - c. 20 to 40 feet, plus or minus 3/8 inch.
 - d. Each additional 10 feet, plus or minus 1/8 inch.
 - 3. Total Thickness or Flange Thickness: Plus 1/4 inch, minus 1/8 inch.
 - 4. Rib Thickness: Plus or minus 1/8 inch.
 - 5. Rib to Edge of Flange: Plus or minus 1/8 inch.
 - 6. Distance between Ribs: Plus or minus 1/8 inch.
 - 7. Variation from Square or Designated Skew (Difference in Length of the Two Diagonal Measurements): Plus or minus 1/8 inch per 72 inches or 1/2 inch total, whichever is greater.
 - 8. Length and Width of Block-outs and Openings within One Unit: Plus or minus 1/4 inch.
 - 9. Location and Dimension of Block-outs Hidden from View and Used for HVAC and Utility Penetrations: Plus or minus 3/4 inch.
 - 10. Dimensions of Haunches: Plus or minus 1/4 inch.

11. Haunch Bearing Surface Deviation from Specified Plane: Plus or minus 1/8 inch.
 12. Difference in Relative Position of Adjacent Haunch Bearing Surfaces from Specified Relative Position: Plus or minus 1/4 inch.
 13. Bowing: Plus or minus $L/360$, maximum 1 inch.
 14. Local Smoothness: 1/4 inch per 10 feet.
 15. Warping: 1/16 inch per 12 inches of distance from nearest adjacent corner.
 16. Tipping and Flushness of Plates: Plus or minus 1/4 inch.
 17. Dimensions of Architectural Features and Rustications: Plus or minus 1/8 inch.
- C. Position Tolerances: For cast-in items measured from datum line location, as indicated on Shop Drawings.
1. Weld Plates: Plus or minus 1 inch.
 2. Inserts: Plus or minus 1/2 inch.
 3. Handling Devices: Plus or minus 3 inches.
 4. Reinforcing Steel and Welded Wire Fabric: Plus or minus 1/4 inch where position has structural implications or affects concrete cover; otherwise, plus or minus 1/2 inch.
 5. Reinforcing Steel Extending out of Member: Plus or minus 1/2 inch of plan dimensions.
 6. Tendons: Plus or minus 1/4 inch, vertical; plus or minus 1 inch, horizontal.
 7. Location of Rustication Joints: Plus or minus 1/8 inch.
 8. Location of Opening within Panel: Plus or minus 1/4 inch.
 9. Location of Flashing Reglets: Plus or minus 1/4 inch.
 10. Location of Flashing Reglets at Edge of Panel: Plus or minus 1/8 inch.
 11. Reglets for Glazing Gaskets: Plus or minus 1/8 inch.
 12. Electrical Outlets, Hose Bibs: Plus or minus 1/2 inch.
 13. Location of Bearing Surface from End of Member: Plus or minus 1/4 inch.
 14. Allowable Rotation of Plate, Channel Inserts, and Electrical Boxes: 2-degree rotation or 1/4 inch maximum over the full dimension of unit.

15. Position of Sleeve: Plus or minus 1/2 inch.

2.12 FINISHES

- A. Panel faces shall be free of joint marks, grain, and other obvious defects. Corners, including false joints shall be uniform, straight, and sharp. Finish exposed-face surfaces of architectural precast concrete units to match approved design reference sample and mockups and as follows:
 1. Design Reference Sample: Match Architect's sample.
- B. Finish all surfaces exposed to view of architectural precast concrete units to match face-surface finish.
- C. Finish unexposed surfaces of architectural precast concrete units by float finish.

2.13 LIQUID TREATMENT

- A. Penetrating Liquid Sealer: Clear, high solids, penetrating waterborne solution that seals concrete surfaces without forming a film.
 1. Products: Subject to compliance with requirements, available products that shall be incorporated into the Work include, but are not limited to, the following:
 - a. Meadows, W. R., Inc.; PENESEAL W/B.
 - b. Euclid Chemical Company (The), an RPM company; Barracade WB 244.
 - c. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.14 SOURCE QUALITY CONTROL

- A. Quality-Control Testing: Test and inspect precast concrete according to PCI MNL 117 requirements. If using self-consolidating concrete, also test and inspect according to PCI TR-6, "Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Prestressed Concrete Institute Member Plants."
- B. Owner will employ an independent testing agency to evaluate architectural precast concrete fabricator's quality-control and testing methods.
 1. Allow Owner's testing agency access to material storage areas, concrete production equipment, concrete placement, and curing facilities. Cooperate with Owner's testing agency and provide samples of materials and concrete mixtures as may be requested for additional testing and evaluation.
- C. Strength of precast concrete units will be considered deficient if units fail to comply with ACI 318 requirements for concrete strength.

- D. Testing: If there is evidence that strength of precast concrete units may be deficient or may not comply with ACI 318 requirements, precaster will employ an independent testing agency to obtain, prepare, and test cores drilled from hardened concrete to determine compressive strength according to ASTM C 42/C 42M.
1. A minimum of three representative cores will be taken from units of suspect strength, from locations directed by Architect.
 2. Cores will be tested in an air-dry condition.
 3. Strength of concrete for each series of 3 cores will be considered satisfactory if average compressive strength is equal to at least 85 percent of 28-day design compressive strength and no single core is less than 75 percent of 28-day design compressive strength.
 4. Test results will be made in writing on same day that tests are performed, with copies to Architect, Contractor, and precast concrete fabricator. Test reports will include the following:
 - a. Project identification name and number.
 - b. Date when tests were performed.
 - c. Name of precast concrete fabricator.
 - d. Name of concrete testing agency.
 - e. Identification letter, name, and type of precast concrete unit(s) represented by core tests; design compressive strength; type of break; compressive strength at breaks, corrected for length-diameter ratio; and direction of applied load to core in relation to horizontal plane of concrete as placed.
- E. Patching: If core test results are satisfactory and precast concrete units comply with requirements, clean and dampen core holes and solidly fill with precast concrete mixture that has no coarse aggregate, and finish to match adjacent precast concrete surfaces.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine supporting structural frame or foundation and conditions for compliance with requirements for installation tolerances, true and level bearing surfaces, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Do not install precast concrete units until supporting cast-in-place building structural framing has attained minimum allowable design compressive strength or supporting steel or other structure is complete.

3.02 INSTALLATION

- A. Install clips, hangers, bearing pads, and other accessories required for connecting architectural precast concrete units to supporting members and backup materials.
- B. Erect architectural precast concrete level, plumb, and square within specified allowable tolerances. Provide temporary supports and bracing as required to maintain position, stability, and alignment as units are being permanently connected.
 - 1. Install temporary steel or plastic spacing shims or bearing pads as precast concrete units are being erected. Tack weld steel shims to each other to prevent shims from separating.
 - 2. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.
 - 3. Remove projecting lifting devices and grout fill voids within recessed lifting devices flush with surface of adjacent precast surfaces when recess is exposed.
 - 4. Unless otherwise indicated, maintain uniform joint widths of 3/4 inch.
- C. Connect architectural precast concrete units in position by bolting, welding, grouting, or as otherwise indicated on Shop Drawings. Remove temporary shims, wedges, and spacers as soon as practical after connecting and grouting are completed.
 - 1. Do not permit connections to disrupt continuity of roof flashing.
- D. Welding: Comply with applicable AWS D1.1/D1.1M and AWS D1.4 for welding, welding electrodes, appearance, quality of welds, and methods used in correcting welding work.
 - 1. Protect architectural precast concrete units and bearing pads from damage by field welding or cutting operations, and provide noncombustible shields as required.
 - 2. Welds not specified shall be continuous fillet welds, using no less than the minimum fillet as specified by AWS.
 - 3. Clean weld-affected metal surfaces with chipping hammer followed by brushing, and apply a minimum 4.0-mil- thick coat of galvanized repair paint to galvanized surfaces according to ASTM A 780.
 - 4. Clean weld-affected metal surfaces with chipping hammer followed by brushing, and reprime damaged painted surfaces.
 - 5. Remove, reweld, or repair incomplete and defective welds.
- E. At bolted connections, use lock washers, tack welding, or other approved means to prevent loosening of nuts after final adjustment.

1. Where slotted connections are used, verify bolt position and tightness. For sliding connections, properly secure bolt but allow bolt to move within connection slot. For friction connections, apply specified bolt torque and check 25 percent of bolts at random by calibrated torque wrench.
- F. Grouting Connections: Grout connections where required or indicated. Retain grout in place until hard enough to support itself. Pack spaces with stiff grout material, tamping until voids are completely filled. Place grout to finish smooth, level, and plumb with adjacent concrete surfaces. Keep grouted joints damp for not less than 24 hours after initial set. Promptly remove grout material from exposed surfaces before it affects finishes or hardens.
- G. Abrasive Strips: Install with surface of abrasive strip positioned 1/16 inch higher than precast architectural concrete surface.

3.03 ERECTION TOLERANCES

- A. Erect architectural precast concrete units level, plumb, square, true, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 117, Appendix I.
- B. Erect architectural precast concrete units level, plumb, square, and true, without exceeding the following noncumulative erection tolerances:
 1. Plan Location from Building Grid Datum: Plus or minus 1/2 inch.
 2. Plan Location from Centerline of Steel: Plus or minus 1/2 inch.
 3. Top Elevation from Nominal Top Elevation: As follows:
 - a. Exposed Individual Panel: Plus or minus 1/4 inch.
 - b. Non-Exposed Individual Panel: Plus or minus 1/2 inch.
 - c. Exposed Panel Relative to Adjacent Panel: 1/4 inch.
 - d. Non-Exposed Panel Relative to Adjacent Panel: 1/2 inch.
 4. Support Elevation from Nominal Support Elevation: As follows:
 - a. Maximum Low: 1/2 inch.
 - b. Maximum High: 1/4 inch.
 5. Maximum Plumb Variation over the Lesser of Height of Structure or 100 Feet: 1 inch.
 6. Plumb in Any 10 Feet of Element Height: 1/4 inch.
 7. Maximum Jog in Alignment of Matching Edges: 1/4 inch.
 8. Joint Width (Governs over Joint Taper): Plus or minus 1/4 inch.

9. Maximum Joint Taper: 3/8 inch.
10. Joint Taper in 10 Feet: 1/4 inch.
11. Maximum Jog in Alignment of Matching Faces: 1/4 inch.
12. Differential Bowing or Camber, as Erected, between Adjacent Members of Same Design: 1/4 inch.
13. Opening Height between Spandrels: Plus or minus 1/4 inch.

3.04 LIQUID TREATMENT

- A. Penetrating Liquid Sealer: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete, all surfaces, by power spray or roller according to manufacturer's written instructions.

3.05 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections and prepare reports:
 1. Erection of precast concrete members.
 2. Compliance with seismic design.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections and prepare test reports.
- C. Field welds will be subject to visual inspections and nondestructive testing according to ASTM E 165 or ASTM E 709. High-strength bolted connections will be subject to inspections.
- D. Testing agency will report test results promptly and in writing to Contractor and Architect.
- E. Repair or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.
- F. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.06 REPAIRS

- A. Repair architectural precast concrete units if permitted by Architect. The Architect reserves the right to reject repaired units that do not comply with requirements.
- B. Mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of 20 feet.

- C. Prepare and repair damaged galvanized coatings with galvanizing repair paint according to ASTM A 780.
- D. Wire brush, clean, and paint damaged prime-painted components with same type of shop primer.
- E. Remove and replace damaged architectural precast concrete units when repairs do not comply with requirements.

3.07 CLEANING

- A. Clean surfaces of precast concrete units exposed to view.
- B. Clean mortar, plaster, fireproofing, weld slag, and other deleterious material from concrete surfaces and adjacent materials immediately.
- C. Clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains.
 - 1. Perform cleaning procedures, if necessary, according to precast concrete fabricator's recommendations. Clean soiled precast concrete surfaces with detergent and water, using stiff fiber brushes and sponges, and rinse with clean water. Protect other work from staining or damage due to cleaning operations.
 - 2. Do not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

END OF SECTION

SECTION 04 2000

UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete Masonry Units.
- B. Ceramic Glazed Face Units.
- C. Mortar and Grout.
- D. Steel Reinforcing Bars.
- E. Ties and Anchors.
- F. Lintels.
- G. Miscellaneous Masonry Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 05 1200 – Structural Steel: Installation of anchors and plates.
- B. Section 05 5000 –Metal Fabrications: Metal fabrications anchored to masonry.
- C. Section 07 9005 - Joint Sealers: Backing rod and sealant at control and expansion joints .

1.03 REFERENCE STANDARDS

- A. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures; American Concrete Institute International; 2008.
- B. ACI 530.1/ASCE 6/TMS 602 - Specification for Masonry Structures; American Concrete Institute International; 2008.
- C. ASTM C 90 - Standard Specification for Loadbearing Concrete Masonry Units; 2009.
- D. ASTM C 91 - Standard Specification for Masonry Cement; 2005.
- E. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2009a.
- F. ASTM C 140 - Standard Test Methods of Sampling and Testing Concrete Masonry Units and Related Units; 2010.
- G. ASTM C 144 - Standard Specification for Aggregate for Masonry Mortar; 2004.
- H. ASTM C 150 - Standard Specification for Portland Cement; 2007.

- I. ASTM C 207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006.
- J. ASTM C 270 - Standard Specification for Mortar for Unit Masonry; 2008a.
- K. ASTM C 404 - Standard Specification for Aggregates for Masonry Grout; 2007.
- L. ASTM C 476 - Standard Specification for Grout for Masonry; 2009.
- M. ASTM C 744 - Standard Specification for Prefaced Concrete and Calcium Silicate Masonry Units; 2009.
- N. ASTM C 780 - Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry; 2009.
- O. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete; 2005.
- P. ASTM C 1019 - Standard Test Method for Sampling and Testing Grout; 2009.
- Q. ASTM C 1072 - Standard Test Method for Measurement of Masonry Flexural Bond Strength; 2006.
- R. ASTM C 1142 - Standard Specification for Extended Life Mortar for Unit Masonry; 1995 (Reapproved 2007).
- S. ASTM C 1314 - Standard Test Method for Compressive Strength of Masonry Prisms; 2009.
- T. ASTM E 518 - Standard Test Methods for Flexural Bond Strength of Masonry; 2009.

1.04 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data for each type of product indicated, including: masonry units, fabricated wire reinforcement, mortar, and masonry accessories.
- C. Shop Drawings, for the following:
 - 1. Masonry Units: Show sizes, profiles, coursing and locations of special shapes.
 - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, “Details and Detailing of Concrete Reinforcement”.
- D. Samples: Submit four samples of precision face, split face, glazed face, cap block and screen block units to illustrate color, texture, and extremes of color range.

- E. Manufacturer's Certificate, for each type and size of the following:
1. Certify that masonry units meet or exceed specified requirements.
 2. Cementitious Materials: Include brand, type and name of manufacturer.
 3. Preblended, dry mortar mixes: Include description of type and proportions of ingredients.
 4. Grout Mixes: Include description of type and proportions of ingredients.
 5. Reinforcing Bars.
 6. Anchors, ties and metal accessories.
- F. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- G. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.
- H. Qualification Data: For testing agency.

1.05 QUALITY ASSURANCE

- A. Comply with provisions of ACI 530/ASCE 5/TMS 402 and ACI 530.1/ASCE 6/TMS 602, except where exceeded by requirements of the contract documents.
1. Maintain one copy of each document on project site.
- B. Pre-installation Conference: Before starting masonry construction, conduct conference at Project site.
1. Meet with Owner, Construction Manager, Architect, Owner's Insurer if applicable, testing and inspection agency representative, installer, manufacturer's representative, and installers whose work interfaces with or affects unit masonry construction, including installer of structural steel connections, rough plumbing, steel grating and supporting structure and sheet metal flashing and trim.
 2. Review methods and procedures related to masonry construction.

3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment and facilities needed to make progress and avoid delays.
 4. Review surface finish and pattern requirements for conditions and finishes, including glazed units, and areas of media-blasting following installation.
 5. Review special inspection and testing requirements and inspecting agency procedures for field quality control.
- C. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- D. Source Limitation for Masonry Units: Obtain exposed masonry unit of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- E. Source Limitation for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.
- B. Handle and store ceramic glazed masonry units and pre-faced concrete block units in protective cartons or trays. Do not remove from protective packaging until ready for installation.
- C. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- D. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- E. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.
- F. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- G. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.07 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides of wall and hold cover securely in place.
- B. Stain Prevention: Prevent mortar, grout and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- C. Cold Weather Requirements: Do not use frozen materials or materials mixed of coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but no less than 7 days after completing cleaning.
- D. Hot Weather Requirements: Comply with hot weather requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A. Concrete Masonry Units: Comply with referenced standards and as follows:
 - 1. Size and Shape: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - a. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding and other special conditions.
 - b. Provide square-edge units for outside corners unless otherwise indicated.

- c. Manufactured to 3/8 inch less than nominal dimensions.
- 2. Load-Bearing Units: ASTM C 90, normal weight.
 - a. Hollow block, as indicated.
 - b. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
 - c. Exposed faces: Special color and texture where indicated, as follows: See elevation drawings for layout of exposed face masonry.
 - d. Pattern: As indicated on elevation drawings for each building.
 - e. Questions regarding color, pattern and placement should be brought to the immediate attention of the Construction Manager prior to masonry construction.
- 3. Cementitious Materials: Limit percentage by weight of cementitious materials other than Portland cement in concrete as follows, unless otherwise noted:
 - a. Fly Ash: 25 percent.
 - b. Combined Fly Ash and Pozzolan: 25 percent
 - c. Silica Fume: 10 percent.
 - d. Combined Fly Ash, Pozzolans and Silica Fume: 35 percent with fly ash and/or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- 4. Pre-Faced Units: ASTM C 90, hollow block, with smooth resinous facing complying with ASTM C 744.
 - a. Colors and styles: As indicated on drawings.
 - b. Manufacturer: Trenwyth Industries; www.trenwyth.com.
 - c. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks or other defects exceeding limits stated in the Standard. Do not use units where such defects will be exposed in the completed Work.

2.02 MORTAR AND GROUT MATERIALS

- A. Masonry Cement: ASTM C 91, Type S.

1. Colored mortar: Premixed cement as required to match Architect's color sample.
- B. Portland Cement: ASTM C 150, Type V - Moderate; color as required to produce approved color sample.
- C. Mortar Cement: ASTM C 1329.
- D. Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.
- E. Hydrated Lime: ASTM C 207, Type S.
- F. Mortar Aggregate: ASTM C 144.
- G. Grout Aggregate: ASTM C 404.
- H. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C 979.
 1. Color(s): As selected by Architect from manufacturer's full range.
 2. Manufacturers:
 - a. Davis Colors: www.daviscolors.com.
 - b. Lambert Corporation: www.lambertusa.com.
 - c. Solomon Colors: www.solomoncolors.com.
 - d. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.
- I. Water: Clean and potable.
- J. Bonding Agent: Latex type.
- K. Cold Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

2.03 REINFORCEMENT

- A. Reinforcing Steel: ASTM A 615/A 615M, Grade 60 uncoated.
- B. Epoxy Coating: ASTM A 934/A 934M.
- C. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 25 percent.

2.04 TIES AND ANCHORAGE

- A. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
 - 1. Partition Top Anchors: As indicated.

2.05 MISCELLANEOUS ANCHORS

- A. Unit Type Inserts in Concrete: Stainless steel, Type 316 inserts.
- B. Dovetail Slots in Concrete: Furnish dovetail slots with filler strips, of slot size indicated, fabricated from 0.034 inch, galvanized steel sheet.
- C. Post-installed Anchors: As indicated.

2.06 MISCELLANEOUS ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane or PVC.
- B. Bond Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, type 1 (No.15 asphalt felt).
- C. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.148 inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.

2.07 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repelling agents, antifreeze compounds or other admixtures unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Use Portland cement-lime masonry cement or mortar cement unless otherwise indicated.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for application stated unless another type is indicated or needed to provide required compressive strength of masonry.
 - 1. For reinforced masonry, use Type S.

- D. Mortar Mixing: Thoroughly mix mortar ingredients using mechanical batch mixer, in accordance with ASTM C 270 and in quantities needed for immediate use.
- E. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated, or if not otherwise indicated, of type (fine or course) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
 - 3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.
- G. Grout Mixing: Thoroughly mix grout ingredients in quantities needed for immediate use in accordance with ASTM C 476 for fine and coarse grout.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine conditions with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of Work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
- B. Verify that related items provided under other sections are properly sized and located.
- C. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- D. Verify that other built-in items are in proper location, and ready for roughing into masonry work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied for installation under other sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

- C. Build chases and recesses to accommodate items specified in this and other Sections.
- D. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- E. Use full size units without cutting if possible. If cutting is required, cut units with motor-driven saws, provide clear, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
 - 1. Cutting of units will be required at top of each pilaster, and each location where masonry interfaces with structural wood laminated beam, to match pitch of beam.

3.04 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Concrete Masonry Units:
 - 1. Bond: Running bond is typical,
 - 2. Coursing: One unit and one mortar joint to equal 4 inches.
 - 3. Mortar Joints: Concave.
 - 4. NOTE: (If applicable) INSTALL GLAZED-FACE UNITS PER MANUFACTURER'S INSTRUCTIONS. DO NOT FLOAT GROUT ACROSS GLAZED SURFACE. POINT OR USE MORTAR GUN.

3.05 PLACING AND BONDING

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.
- D. Remove excess mortar and mortar smears as work progresses.
- E. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.
- F. Interlock intersections and external corners, except for units laid in stack bond.
- G. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

- H. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- I. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.
- J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.
- K. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar before laying fresh masonry.
- L. Built-In Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- M. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- N. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
 - 1. Install compressible filler in joint between top of partition and underside of structure above.
- O. Temporary Formwork and Shoring: Construct formwork and shores as needed to support reinforced masonry elements during construction.
- P. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings and adjacent construction, to provide a neat uniform appearance. Prepare joints for sealant application, where indicated.

3.06 REINFORCEMENT AND ANCHORAGE - GENERAL

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Maintain concrete cover around reinforcing as follows:
 - 1. Minimum concrete cover to comply with table as listed in General Notes: Concrete on Structural drawings.
- E. Conform to applicable code for concrete cover over reinforcement.

3.07 MASONRY FLASHINGS

- A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
 - 1. Extend flashings full width at such interruptions and at least 4 inches into adjacent masonry or turn up at least 4 inches to form watertight pan at non-masonry construction.
 - 2. Remove or cover protrusions or sharp edges that could puncture flashings.
 - 3. Seal lapped ends and penetrations of flashing before covering with mortar.
- B. Extend metal flashings through exterior face of masonry and turn down to form drip. Install joint sealer below drip edge to prevent moisture migration under flashing.
- C. Lap end joints of flashings at least 4 inches and seal watertight with mastic or elastic sealant.

3.08 LINTELS

- A. Provide masonry lintels where shown and where openings of more than 12 inches for brick size units and 24 inches for block size units are shown without structural steel or other supporting lintels.
- B. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.09 GROUTED COMPONENTS

- A. Lap splices as indicated on Drawings.
- B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
- C. Place and consolidate grout fill without displacing reinforcing.
- D. Grouted Components as indicated on Drawings.

3.10 BUILT-IN WORK

- A. As work progresses, install built-in metal door frames, fabricated metal frames, anchor bolts, and plates and other items to be built into the work and furnished under other sections.
- B. Install built-in items plumb, level, and true to line.
- C. Bed anchors of metal door frames in adjacent mortar joints. Fill frame voids solid with grout.
 - 1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- D. Do not build into masonry construction organic materials that are subject to deterioration.

3.11 TOLERANCES

- A. Maximum Variation from Alignment of Columns: 1/4 inch.
- B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.
- C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.
- D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.
- E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.
- F. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.
- G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.12 CUTTING AND FITTING

- A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Coordinate with other sections of work to provide correct size, shape, and location.
- B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.13 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.
- B. Concrete Masonry Unit Tests: Test each variety of concrete unit masonry in accordance with ASTM C 140 for conformance to requirements of this specification.
- C. Mortar Tests: Test each type of mortar in accordance with ASTM C 780, testing with same frequency as masonry samples.

3.14 CLEANING

- A. In-progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods of sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Construction Manager's approval of sample cleaning before proceeding with cleaning of masonry.

3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 5. Clean concrete masonry by cleaning method indicated in NMCA TEK 8-2A applicable to type of stain on exposed surfaces.
- C. Remove excess mortar and mortar droppings.
- D. Replace defective mortar. Match adjacent work.

3.15 PROTECTION

- A. Without damaging completed work, provide protective boards at exposed external

3.16 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar and broken units, by crushing and mixing with fill material as fill is placed.
1. Reuse brick or crush masonry waste to less than 4 inches in each dimension.
 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 31 2323 – Fill.
 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION

SECTION 05 1200

STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural steel framing members, support members.
- B. Base plates, shear stud connectors.
- C. Grouting under base plates.

1.02 RELATED REQUIREMENTS

- A. Section 05 5000 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.03 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.; 2005.
- B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2005.
- C. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2011.
- D. ASTM E94 - Standard Guide for Radiographic Examination; 2004 (Reapproved 2010).
- E. ASTM E164 - Standard Practice for Ultrasonic Contact Examination of Weldments; 2008.
- F. ASTM E165 - Standard Test Method for Liquid Penetrant Examination; 2009.
- G. ASTM E709 - Standard Guide for Magnetic Particle Testing; 2008.
- H. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.
- I. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; International Accreditation Service, Inc.; 2011.

1.04 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
 2. Include embedment drawings.
 3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
 4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical high-strength bolted connections.
- C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.6/D1.6M, "Structural Welding Code – Stainless Steel," for each welded joint whether prequalified or qualified by testing, including the following:
1. Power source (constant current or constant voltage).
 2. Electrode manufacturer and trade name, for demand critical welds.
- D. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.
- E. Mill Test Reports: Indicate structural strength, destructive test analysis and non-destructive test analysis.
- F. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.
- G. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.
- H. Product Test Reports: For the following:
1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 2. Nonshrink grout.

1.05 QUALITY ASSURANCE

- A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."
- B. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
- C. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE.

- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.6/D1.6M, "Structural Welding Code - Steel."
 - 1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by AWS D1.8. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.
- E. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC 303.
 - 2. AISC 341 and AISC 341s1.
 - 3. AISC 358.
 - 4. AISC 360.
- F. Preinstallation Conference: Conduct conference at Project site.
- G. Design connections not detailed on the drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in California.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
 - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
 - 1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
 - 2. Clean and relubricate bolts and nuts that become dry before use.
 - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

1.07 COORDINATION

- A. For steel indicated to receive paint: Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturer's

recommendations to ensure that shop primers and topcoats are compatible with one another.

- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Stainless Steel: ASTM A666, grade 33 (316),.
- B. Welding Electrodes: AWS A5.1 or A5.5
- C. Grout: Non-shrink, non-metallic aggregate type, complying with ASTM C1107/C1107M, factory-packaged, noncorrosive and non-staining, mixed with water to consistency suitable for application and a 30-minute working time, capable of developing a minimum compressive strength of 7,000 psi at 28 days.

2.02 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.
 - 1. Mark and match-mark materials for field assembly.
- B. Structural Steel Exposed to View: In addition to special care used to handle and fabricate structural steel exposed to view, comply with the following:
 - 1. Fabricate with exposed surfaces smooth, square, and free of surface blemishes including pitting, rust, scale, and roughness.
 - 2. Grind sheared, punched, and flame-cut edges of steel to remove burrs and provide smooth surfaces and edges.
 - 3. Fabricate with exposed surfaces free of mill marks, including rolled trade names and stamped or raised identification.
 - 4. Fabricate with exposed surfaces free of seams to maximum extent possible.
 - 5. Remove blemishes by filling or grinding or by welding and grinding, before cleaning, treating, and application of shop primer/intumescent coating.
 - 6. Seal-weld open ends of hollow structural sections with 1/4-inch closure plates.
- C. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- D. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.
- E. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- F. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to applied fireproofing manufacturer's written instructions.
- G. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel framing members.
 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 3. Weld threaded nuts to framing and other specialty items indicated to receive other work. B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.
- H. Fabricate connections for bolt, nut, and washer connectors.
- I. Develop required camber for members.

2.03 SHOP CONNECTIONS

- A. Weld Connections: Comply with AWS D1.6/D1.6M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 1. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.04 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner will engage an independent testing and inspecting agency to perform shop tests and inspections and prepare test reports.
 1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

- C. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to AWS D1.6/D1.6M and the following inspection procedures, at testing agency's option:
 - 1. Liquid Penetrant Inspection: ASTM E 165.
 - 2. Ultrasonic Inspection: ASTM E 164.
 - 3. Radiographic Inspection: ASTM E 94.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
 - 1. Prepare a certified survey of bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.
 - 1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.03 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Base Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Weld plate washers to top of baseplate.
 - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.

4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.
- C. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 1. Level and plumb individual members of structure.
 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.6/D1.6M.
- G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.
- H. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.04 FIELD CONNECTIONS

- A. Weld Connections: Comply with AWS D1.6/D1.6M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
 2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.
 3. Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mill material.

3.05 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.

3.06 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to inspect field welds and high-strength bolted connections.
- B. Welded Connections: Field welds will be visually inspected according to AWS D1.1/D1.1M.
 - 1. In addition to visual inspection, field welds will be tested and inspected according to AWS D1.6/D1.6M and the following inspection procedures, at testing agency's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Ultrasonic Inspection: ASTM E 164.
 - c. Radiographic Inspection: ASTM E 94.
- C. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

3.07 REPAIRS AND PROTECTION

- A. Remove weld tabs that were used for attaching temporary bracing and safety cabling and that are exposed to view in the completed Work. Grind steel smooth.

END OF SECTION

SECTION 05 5000

METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This Section includes the following:
 - 1. Steel framing and supports for electrical equipment.
 - 2. Steel framing and supports for applications where framing and supports are not specified in other Sections.
 - 3. Loose bearing and leveling plates.
 - 4. Miscellaneous steel trim
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Loose steel lintels.
 - 2. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
 - 3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.
- B. Section 04 2000 - Unit Masonry: Placement of metal fabrications in masonry.
- C. Section 09 9000 - Painting and Coating: Paint finish.

1.03 REFERENCE STANDARDS

- A. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2008.
- B. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2007.
- C. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.
- D. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.

- E. ASTM A 283/A 283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003 (Reapproved 2007).
- F. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.
- G. ASTM A 325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.
- H. ASTM A 500/A 500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010.
- I. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.
- J. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.
- K. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).
- L. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- M. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

1.04 PROJECT CONDITIONS

- 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.

1.05 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Show anchorage and accessory items.
 - 1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
 - 2. Provide templates for anchors and bolts specified for installation under other Sections.

- C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.
- D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.06 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."

1.07 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. Provide allowance for trimming and fitting at site.

1.08 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.
- B. Coordinate installation of steel weld plates and angles for casting into concrete that are specified in this Section but required for work of another Section. Deliver such items to Project site in time for installation.
- C. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturer's recommendations to ensure that shop primers and topcoats are compatible with one another.

PART 2 PRODUCTS

2.01 MATERIALS - 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.

2.02 MATERIALS - STEEL

- A. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25 percent.
- B. Steel Sections: ASTM A 36/A 36M.
- C. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.
- D. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- E. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.
- F. Plates: ASTM A 283.
- G. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.
- H. Slotted Channel Framing: ASTM A 653, Grade 33.
- I. Slotted Channel Fittings: ASTM A 1011/A 1011M.
- J. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.
- K. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- L. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- M. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.03 MATERIALS - NONFERROUS

- A. Aluminum Plate and Sheet: ASTM B 209 (ASTM B 209M), Alloy 6061-T6.
- B. Aluminum Extrusions: ASTM B 221 (ASTM B 221M), Alloy 6063-T6.
- C. Aluminum-Alloy Rolled Tread Plate: ASTM B 632/B 632M, Alloy 6061-T6.
- D. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

2.04 FASTENERS

- A. General: Unless otherwise indicated, provide Type 316 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 (ASTM F 568M, Property Class 4.6); with hex nuts, ASTM A 563 (ASTM A 563M); 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 (ASTM F 738M) for bolts and ASTM F 594 (ASTM F 836M) for nuts, Alloy Group 1 (A1).
- 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. Eyebolts: ASTM A 489.
- F. Machine Screws: ASME B18.6.3 (ASME B18.6.7M).
- G. Lag Bolts: ASME B18.2.1 (ASME B18.2.3.8M).
- H. Plain Washers: Round, ASME B18.22.1 (ASME B18.22M).
- I. Lock Washers: Helical, spring type, ASME B18.21.1 (ASME B18.21.2M).
- 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 (A1) stainless-steel bolts complying with ASTM F 593 (ASTM F 738M) and nuts complying with ASTM F 594 (ASTM F 836M).

2.05 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Shop Primers: Provide primers that comply with Division 9 painting Sections and

- C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
 - 1. Use primer with a VOC content of 100 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 2. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

- D. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
 - 1. Use primer with a VOC content of 100 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 2. Products:
 - a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.
 - b. Carboline Company; Carbozinc 621.
 - c. ICI Devoe Coatings; Catha-Coat 313.
 - d. International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer.
 - e. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.
 - f. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
 - g. Tnemec Company, Inc.; Tneme-Zinc 90-97.
 - h. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

- E. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in steel, complying with SSPC-Paint 20.

- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

- G. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.

- H. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.06 FABRICATION

- 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 (1 mm), 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 (3.2 by 38 mm), with a minimum 6-inch (150-mm) embedment and 2-inch (50-mm) hook, not less than 8 inches (200 mm) from ends and corners of units and 24 inches (600 mm) o.c., unless otherwise indicated.

2.07 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 unless otherwise indicated.
- D. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.08 LOOSE BEARING AND LEVELING PLATES

- A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.
- B. Galvanize plates after fabrication.
- C. Prime plates with zinc-rich primer.

2.09 STEEL WELD PLATES AND ANGLES

- A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete or masonry construction as needed to complete the Work. Provide each unit with not less than two integrally welded steel strap anchors for embedding in concrete or masonry.

2.10 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.
- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.
- C. Galvanize exterior miscellaneous steel trim and interior miscellaneous steel trim, where indicated.
- D. Prime exterior miscellaneous steel trim and interior miscellaneous steel trim, where indicated with zinc-rich primer.

2.11 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.

2.12 FINISHES - STEEL

- A. Galvanizing:
 - 1. General: Prior to the galvanizing operation, the Contractor shall identify to the galvanizer the specific assemblies and surfaces receiving a paint or coating system after galvanizing, to ensure that the galvanizing method used on these assemblies is compatible with subsequent application of the paint or coating system. Specifically, such assemblies shall neither be water-quenched, nor receive a chromate conversion coating, as part of the galvanizing operation. For galvanized surfaces to remain exposed to view, the Contractor shall identify to the galvanizer the specific assemblies and surfaces to ensure that the galvanized surfaces are consistent in appearance, finish, and reflectivity.
 - 2. Hot-dip galvanize items as indicated to comply with applicable standard listed below:
 - a. ASTM A 123/A 123M, for galvanizing steel and iron products.
 - b. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
 - c. Fill vent holes and grind smooth after galvanizing.
 - 3. Galvanized Surface Cleaning and Preparation:
 - a. Galvanized surfaces receiving a paint or coating system shall be cleaned and prepared for coating in accordance with ASTM D 6386 and the written instructions of the painting or coating system manufacturer.
 - b. Assemblies conforming to the ASTM D 6386 definition for newly galvanized steel shall receive surface smoothing and surface cleaning in accordance with ASTM D 6386 Section 5, and surface preparation in accordance with ASTM D 6386 Section 5.4.1.
 - c. Assemblies conforming to the ASTM D 6386 definition for partially weathered galvanized steel shall be checked and prepared in accordance with ASTM D 6386 Section 6, before then receiving surface smoothing and surface cleaning in accordance with ASTM D 6386 Section 5, and surface preparation in accordance with ASTM D 6386 Section 5.4.1.
 - d. Assemblies conforming to the ASTM D 6386 definition for weathered galvanized steel shall be checked and prepared in

accordance with ASTM D 6386 Section 7, before then receiving surface smoothing and surface cleaning in accordance with ASTM D 6386 Section 5, and surface preparation in accordance with ASTM D 6386 Section 5.4.1.

- B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B) and Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.13 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. 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.
- C. 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.

- D. Field Welding: Comply with the following requirements:
 - 1. Clean and strip primed steel items to bare metal where site welding is required.
 - 2. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 3. Obtain fusion without undercut or overlap.
 - 4. Remove welding flux immediately.
 - 5. 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.
- E. 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.
- F. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- G. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.02 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. Anchor supports for operable partitions securely to and rigidly brace from building structure.
- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
 - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.
- D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installing Bearing and Leveling Plates" Article.
 - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

3.03 INSTALLING BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with grout.
 - 1. Use nonshrink grout, either metallic or nonmetallic, in concealed locations where not exposed to moisture; use nonshrink, nonmetallic grout in exposed locations, unless otherwise indicated.
 - 2. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.04 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 (0.05-mm) 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.

3.05 TOLERANCES

- A. Maximum Variation from Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset from True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 05 5213

PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Free-standing railings at stairs and ramps.
- B. Wall-anchored railings at stairs and ramps.

1.02 REFERENCE STANDARDS

- A. ASTM E 935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).
- B. ASTM E 985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).

1.03 SUBMITTALS

- A. See GREENBOOK and City Supplement, section 2-5.3 for shop drawings and submittals.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.

PART 2 PRODUCTS

2.01 RAILINGS - GENERAL REQUIREMENTS

- A. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of ASTM E 985 and applicable local code.
- B. Design railing assembly, wall rails, and attachments to resist lateral force of 75 lbs at any point without damage or permanent set. Test in accordance with ASTM E 935.
- C. Allow for expansion and contraction of members and building movement without damage to connections or members.
- D. Dimensions: See drawings for configurations and heights.
 - 1. Top Rails and Wall Rails: 1-1/2 inches diameter, round.
 - 2. Intermediate Rails: 1-1/2 inches diameter, round.
 - 3. Posts: 1-1/2 inches diameter, round.
- E. Provide anchors, wall brackets, escutcheon plates and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.

1. For anchorage to concrete, provide inserts to be cast into concrete, for welding anchors.
 2. For anchorage to stud walls, provide backing plates, for bolting anchors.
 3. For anchorage to masonry walls, provide stainless steel expansion anchors.
 4. Posts: Provide adjustable flanged brackets.
- F. Provide welding fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.02 STEEL RAILING SYSTEM

- A. Steel Tube: Type 316 Stainless Steel structural tubing.
1. For use at exterior applications: including ramp and stair.
- B. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.
- C. Exposed Fasteners: No exposed bolts or screws.
- D. Handrail Brackets: Fabricated of same material as tubing for application. Anchor with accessory fasteners provided by manufacturer for as appropriate for substrate. All fasteners/anchors to be stainless steel.
- E. Guard Infill Panel: Woven Wire Cloth.
1. Material: Stainless Steel, Type 316.
 2. Crimp Type: Flat top crimp.
 3. Size: Size to fit opening, with 1/2 inch gap between post and top and bottom rails, typical. Field measure opening prior to fabrication.
 4. Mesh Pattern: 2 inch opening with 0.12 inch diameter wire.
 5. Perimeter: Welded Edge Wire at all sides.
 6. Edging: U-Edging accessory, 1 inch x 18 gauge, stainless steel type 316.

2.03 FABRICATION

- A. Accurately form components to suit specific project conditions and for proper connection to building structure.
- B. Fit and shop assemble components in largest practical sizes for delivery to site.
- C. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.

- D. Welded Joints:
1. Exterior Components: Continuously seal joined pieces by intermittent welds and plastic filler. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
 2. Interior Components: Continuously seal joined pieces by intermittent welds and plastic filler.
 3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Clean and strip primed steel items to bare metal where site welding is required.
- B. Supply items required to be cast into concrete with setting templates, for installation as work of other sections.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Anchor railings securely to structure.
- D. Field weld anchors as indicated on shop drawings. Touch-up welds with primer. Grind welds smooth.
- E. Conceal anchor bolts and screws whenever possible.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural dimension lumber framing.
- B. Roof-mounted curbs.
- C. Roofing nailers.
- D. Roofing cant strips.
- E. Preservative treated wood materials.
- F. Miscellaneous framing and sheathing.
- G. Communications and electrical room mounting boards.
- H. Concealed wood blocking, nailers, and supports.
- I. Miscellaneous wood nailers, furring, and grounds.

1.02 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) or greater but less than 5 inches nominal in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NHLA: National Hardwood Lumber Association.
 - 3. NLGA: National Lumber Grades Authority.
 - 4. WCLIB: West Coast Lumber Inspection Bureau.
 - 5. WWPA: Western Wood Products Association.

1.03 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.

- B. 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 and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
 - 4. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- C. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.
- D. Research/Evaluation Reports: For the following, from ICC-ES:
 - 1. Preservative-treated wood.
 - 2. Fire-retardant-treated wood.
 - 3. Power-driven fasteners.
 - 4. Powder-actuated fasteners.
 - 5. Expansion anchors.
 - 6. Metal framing anchors.

1.04 QUALITY ASSURANCE

- A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.
- B. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

- C. Deliver interior wood materials that are to be exposed to view only after building is enclosed and weatherproof, wet work other than painting is dry, and HVAC system is operating and maintaining temperature and humidity at occupancy levels.

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
 - 3. 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.
 - 4. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Lumber fabricated from old growth timber is not permitted.

2.02 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWP A C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWP A C31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 - 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
 - 1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.

- D. Application: Treat items indicated on Drawings, and the following:
1. Wood nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Interior wood sleepers, blocking, furring and similar concealed members in contact with masonry or concrete.

2.03 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
1. Use treatment that does not promote corrosion of metal fasteners.
 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
 4. Design Value Adjustment Factors: Treated lumber shall be tested according ASTM D 5664, and design value adjustment factors shall be calculated according to ASTM D 6841.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Kiln-dry plywood after treatment to a maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.
- E. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

- F. Application: Treat all miscellaneous carpentry unless otherwise indicated.
1. Framing for raised platforms.
 2. Concealed blocking.
 3. Roof framing and blocking.
 4. Wood cants, nailers, curbs, equipment support bases, blocking, and similar members in connection with roofing.
 5. Plywood backing panels.

2.04 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
 2. Nailers.
 3. Rooftop equipment bases and support curbs.
 4. Cants.
 5. Furring.
 6. Grounds.
- B. For items of dimension lumber size, provide Construction or No. 2 grade lumber with 15 percent maximum moisture content of any species.
- C. For exposed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:
1. Eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Standard or No. 3 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
 2. Hem-fir or hem-fir (north), Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
 3. Spruce-pine-fir (south) or spruce-pine-fir, Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
- D. For concealed boards, provide lumber with 15 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. Spruce-pine-fir (south) or spruce-pine-fir, Construction or 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
 3. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.
- E. For blocking not used for attachment of other construction Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- F. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.05 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Grading Agency: West Coast Lumber Inspection Bureau (WCLIB).
- B. Sizes: Nominal sizes as indicated on drawings, S4S.
- C. Moisture Content: S-dry or MC19.
- D. Joist, Rafter, and Small Beam Framing (2 by 6 through 4 by 16):
 1. Species: Douglas Fir-Larch.
 2. Grade: No. 1 & Btr.

2.06 CONSTRUCTION PANELS

- A. Equipment Backing Panels: DOC PS 1, Exterior, AC, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.
 1. Plywood 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."

2.07 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, 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: NES 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 (ASME B18.2.3.8M).
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) 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

2.08 METAL FRAMING ANCHORS

- A. Acceptable Products: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cleveland Steel Specialty Co.
 - 2. KC Metals Products, Inc.
 - 3. Simpson Strong-Tie Co., Inc.
 - 4. Southeastern Metals Manufacturing Co., Inc.
 - 5. USP Structural Connectors.
 - 6. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.
- B. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.
 - 1. Use for interior locations where stainless steel is not indicated.
- C. Stainless-Steel Sheet: ASTM A 666, Type 304
 - 1. Use for exterior locations and where indicated.

2.09 MISCELLANEOUS MATERIALS

- A. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Adhesives 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."

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.
- C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.03 FRAMING INSTALLATION

- A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit 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. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.
- C. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.
- D. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- E. Install structural members full length without splices unless otherwise specifically detailed.
- F. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AFPA Wood Frame Construction Manual.
- G. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

- H. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.
- I. Provide bridging at joists in excess of 8 feet span as detailed. Fit solid blocking at ends of members.
- J. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.
- K. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
- L. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
- M. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. NES NER-272 for power-driven fasteners.
 - 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
- N. 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; do not countersink nail heads, unless otherwise indicated.

3.04 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. 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.
- C. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.
- D. In framed assemblies that have concealed spaces, provide solid wood fireblocking as required by applicable local code, to close concealed draft openings between floors and between top story and roof/attic space; other material acceptable to code authorities may be used in lieu of solid wood blocking.
- E. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.
- F. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of

support is explicitly indicated.

- G. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.05 ROOF-RELATED CARPENTRY

- A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.
- B. Provide wood curb at all roof openings except where specifically indicated otherwise. Form corners by alternating lapping side members.

3.06 INSTALLATION OF CONSTRUCTION PANELS

- A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
 - 1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
 - 2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
 - 3. Install adjacent boards without gaps.
 - 4. Coordinate locations with utilities requiring backing panels.
 - 5. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

3.07 TOLERANCES

- A. Framing Members: 1/4 inch from true position, maximum.
- B. Variation from Plane (Other than Floors): 1/4 inch in 10 feet maximum, and 1/4 inch in 30 feet maximum.

3.08 CLEANING

- A. Waste Disposal: Comply with the requirements of Section 01 7419.
 - 1. Comply with applicable regulations.
 - 2. Do not burn scrap on project site.
 - 3. Do not burn scraps that have been pressure treated.
 - 4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

- B. Do not leave any wood, shavings, sawdust, etc. on the ground or buried in fill.
- C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 1300

SHEET WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sheet membrane waterproofing at retaining wall.
- B. Cant strips and other accessories.
- C. Drainage panels.

1.02 RELATED REQUIREMENTS

- A. Section 07 6200 - Sheet Metal Flashing and Trim: Metal coping and counterflashing.
- B. Section 07 9005 - Joint Sealers: Sealant for joints in substrates.

1.03 REFERENCE STANDARDS

- A. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers- Tension; 2006a.
- B. ASTM D 570 - Standard Test Method for Water Absorption of Plastics; 1998 (Reapproved 2005).
- C. ASTM D 624 - Standard Test Method For Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers; 2000 (Reapproved 2007).
- D. ASTM D 746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact; 2007.
- E. ASTM D 2240 - Standard Test Method For Rubber Property--Durometer Hardness; 2005.
- F. ASTM D 2581 - Standard Specification for Polybutylene (PB) Plastics Molding and Extrusion Materials; 2009.
- G. ASTM D 3020 - Standard Specification for Polyethylene and Ethylene Copolymer Plastic Sheeting for Pond, Canal, and Reservoir Lining; 1989.
- H. ASTM D 4068 - Standard Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane; 2009.
- I. ASTM D 4551 - Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Flexible Concealed Water-Containment Membrane; 1996 (Reapproved 2008).
- J. ASTM E 96/E 96M - Standard Test Methods For Water Vapor Transmission of Materials; 2005.

- K. NRCA ML104 - The NRCA Roofing and Waterproofing Manual; National Roofing Contractors Association; Fifth Edition, with interim updates.
- L. NRCA MS108 - The NRCA Waterproofing and Dampproofing Manual; National Roofing Contractors Association; Third Edition.

1.04 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and submittals.
- B. Product Data: Provide data for membrane, surface conditioner, flexible flashings, joint cover sheet, and joint and crack sealants.
- C. Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.
- D. Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer's Installation Instructions: Indicate special procedures, perimeter conditions requiring special attention, and acceptable installation temperatures.
- F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Membrane Manufacturer Qualifications: Company specializing in waterproofing sheet membranes with five years experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

1.06 STORAGE AND HANDLING

- A. Store all materials in a dry space at temperatures between 50 and 90 degrees F. Do not store in direct sunlight. Do not remove material from box until ready to use.

1.07 FIELD CONDITIONS

- A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until liquid or mastic accessories have cured.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Contractor shall correct defective Work within a 1 year period after Date of Substantial Completion; remove and replace materials concealing waterproofing at no extra cost to Owner.

- C. Provide ten year manufacturer warranty for waterproofing failing to resist penetration of water, except where such failures are the result of structural failures of building. Hairline cracking of concrete due to temperature change or shrinkage is not considered a structural failure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Protecto Wrap Company. or equal.
- B. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.02 MEMBRANE MATERIALS

- A. Sheet Waterproofing - General: Modified bituminous membrane, adhesive bonded.
 - 1. Capable of resisting water head of 150 feet and preventing moisture migration to interior.
 - 2. Product: "Jiffy Seal 60" manufactured by Protecto Wrap Company for use at below grade waterproofing of concrete and block walls.
 - 3. Product: "Jiffy Seal 500 Detail Tape" manufactured by Protecto Wrap Company for use in detailing around protrusions, drains, footings, and non-uniform surfaces.
- B. Modified Bituminous Membrane: Asphalt and polymer modifiers of styrene-butadiene-styrene (SBS) type, reinforced with non-woven polyester; reinforcement sandwiched between two layers of rubberized asphalt, with release film.
 - 1. Formulated for seaming by self-adhering.
 - 2. Thickness: 60 mils.
 - 3. Sheet Width: 60 inch.
 - 4. Tensile Strength, Membrane: 425 psi.
 - 5. Tensile Strength, Polyester Reinforcement: 3200 psi, as measured in accordance with ASTM D 412.
 - 6. Tensile Strength: 600 psi, measured in accordance with ASTM D 412.
 - 7. Ultimate Elongation: 500 percent, measured in accordance with ASTM D 412.
 - 8. Puncture Resistance: 80 lb. (356 N), measured in accordance with ASTM E154.
 - 9. Pliability: Passes, as measured in accordance with ASTM D146.

10. Water Absorption: 0.23 percent increase in weight, maximum, measured in accordance with ASTM D 570, water immersion.
 11. Water Vapor Permeability: 0.003 perm inch, measured in accordance with ASTM E 96/E 96M.
 12. Unaffected by exposure to fungi in soil for 16 weeks, as tested in accordance with GSA-PBS 07115.
- C. Modified Bituminous Membrane Detail Tape: Asphalt and polymer modifiers of styrene-butadiene-styrene (SBS) type, unreinforced comformable sheet, with release film.
1. Formulated for seaming by self-adhering.
 2. Thickness: 60 mils.
 3. Sheet Width: 6 and 12 inch.
 4. Ultimate Elongation: 1,500 percent, measured in accordance with ASTM D 412.
 5. Pliability: Passes, as measured in accordance with ASTM D146.
 6. Water Absorption: 0.23 percent increase in weight, maximum, measured in accordance with ASTM D 570, water immersion.
 7. Water Vapor Permeability: 0.003 perm inch, measured in accordance with ASTM E 96/E 96M.
 8. Resistance to Hydrostatic Head: 150 feet of water.
- D. Primer: As recommended by membrane manufacturer.
- E. Seaming Materials: As recommended by membrane manufacturer.
- F. Membrane Sealant: As recommended by membrane manufacturer.
- G. Adhesives: As recommended by membrane manufacturer.
- H. Thinner and Cleaner: As recommended by adhesive manufacturer, compatible with sheet membrane.

2.03 ACCESSORIES

- A. Sealant for Substrate Surfaces: Type as specified in Section 07 9005 and approved by membrane manufacturer.
- B. Foundation wall Primer: Protecto Wrap No. 100 VOC Primer, for use on vertical surfaces. Or approved equal.

- C. Membrane Sealant: Protecto Wrap No. JS160H Mastic, for sealing detail cuts and membrane terminations. Or approved equal.
- D. Protection Board: 0.38 inch thick prefabricated, high-compression, dimpled drainage board; Protecto Drain 2000V drainage board manufactured by Protecto Wrap Company. Or approved equal.
- E. Cant Strips: Premolded composition material.
- F. Flexible Flashings: Type recommended by membrane manufacturer.
- G. Counterflashings: as specified in Section 07 6200.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify substrate surfaces are durable; free of matter detrimental to adhesion or application of waterproofing system.
- C. Verify that items that penetrate surfaces to receive waterproofing are securely installed.

3.02 PREPARATION

- A. Protect adjacent surfaces not designated to receive waterproofing.
- B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions. Vacuum substrate clean.
 - 1. If substrate is damp or below 40 degrees F, Protecto Wrap #80 Primer should be applied prior to the application of the membrane.
- C. Apply Protecto Wrap No. 100 Primer to all clean and prepped vertical concrete and masonry surfaces prior to installation of Jiffy Seal 140/60. Do not apply primer to wet surfaces. For green concrete, use Jiffy Seal No. 80 Green Concrete Primer, or approved equal.
- D. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer.
- E. Seal cracks and joints with sealant using depth to width ratio as recommended by sealant manufacturer.

3.03 INSTALLATION - MEMBRANE

- A. Foundation Membrane:
 - 1. Overlap edges and ends and seal by method recommended by manufacturer, minimum 3 inches. Seal permanently waterproof.

2. Reinforce membrane with multiple thickness of membrane material over joints, whether joints are static or dynamic.
3. Install flexible flashings. Seal items penetrating through membrane with flexible flashings. Seal watertight to membrane.
4. Corners: For all horizontal corners, use cant strips or fillets and Jiffy Seal 500; install according to manufacturer's written instructions.
5. Seal membrane and flashings to adjoining surfaces.

3.04 INSTALLATION - DRAINAGE PANEL and PROTECTION BOARD

- A. Place drainage panel directly against membrane, butt joints, place to encourage drainage downward. Scribe and cut boards around projections, penetrations, and interruptions.
- B. Place protection board directly against drainage panel; butt joints. Scribe and cut boards around projections, penetrations, and interruptions.
- C. Adhere protection board to substrate with compatible adhesive.

3.05 FIELD QUALITY CONTROL

- A. testing and inspection services will be provided. Contractor shall provide temporary construction and materials for testing.

3.06 PROTECTION

- A. Do not permit traffic over unprotected or uncovered membrane.

END OF SECTION

SECTION 07 6200

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fabricated sheet metal items, including flashings, counterflashings, gutters, and downspouts.
- B. Reglets and accessories.
- C. Formed roof drainage sheet metal fabrications.
- D. Formed low-slope roof sheet metal fabrications.

1.02 RELATED REQUIREMENTS

- A. Section 06 1000 – Miscellaneous Rough Carpentry: Wood nailers, curbs and blocking.
- B. Section 07 9005 – Joint Sealers

1.03 REFERENCE STANDARDS

- A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels; 2005.
- B. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2009a.
- C. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007.
- D. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2003.

1.04 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Fabricate and install copings capable of resisting the forces according to recommendations in FMG Loss Prevention Data Sheet 1-49.

- C. For sheet metal flashing and trim provided under this Section that is part of the roofing assembly, comply with the performance requirements herein and with the applicable performance requirements indicated in Section 07 6100 Sheet Metal Roofing.
 - 1. Sheet metal copings providing edge securement for low-sloped roofs shall be in compliance with the 2007 California Building Code, and shall be fabricated, installed, and tested in compliance with ANSI/SPRI ES-1.
- D. Water Infiltration: Provide sheet metal flashing and trim that do not allow water infiltration to building interior.
- E. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F material surfaces.

1.05 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
- C. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
 - 1. Identification of material, thickness, weight, and finish for each item and location in Project.
 - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 - 3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 - 4. Details of termination points and assemblies, including fixed points.
 - 5. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
 - 6. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.
 - 7. Details of special conditions.
 - 8. Details of connections to adjoining work.

9. Detail formed flashing and trim at a scale of not less than 3 inches per foot.
- D. Samples for Initial Selection: For each type of sheet metal flashing, trim, and accessory indicated with factory-applied color finishes involving color selection.
 - E. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
 2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
 3. Accessories and Miscellaneous Materials: Full-size Sample.
 - F. Qualification Data: For qualified fabricator.
 - G. Test Reports: For copings, indicating compliance with performance requirements.
 - H. Warranty: Sample of special warranty.

1.06 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.

1.07 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
- C. Preinstallation Conference: Conduct conference at Project site.
 1. Meet with Owner, Architect, Owner's insurer if applicable, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
 2. Review methods and procedures related to sheet metal flashing and trim.
 3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.

4. Review special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect sheet metal flashing.
5. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- C. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

1.09 WARRANTY

- A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 SHEET MATERIALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required.

1. Exposed Coil-Coated Finishes:
 - a. Three-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - b. Color: Custom color to match Architect's sample.
2. Aluminum flashing shall be used in areas exposed to view, but shall not be used in any below-grade applications, nor shall it be used in any locations subject to contact with concrete surfaces.
- C. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 316, dead soft, fully annealed.
 1. Finish: No. 4 (polished directional satin)
 2. Stainless steel sheet shall be limited to concealed areas only, in below-grade conditions, and in areas subject to contact with concrete.
- D. Metallic-Coated Steel Sheet (Galvanized): Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation; structural quality.
 2. Color: To match color selected for Sheet Metal Roofing.
 3. Galvanized sheet steel shall be limited to rooftop applications only, that are not visible from any vantage point on the site, nor visible from any vantage point from within the building.

2.02 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet: Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
 1. Thermal Stability: ASTM D 1970; stable after testing at 350 deg F.
 2. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Protecto Wrap.
 - b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra.

- c. Owens Corning; WeatherLock Metal High Temperature Underlayment
 - d. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
 - e. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.
- B. Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.

2.03 ACCESSORIES

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal unless otherwise indicated.
- B. Fasteners: Screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal.
- 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
 - 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 - 3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
 - 4. Fasteners for Zinc-Tin Alloy-Coated Stainless-Steel Sheet: Series 300 stainless steel.
 - 5. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.
- C. Solder:
- 1. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.
 - 2. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.

- D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- H. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.
- I. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.
- J. Primer: Zinc chromate type.
- K. Protective Backing Paint: Zinc molybdate alkyd.
- L. Sealant: Type C specified in Section 07 9005.
- M. Plastic Cement: ASTM D 4586, Type I.
- N. Reglets: Surface mounted type, galvanized steel; face and ends covered with plastic tape.

2.04 FABRICATION

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
 - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 2. Obtain field measurements for accurate fit before shop fabrication.
 - 3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.
- D. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.
- G. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use
- H. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.
- I. Do not use graphite pencils to mark metal surfaces.

2.05 LOW-SLOPE SHEET METAL FABRICATION

- A. Copings: Fabricate in minimum 96-inch- long, but not exceeding 10-foot- long, sections. Fabricate joint plates of same thickness as copings. Furnish with continuous cleats to support edge of external leg and drill elongated holes for fasteners on interior leg. Miter corners, seal, and solder or weld watertight.
 - 1. Coping Profile: As indicated on Drawings.
 - 2. Joint Style: Butt with 12-inch wide, concealed back-up plate.
 - 3. Fabricate from the following materials:
 - a. Aluminum: As indicated on Drawings.
 - 4. Finish: Three-Coat Fluoropolymer: AAMA 620. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's written instructions.
 - a. Color: Custom color to match Architect's sample.

- B. Roof and Roof to Wall Transition: Fabricate from the following materials:
 - 1. Aluminum: 0.050 inch thick where exposed to view and not subject to contact with concrete.
 - 2. Stainless Steel: 0.025 inch thick, in areas subject to contact with concrete and where exposed to view.
 - 3. Galvanized Steel: 0.034 inch thick. At roof flashing applications not exposed to public view.
- C. Counterflashing: Fabricate from the following materials:
 - 1. Galvanized Steel: 0.022 inch thick., not exposed to public view
- D. Flashing Receivers: Fabricate from the following materials:
 - 1. Galvanized Steel: 0.022 inch thick, not exposed to public view
- E. Roof-Penetration Flashing: Fabricate from the following materials:
 - 1. Galvanized Steel: 0.028 inch thick, not exposed to public view.
- F. Roof-Drain Flashing: Fabricate from the following materials:
 - 1. Stainless Steel: 0.016 inch thick.

2.06 GUTTER AND DOWNSPOUT FABRICATION

- A. Gutters: SMACNA Architectural Sheet Metal Manual, Rectangular profile.
- B. Downspouts: Round profile.
- C. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 5 years in accordance with SMACNA Architectural Sheet Metal Manual.
- D. Accessories: Profiled to suit gutters and downspouts.
 - 1. Anchorage Devices: In accordance with SMACNA requirements.
 - 2. Gutter Supports: Brackets.
 - 3. Downspout Supports: Straps.
- E. Downspout Boots: Steel.
- F. Seal metal joints.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work, deliver to Construction Manager.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Install starter and edge strips, and cleats before starting installation.
- B. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.
- C. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil.

3.03 INSTALLATION - GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 - 3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
 - 4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
 - 5. Install sealant tape where indicated.
 - 6. Torch cutting of sheet metal flashing and trim is not permitted.
 - 7. Do not use graphite pencils to mark metal surfaces.

- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
 - 1. Coat back side of uncoated aluminum and stainless-steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate metal framing not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal joints as shown and as required for watertight construction.
 - 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 07 9005 Joint Sealers.
- F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinned surface would show in completed Work.
 - 1. Do not solder metallic-coated steel and aluminum sheet.
 - 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
 - 3. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

3.04 INSTALLATION - UNDERLAYMENT

- A. General: Install underlayment as indicated on Drawings.

- B. Polyethylene Sheet: Install polyethylene sheet with adhesive for anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped and taped joints of not less than 2 inches.
- C. Felt Underlayment: Install felt underlayment with adhesive for temporary anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches.
- D. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Apply primer if required by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.

3.05 INSTALLATION – ROOF DRAINAGE SYSTEM

- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
- B. Scuppers and Conductor Heads: Install scuppers through wall or parapet where indicated. Continuously support scupper, set to correct elevations, and seal flanges to interior wall face, over cants or tapered edge strips, and seal to conductor head. Anchor conductor head securely to wall with elevation of conductor top edge 1 inch below scupper discharge.
- C. Downspouts: Join section with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch away from walls; located fasteners at top and bottom and approximately 60 inches o.c.
 - 1. Provide elbows at base of downspout to direct water away from building.

3.06 INSTALLATION – ROOF FLASHING

- A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
- B. Copings: Comply with performance requirements. Anchor to resist uplift and outward forces according to FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated. Install with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Align joints in coping with joints in adjacent construction.

- C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of 4 inches over base flashing. Install stainless-steel draw band and tighten.
- D. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with sealant
- E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof.

3.07 TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.08 FIELD QUALITY CONTROL

- A. See Section 01 4000 - Quality Requirements, for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

3.09 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 9005

JOINT SEALERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Sealants and joint backing.
- B. Precompressed foam sealers.

1.02 REFERENCE STANDARDS

- A. ASTM C 834 - Standard Specification for Latex Sealants; 2010.
- B. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications; 2008.
- C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2010.
- D. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2009.
- E. ASTM D 1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2007.
- F. ASTM D 1667 - Standard Specification for Flexible Cellular Materials--Poly(Vinyl Chloride) Foam (Closed-Cell); 2005.
- G. ASTM D 2628 - Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for concrete Pavements; 1991 (Reapproved 2005).
- H. SCAQMD 1168 - South Coast Air Quality Management Owner Rule No.1168; current edition; www.aqmd.gov.

1.03 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Samples: Submit two samples, 6 inch in size illustrating sealant colors for selection.
- D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, and perimeter conditions requiring special attention.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.

- B. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years experience.

1.05 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.06 COORDINATION

- A. Coordinate the work with all sections referencing this section.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Silicone Sealants:

1. Bostik Inc; Product CHEM-CALK 1200: www.bostik-us.com.
2. Pecora Corporation; Product 890 NST: www.pecora.com.
3. BASF Construction Chemicals-Building Systems; Product Omniseal 50: www.chemrex.com.
4. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions

B. Polyurethane Sealants:

1. Bostik Inc; Product CHEM-CALK 900 and 955 SL (horizontal): www.bostik-us.com.
2. Pecora Corporation; Product DynaTrol I XL: www.pecora.com.
3. BASF Construction Chemicals-Building Systems; Product NP-2: www.chemrex.com.
4. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

C. Polysulfide Sealants:

1. Pecora Corporation; Product Synthacalk GC2+: www.pecora.com.
2. BASF Construction Chemicals-Building Systems; Product Sonalastic Polysulfide Sealant: www.chemrex.com.
3. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

- D. Butyl Sealants:
 - 1. Bostik Inc; Product CHEM-CALK 300: www.bostik-us.com.
 - 2. Pecora Corporation; Product BC-158: www.pecora.com.
 - 3. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions
- E. Acrylic Emulsion Latex Sealants:
 - 1. Bostik Inc; Product CHEM-CALK 600 ACRYLIC LATEX: www.bostik-us.com.
 - 2. Pecora Corporation; Product AC-20 +SILICONE: www.pecora.com.
 - 3. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions
- F. Preformed Compressible Foam Sealers:
 - 1. Sandell Manufacturing Company, Inc; Product Polyseal: www.sandellmfg.com.
 - 2. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.02 SEALANTS

- A. Sealants and Primers - General: Provide products having volatile organic compound (VOC) content as specified in Section 01 6116.
- B. Type A - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; single, or multi- component.
 - 1. Color: color as selected.
 - 2. Applications: Use for:
 - a. Control, expansion, and soft joints in masonry.
 - b. Joints between concrete and other materials.
 - c. Joints between metal frames and other materials.
 - d. Other exterior joints for which no other sealant is indicated.
- C. Type B - Exterior Expansion Joint Sealer: Precompressed foam sealer; urethane with water-repellent;
 - 1. Size as required to provide weathertight seal when installed.
 - 2. Provide product recommended by manufacturer for traffic-bearing use.
 - 3. Applications: Use for:

- a. Exterior wall expansion joints.
- D. Type C - Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
- 1. Applications: Use for:
 - a. Concealed sealant bead in sheet metal work.
 - b. Concealed sealant bead in siding overlaps.
- E. Type D - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.
- 1. Color: Standard colors matching finished surfaces.
 - 2. Applications: Use for:
 - a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Other interior joints for which no other type of sealant is indicated.
- F. Type E - Bathtub/Tile Sealant: White silicone; ASTM C 920, Uses I, M and A; single component, mildew resistant.
- 1. Applications: Use for:
 - a. Joints between plumbing fixtures and floor and wall surfaces.
 - b. Joints between kitchen and bath countertops and wall surfaces.
- G. Type F - Interior Floor Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Grade P, Class 25, Uses T, M and A; single or multi- component.
- 1. Color: Standard colors matching finished surfaces.
 - 2. Applications: Use for:
 - a. Expansion joints in floors.
- H. Type G - Sealant for Continuous Water Immersion: Polysulfide; ASTM C 920, Grade NS, Class 25, Uses I, M, and A; approved by manufacturer for continuous water immersion; single, or multi- component.
- 1. Applications: Use for:
 - a. Joints in pump pit.
- I. Type H - Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C 920, Class 25, Uses T, I, M and A; single or multi- component.

1. Color: Color as selected.
2. Applications: Use for:
 - a. Joints in sidewalks and vehicular paving.

2.03 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.
- D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C 1193.

- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.
- H. Precompressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.
- I. Compression Gaskets: Avoid joints except at ends, corners, and intersections; seal all joints with adhesive; install with face 1/8 to 1/4 inch below adjoining surface.

3.04 CLEANING

- A. Clean adjacent soiled surfaces.

3.05 PROTECTION

- A. Protect sealants until cured.

3.06 SCHEDULE

- A. Exterior Joints for Which No Other Sealant Type is Indicated: Type A; colors as selected.
- B. Control and Expansion Joints in Paving: Type H.
- C. Exterior Wall Seismic Movement Joints: Type A.
- D. Exterior Wall Expansion Joints: Type A.
- E. Joints Between Concrete Panels and Between Panels and Adjacent Work: Type A.
- F. Control, Expansion, and Soft Joints in Masonry, and Between Masonry and Adjacent Work: Type A.
- G. Lap Joints in Exterior Sheet Metal Work: Type C.
- H. Butt Joints in Exterior Metal Work and Siding: Type A.
- I. Joints Between Exterior Metal Frames and Adjacent Work (except masonry): Type A.
- J. Under Exterior Door Thresholds: Type A.

- K. Interior Joints for Which No Other Sealant is Indicated: Type D; colors as shown on the drawings.
- L. Control and Expansion Joints in Interior Concrete Slabs and Floors: Type F.
- M. Joints between Plumbing Fixtures and Walls and Floors, and Between Countertops and Walls: Type E.

END OF SECTION

SECTION 08 1613
FIBERGLASS DOORS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Fiberglass reinforced plastic (FRP) doors.
- B. Frames for fiberglass reinforced plastic doors.
- C. Hinges.
- D. Accessories.

1.02 RELATED REQUIREMENTS

- A. Section 08 7100 - Door Hardware: Door hardware.

1.03 REFERENCE STANDARDS

- A. ANSI A250.4 - American National Standard Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings; 2001.
- B. ASTM D635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position; 2010.
- C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2010b.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Obtain hardware templates from hardware manufacturer prior to starting fabrication.

1.05 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide manufacturer's standard details, installation instructions, and hardware and anchor recommendations.
- C. Test Reports: Show compliance with specified criteria.
- D. Shop Drawings: Show layout and profiles; include assembly methods.
 - 1. Indicate product components, including hardware reinforcement locations and preparations, accessories, finish colors, patterns, and textures.

2. Indicate wall conditions, door and frame elevations, sections, materials, gages, finishes, location of door hardware by dimension, and details of openings; use same reference numbers indicated on Drawings to identify details and openings.
- E. Selection Samples: Submit two complete sets of color chips, illustrating manufacturer's available finishes, colors, and textures.
- F. Verification Samples: Submit door surface samples for each finish specified, 10 inch by 10 inch in size, illustrating finishes, colors, and textures.
- G. Maintenance Data: Include instructions for repair of minor scratches and damage.
- H. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Resident Engineer's name and registered with manufacturer; include detailed terms of warranty.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in installing products of the type specified in this section with not less than three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Mark doors with location of installation, door type, color, and weight.
- B. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store materials in original packaging, under cover, protected from exposure to harmful weather conditions and from direct contact with water.
 1. Store at temperature and humidity conditions recommended by manufacturer.
 2. Do not use non-vented plastic or canvas shelters.
 3. Immediately remove wet wrappers.
- D. Store in position recommended by manufacturer, elevated minimum 6 inches above grade, with minimum 1/4 inches space between doors.

1.08 WARRANTY

- A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.
- B. Provide fifteen (15) year manufacturer warranty covering materials and workmanship, including degradation or failure due to chemical contact.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Molded Fiberglass Doors:
 - 1. ChemPruf Door Company, Ltd: www.chem-pruf.com.
 - 2. Tiger Door LLC: www.tigerdoor.com.
 - 3. Warminster Fiberglass: www.warminsterfiberglass.com.
 - 4. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.02 DOOR AND FRAME ASSEMBLIES

- A. Door and Frame Assemblies: Factory-fabricated, prepared and machined for hardware.
 - 1. Door and frame pre-assembled, complete with hinges; shipped with braces, spreaders, and packaging as required to prevent damage.
 - 2. Mechanical Durability: Tested to ANSI A250.4 Level A (1,000,000 cycles), minimum; tested with hardware and fasteners intended for use on project.
 - 3. Screw-Holding Capacity: Tested to 900 psi, minimum.
 - 4. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less; when tested in accordance with ASTM E84.
 - 5. Flammability: Self-extinguishing when tested in accordance with ASTM D635.
 - 6. Chemical Resistance: Resist degradation due to exposure to tap water, distilled water, and:
 - a. Sewage and moisture-laden air in sewage treatment areas.
 - b. Chlorine-treated moisture in air.
 - c. Ocean salt spray.
 - 7. Sizes: As indicated on drawings.
 - 8. Clearance Between Door and Frame: 1/8 inch, maximum.
 - 9. Clearance Between Bottom of Door and Finished Floor: 6 inch, maximum; not less than 6 inch clearance to threshold.
 - a. Provide doors as shown on Drawings. Frames and Door to be 6 inches clear from finish floor, except to Plumbing Chase room.

10. Provide frame anchors that allow for variation in rough opening size; do not field cut doors or frames to fit.

2.03 COMPONENTS

- A. Doors: Through-color gel coating on fiberglass reinforced polyester resin construction with reinforced core.
 1. Thickness: 1-3/4 inches, overall.
 2. Door Construction: Molded in one piece including gel coating on all sides; manufacturer's standard subframe, core and faces fused during cure in mold; hardware reinforcements
 3. Subframe and Reinforcements: Fiberglass pultrusions or polymer foam; no metal or wood.
 4. Waterproof Integrity: All edges, cut-outs, and hardware preparations factory fabricated of fiberglass reinforced plastic; provide cut-outs with joints sealed independently of glazing or louver inserts or trim.
 5. Hardware Preparations: Factory reinforce, machine, and prepare for all hardware including field installed items; provide solid blocking for each hardware item; make field cutting, drilling or tapping unnecessary; obtain manufacturer's templates for hardware preparations.
 6. Bottom Rail: Provide height necessary to allow up to 1-1/4 inches to be field cut off bottom of door without impairing door strength or durability.
 7. Gel Coating: Ultraviolet stabilized polyester, marine grade NPG-isophthalic, with slightly textured semi-gloss final finish.
 8. Gel Coating Thickness: Minimum 15 mils wet, plus/minus 3 mils.
 9. Gel Coating Color: As selected by the Architect from the manufacturer's full line of colors.
- B. Frames: Profiles and dimensions as indicated on drawings; same type and construction used in mechanical durability test for doors.
 1. Construction: Use one of the following:
 - a. Molded fiberglass with gel-coating matching doors.
 - b. Fiberglass pultrusions with gel-coating matching doors
 2. Corner Joints: Mitered with concealed corner blocks or angles of same material as frame; fiberglass and aluminum joined with screws; steel and stainless steel spot welded; sealed watertight with silicone sealant.
 3. At hardware cut-outs provide continuous backing or mortar guards of same material as frame, sealed watertight.

4. Frame Anchors: Stainless steel, Type 304; provide 3 anchors in each jamb for heights up to 84 inches with one additional anchor for each additional 24 inches in height.
- C. Transom and Other Panels: Same construction as doors.
- D. Hinge and Hardware Fasteners: Stainless steel, Type 304; wood screws.

2.04 ACCESSORIES

- A. Louver Stops: Pultruded fiberglass unless otherwise indicated or required by fire rating; provided by door manufacturer to fit factory made openings, color and texture to match door; fasteners not penetrating waterproof integrity.
 1. Exterior Doors: Provide non-removable stops on outside and continuous compression gasket weatherseal.
 2. Opening Sizes: As indicated on drawings.
- B. Louvers: Same materials, construction, finish, and color as door; fixed vanes, inverted "V" vanes.
- C. Thresholds: Pultruded fiberglass, with skid resistant surface, full width of door opening, 1/2 inch high by 6 inches wide; same color as frame.
 1. No thresholds at restroom doors.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify actual dimensions of openings by field measurements before door fabrication; show recorded measurements on shop drawings.
- B. Do not begin installation until substrates have been properly prepared.
- C. If substrate preparation is the responsibility of another installer, notify Resident Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- B. Clean and prepare substrate in accordance with manufacturer's directions.
- C. Protect adjacent work and finish surfaces from damage during installation.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions; do not penetrate frames with anchors.

- B. Set units plumb, level, and true-to-line, without warping or racking doors, and with specified clearances; anchor in place.
- C. In masonry walls, install frames prior to laying masonry; anchor frames into masonry mortar joints; fill jambs with grout as walls are laid up.
- D. Separate aluminum and other metal surfaces from sources of corrosion of electrolytic action at points of contact with other materials.
- E. Repair or replace damaged installed products.

3.04 ADJUSTING

- A. Lubricate, test, and adjust doors to operate easily, free from warp, twist or distortion, and to fit watertight for entire perimeter.
- B. Adjust hardware for smooth and quiet operation.
- C. Adjust doors to fit snugly and close without sticking or binding.

3.05 CLEANING

- A. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

3.06 PROTECTION

- A. Protect installed products from damage during subsequent work.

END OF SECTION

SECTION 08 7100

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Door hardware, including electric hardware.
 - 2. Gate hardware.
 - 3. Padlocks.
 - 4. Cylinders for doors fabricated with locking hardware.
- B. Related Sections:
 - 1. Section 07 9005 - Joint Sealers – exterior thresholds
 - 2. Section 08 1613 – Fiberglass Doors
- C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.
 - 1. Windows.
 - 2. Cabinets, including open wall shelving and locks.
 - 3. Signs, except where scheduled.
 - 4. Toilet accessories, including grab bars.
 - 5. Rough hardware.
 - 6. Conduit, junction boxes & wiring.
 - 7. Folding partitions, except cylinders where detailed.
 - 8. Sliding aluminum doors, except cylinders where detailed.
 - 9. Access doors and panels, except cylinders where detailed.

1.2 REFERENCES

Use date of standard in effect as of Bid date.

- A. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
- B. ICC/ANSI A117.1 - 1998 – Specifications for making buildings and facilities usable by physically handicapped people.

- C. ADA – Americans with Disabilities Act of 1990
- D. BHMA – Builders Hardware Manufacturers Association
- E. DHI – Door and Hardware Institute
- F. NFPA – National Fire Protection Association
 - 1. NFPA 80 – Fire Doors and Windows
 - 2. NFPA 105 – Smoke and Draft Control Door Assemblies
 - 3. NFPA 252 – Fire Tests of Door Assemblies
- G. UL – Underwriters Laboratories
 - 1. UL10C – Positive Pressure Fire Tests of Door Assemblies.
 - 2. UL 305 – Panic Hardware
- H. WHI – Warnock Hersey Incorporated State of California Building Code
- I. Local applicable codes
- J. SDI – Steel Door Institute
- K. WI – Woodwork Institute
- L. AWI – Architectural Woodwork Institute
- M. NAAMM – National Association of Architectural Metal Manufacturers

1.3 SUBMITTALS & SUBSTITUTIONS

- A. SUBMITTALS: See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
 - 1. Type, style, function, size, quantity and finish of hardware items.
 - 2. Use BHMA Finish codes per ANSI A156.18.
 - 3. Name, part number and manufacturer of each item.
 - 4. Fastenings and other pertinent information.
 - 5. Description of door location using space names and numbers as published in the drawings.
 - 6. Explanation of abbreviations, symbols, and codes contained in schedule.

7. Mounting locations for hardware.
 8. Door and frame sizes, handing, materials, fire-rating and degrees of swing.
 9. List of manufacturers used and their nearest representative with address and phone number.
 10. Catalog cuts.
 11. Wiring Diagrams.
 12. Manufacturer's technical data and installation instructions for electronic hardware.
- B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.
 - C. Deviations: Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.
 - D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.
 - E. See GREENBOOK and 2010 City Supplement, Section 4-1.6 for Substitutions. Include product data and indicate benefit to the Project. Furnish operating samples on request.
 - F. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE

- A. Qualifications:
 1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.
 - a) Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.
- B. Hardware: Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

- C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- D. Fire-Rated Openings: NFPA 80 compliant. Hardware UL10C / California State Fire Marshal Standard 12-7-4 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.
 - 1. Note: scheduled resilient seals may exceed selected door manufacturer's requirements.
 - 2. See 2.6.E for added information regarding resilient and intumescent seals.
- E. Testing and Field inspection of Fire and Egress door installation shall be in compliance with Division 1 Testing 01400 - 01.04. Punch list shall be developed by a current member of CAFDI.org. CAFDI inspector shall not be an employee of Distributor, Supplier, or Mfg. of material on this project.
- F. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Delivery: coordinate delivery to appropriate locations (shop or field).
 - 1. Permanent keys and cores: secured delivery direct to Owner's representative.
- B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.
- C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.6 PROJECT CONDITIONS AND COORDINATION

- A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.
- B. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information:
 - 1. Location of embedded and attached items to concrete.
 - 2. Location of wall-mounted hardware, including wall stops.
 - 3. Location of finish floor materials and floor-mounted hardware.

4. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
 5. Manufacturer templates to door and frame fabricators.
- C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation. Do not order hardware until the submittal has been reviewed by the frame and door suppliers for compatibility with their products.

1.7 WARRANTY

- A. Part of respective manufacturers’ regular terms of sale. Provide manufacturers’ written warranties:

1.	Locksets:	Three years
2.	Extra Heavy Duty Cylindrical Lock:	Seven Years
3.	Exit Devices:	Three years mechanical One year electrical
4.	Closers:	Ten years mechanical Two years electrical
5.	Hinges:	One year
6.	Other Hardware	Two years

1.8 COMMISSIONING

- A. Conduct these tests prior to request for certificate of substantial completion:
1. With installer present, test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.

2. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
3. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.

1.9 REGULATORY REQUIREMENTS

- A. Hand-activated door opening hardware, handles, pulls, latches, locks and other operating devices on accessible doors shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls shall be no greater than 5 pounds [22.2 N]. California Building Code Section 1117B.6, Item 4. Hardware shall be centered between 30” to 44” above the finished floor, per California Building Code, Section 1133B.2.5.2.
 1. Locate panic hardware between 36” to 44” above the finished floor.
- B. Maximum operating force required to push or pull open a door shall not exceed 5.0 lbs [22.2 N] pressure for exterior doors and 5.0 lbs [22.2 N] for interior doors. Required fire doors shall have the minimum opening force allowed by the DSA authority, not to exceed 15lbf. Push or Pull force for a hinged door shall be measured perpendicular to the door face at the door opening hardware or 30” from the hinged side, whichever is farther from the hinge. CBC Sections 1008.1.3 and 1133B.2.5/ADAAG4.13.11
- C. Door closers and stops shall not reduce headroom to less than 78”.
- D. Adjust door closer sweep periods so that from an open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the landing side of the door, per California Building Code Section 1133B.2.5.1
- E. Meet California Building Code Sections 1133B.2.1, 1133B.2.5 and 1008.1.9.
- F. Thresholds: Comply with California Building Code Section 1133B.2.4.1.
- G. Floor stops: Do not locate in path of travel. Locate no more than 4” from walls, per DSA Policy #99-08 (Access).

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers and their abbreviations used in this schedule:

IVE	H. B. Ives
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GLY	Glynn-Johnson Hardware
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A. Manufacturers and their abbreviations used in this schedule:

LCN	LCN Closers
NGP	National Guard Products
SCH	Schlage Lock Company
VON	Von Duprin

2.2 HINGING METHODS

- A. Drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.
- B. Conform to manufacturer's published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.
- C. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.
 - 1. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins and security studs.
 - 2. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
- D. Continuous Hinges:
 - 1. Pinned steel/stainless steel type: continuous stainless steel, 0.25-inch diameter stainless-steel hinge pin.
 - a) Use engineered application-specific wide-throw units as needed to provide maximum swing degree of swing, advise architect if required width exceeds 8 inches.
- E. Pivots: high-strength forged bronze or stainless steel, tilt-on precision bearing and bearing pin.
 - 1. Bottom and intermediate pivots: adjustability of minus 1/16 inch, plus 1/8 inch.

2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

- A. Mortise Locksets and Latchsets: as scheduled.
1. Chassis: cold-rolled steel, handing field-changeable without disassembly.
 2. Latchbolts: 3/4 inch throw stainless steel anti-friction type.
 3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
 - a) Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
 4. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.
 5. Lever type thumbturns: accessible design not requiring pinching or twisting motions to operate.
 6. Electric operation: Manufacturer-installed continuous duty solenoid.
 7. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
 8. Scheduled Lock Series and Design: Schlage L series, 17A design.
 9. Certifications:
 - a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
 - b) ANSI/ASTM F476-84 Grade 31 UL Listed.

2.4 CLOSERS

- A. Surface Closers:
1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
 2. ISO 2000 certified. Units stamped with date-of-manufacture code.
 3. Independent lab-tested 10,000,000 cycles.
 4. Non-sized, non-handed, and adjustable. Place closer inside building, stairs, and rooms.
 5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.

6. Adjust to open per the following: Maximum operating force required to push or pull open a door shall not exceed 5.0 lbs [22.2 N] pressure for exterior doors and 5.0 lbs [22.2 N] for interior doors. Required fire doors shall have the minimum opening force allowed by the DSA authority, not to exceed 15lbf. Push or Pull force for a hinged door shall be measured perpendicular to the door face at the door opening hardware or 30" from the hinged side, whichever is farther from the hinge. CBC Sections 1008.1.3 and 1133B.2.5/ADAAG4.13.11
7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
10. Exterior doors: seasonal adjustments not required for temperatures from 120 degrees F to -30 degrees F, furnish checking fluid data on request.
11. Non-flaming fluid, will not fuel door or floor covering fires.
12. Pressure Relief Valves (PRV) not permitted.

2.5 OTHER HARDWARE

- A. Automatic Flush Bolts: Low operating force design.
- B. Overhead Stops: Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.
- C. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.
- D. Door Stops: Provide stops to protect walls, casework or other hardware.
 1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.
 2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum: 90deg stop / 95deg deadstop. Note degree of opening in submittal.
- E. Seals: Finished to match adjacent frame color. Resilient seal material: polyurethane, polypropylene, nylon brush, silicone rubber or solid high-grade neoprene as scheduled. Do not furnish vinyl seal material. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability.
 1. Proposed substitutions: submit for approval.

2. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
 3. Non-corroding fasteners at in-swinging exterior doors.
- F. Thresholds: As scheduled and per details. Comply with CBC Section 1133B.2.4.1. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.
1. Exteriors: Seal perimeter to exclude water and vermin. Use sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous 1/4inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
 2. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.
 3. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.
- G. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.
- H. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.
- I. Wall- & Floor-mounted electromagnetic door holders: LCN's SEM series or approved equivalent. Incorporate into U.L. listed fire & life-safety system, doors release to allow closure and latching when door's zone is in alarm state. Use minimum projection required to allow door to open as widely as allowed by wall conditions and projection of door hardware.

2.6 FINISH

- A. Generally BHMA 630 Satin Stainless.
 1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Door closers: factory powder coated to match other hardware, unless otherwise noted.
- C. Aluminum items: match predominant adjacent material. Seals to coordinate with frame color.

2.7 KEYING REQUIREMENTS

- A. Key System: Schlage Everest Primus XP high-security utility-patented keyway, interchangeable core throughout. Utility patent protection to extend at least until 2014. Key blanks available only from factory-direct sources, not available from after-market keyblank manufacturers. For estimate use factory GMK charge. Initiate and conduct meeting(s) with Owner and I-R Security & Safety Consultants representatives to determine system keyway(s), keybow styles, structure, degree of physical security and degree of geographic exclusivity. Furnish Owner's written approval of the system.
 - 1. Existing factory-registered master key system.
 - 2. Primus Level 9 (verify)
 - 3. Construction keying: furnish temporary keyed-alike cores. Remove at substantial completion and install permanent cylinders/cores in Owner's presence. Demonstrate that construction key no longer operates.
 - 4. Temporary cylinders/cores remain supplier's property.
 - 5. Furnish 10 construction keys.
 - 6. Furnish 2 construction control keys.
 - 7. Key Cylinders: furnish 6-pin solid brass construction.
- B. Cylinders/cores: keyed at factory of lock manufacturer where permanent records are maintained. Locksets and cylinders same manufacturer.
- C. Permanent keys: use secured shipment direct from point of origination to Owner.
 - 1. For estimate: 3 keys per change combination, 5 master keys per group, 5 grand-master keys, 3 control keys.
 - 2. For estimate: VKC stamping plus "Do Not Duplicate".

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS

- A. Can read and understand manufacturers' templates, suppliers' hardware schedules and printed installation instructions. Can readily distinguish drywall screws from manufacturers' furnished fasteners. Available to meet with manufacturers' representatives and related trades to discuss installation of hardware.

3.2 PREPARATION

- A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation.

- B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.
 - 1. Notify Architect of code conflicts before ordering material.
 - 2. Locate levers, key cylinders, t-turn pieces, touchbars and other operable portions of latching hardware between 30 inches to 44 inches above the finished floor, per CBC Section 1133B.2.5.1.
 - 3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.
- C. Overhead stops: before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

3.3 INSTALLATION

- A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.
 - 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
 - 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
 - 3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
 - 4. Replace fasteners damaged by power-driven tools.
- B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.
- C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.
- D. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.
- E. Drill pilot holes for fasteners in wood doors and/or frames. Centerpunch hole locations before using self-drilling type screws to prevent skating. Replace screws that are not centered in their holes.

- F. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.4. ADJUSTING

- A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
 - 1. Hardware damaged by improper installation or adjustment methods: repair or replace to Owner's satisfaction.
 - 2. Adjust doors to fully latch with no more than 1 pound of pressure.
 - 3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
 - 4. Adjust door closers per 1.9 this section.
- B. Inspection: Use hardware supplier's consultant or consultant's agent. Include supplier's report with closeout documents.
- C. Final inspection: Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following:
 - 1. Re-adjust hardware.
 - 2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
 - 3. Identify items that have deteriorated or failed.
 - 4. Submit written report identifying problems

3.5 DEMONSTRATION

- A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.6 PROTECTION/CLEANING

- A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.
- B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.7 SCHEDULE OF FINISH HARDWARE

- A. See door schedule in drawings for hardware set assignments.
- B. Miscellaneous Material:

SPECWORKS # 110389-B7XR2S47A

HW SET: 01

CONTINUOUS HINGE	700
STOREROOM LOCK	L9080T 17A LESS OUTSIDE TRIM
MORTISE CYLINDER	20-061-ICX
CORE ONLY	23-030
VANDAL DOOR PULL	VR900LLP (IN SWING MORTISE LOCK)
FLOOR STOP & HOLDER	FS41
SEALS	5050B
DOOR SWEEP	C627A
THRESHOLD	613 ADA (1/4" FLAT SADDLE)

ALL HARDWARE TO BE ATTACHED USING TORX VANDAL RESISTANT FASTENERS

HW SET: 02

CONTINUOUS HINGE	700
CLASSROOM LOCK	L9070T 17A LESS OUTSIDE TRIM
MORTISE CYLINDER	20-061-ICX

ALL HARDWARE TO BE ATTACHED USING TORX VANDAL RESISTANT FASTENERS

HW SET: 02

CORE ONLY	23-030
VANDAL DOOR PULL	VR900 (OUTSWING MORTISE LOCK)
SURFACE CLOSER	4041 DEL CUSH
FLOOR STOP & HOLDER	FS41
SEALS	5050B
DRIP CAP	16A
DOOR SWEEP	C627A
THRESHOLD	613 ADA (1/4" FLAT SADDLE)

HOLD OPEN AT 90 DEGREE

ALL HARDWARE TO BE ATTACHED USING TORX VANDAL RESISTANT FASTENERS

HW SET: 03

PIVOT SET	7215F
PIVOT	7215F INT

CLASSROOM LOCK NL-L9076T 17A LESS
OUTSIDE TRIM

ALL HARDWARE TO BE ATTACHED USING TORX VANDAL RESISTANT
FASTENERS

HW SET: 03

MORTISE CYLINDER	20-061-ICX
CORE ONLY	23-030
VANDAL DOOR PULL	VR900 (OUTSWING MORTISE LOCK)
GATE CLOSER	OT ST3592
SURFACE CLOSER	DEL CUSH
KICK PLATE	W-B4E-CS-14" X 2" LDW
FLOOR STOP & HOLDER	
SEALS	5050B
DRIP CAP	16A
DOOR SWEEP	C627A

PIVOTS TO BE SCREWED USING TORX SCREWS

ALL HARDWARE TO BE ATTACHED USING TORX VANDAL RESISTANT FASTENERS

HW SET: 04

MORTISE CYLINDER	20-061-ICX
CORE ONLY	23-030
LOCK	LOCKING HARDWARE BY DOOR SUPPLIER

COORDINATE KEYING FOR ROLL UP DOORS WITH MASTER KEY SYSTEM

HW SET: 05

CLASSROOM LOCK	L9070T 17A LESS OUTSIDE TRIM
MORTISE CYLINDER	20-061-ICX
CORE ONLY	23-030
VANDAL DOOR PULL	VR900 (OUTSWING MORTISE LOCK)
	HINGES BY GATE MFGR

ALL HARDWARE TO BE ATTACHED USING TORX VANDAL RESISTANT FASTENERS VERIFY WITH OWNER WHICH SIDE IS KEY SIDE BEFORE ASSEMBLY OF GATE GATE MFG TO FURNISH CUSTOM LOCK BOX LARGE ENOUGH TO ALLOW FOR FULL MOUNTING OF VANDAL PULL

END OF SECTION

SECTION 08 9100

LOUVERS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Louvers, frames, and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 07 9005 - Joint Sealers.

1.03 REFERENCE STANDARDS

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels; 2005.
- B. AMCA 511 - Certified Ratings Program for Air Control Devices; Air Movement and Control Association International, Inc.; 2010.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.

1.04 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data describing design characteristics, maximum recommended air velocity, design free area, materials and finishes.
- C. Shop Drawings: Indicate louver layout plan and elevations, opening and clearance dimensions, tolerances; head, jamb and sill details; blade configuration, screens, blankout areas required, and frames.
- D. Samples: Submit two samples 2 by 2 inches in size illustrating finish and color of exterior and interior surfaces.
- E. Test Reports: Independent agency reports showing compliance with specified performance criteria.
- F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- G. Maintenance Data: Include lubrication schedules, adjustment requirements and cleaning instructions.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with minimum three years of documented experience.

1.06 WARRANTY

- A. Provide twenty year manufacturer warranty against distortion, metal degradation, and failure of connections.
 - 1. Finish: Include coverage against degradation of exterior finish.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Wall Louvers:
 - 1. Chem-Pruf Door Company; Product FRP Wall Louver, sightproof blade. www.chem-pruf.com; or approved equal.
 - 2. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.02 LOUVERS

- A. Louvers: Factory fabricated and assembled, complete with frame, mullions, and accessories; AMCA Certified under AMCA 511.
 - 1. Screens: Provide insect screens at intake louvers and bird screens at exhaust louvers.
 - 2. Screens: Provide insect screens and bird screens at wall vent louvers.
- B. Stationary Louvers: Horizontal blade, formed fiberglass-reinforce polymer (FRP) construction, with intermediate mullions matching frame.
 - 1. Free Area: 47, minimum.
 - 2. Blades: V-shaped, sight-proof.
 - 3. Frame: 4 inches deep, channel profile; bosses for securing and positioning slats or vanes are integrally molded as the jambs are formed.
 - 4. FRP Thickness: Frame 0.06 inch; blades 0.06 inch.
 - 5. Resin: All reinforcing resins to contain a halogenated additive or coreactants plus antimony trioxide. Resin formula to be tailored especially for use in the coastal environment.
 - a. Flame Spread: 25 or less, ASTM E 84.

- b. Self-Extinguishing, ASTM D 685.
- 6. Finish: Gelcoat, 25 mils minimum.
- 7. Outer shell: Over gelcoat finish, an envelope consisting of 2 ounces of continuous-strand fiberglass infused with resin.
- 8. Color: As selected from manufacturer's standard colors.

2.03 MATERIALS

- A. Fiberglass-Reinforced Polymer: as described above.
- B. Bird Screen: Interwoven wire mesh of stainless steel Type 316, 0.063 inch diameter wire, 1/2 inch open weave, diagonal design.
- C. Insect Screen: 18 x 16 size stainless steel Type 316.

2.04 ACCESSORIES

- A. Screens: Frame of same material as louver, with reinforced corners; removable, screw attached; installed on inside face of louver frame.
- B. Fasteners and Anchors: Stainless steel.
- C. Sealant: A type, as specified in Section 07 9005.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that prepared openings are ready to receive work and opening dimensions are as indicated on shop drawings.
- B. Verify that field measurements are as indicated on shop drawings.

3.02 INSTALLATION

- A. Install louver assembly in accordance with manufacturer's instructions.
- B. Install louvers level and plumb.
- C. Align louver assembly to ensure moisture shed from flashings and diversion of moisture to exterior.
- D. Secure louver frames in openings with concealed fasteners.
- E. Install perimeter sealant and backing rod in accordance with Section 07 9005.

3.03 CLEANING

- A. Strip protective finish coverings.
- B. Clean surfaces and components.

END OF SECTION

SECTION 09 9000

PAINTING AND COATING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Field application of paints, stains, varnishes, and other coatings.
- C. Materials for backpriming woodwork.
- D. Scope: Finish all interior and exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
 - 2. Exposed surfaces of steel lintels and ledge angles.
 - 3. Prime surfaces to receive wall coverings.
 - 4. Mechanical and Electrical:
 - a. In finished areas, paint all insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
 - b. In all areas, paint shop-primed items.
 - c. On the roof and outdoors, paint all equipment that is exposed to weather or to view, including that which is factory-finished.
 - d. Paint interior surfaces of air ducts that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
 - e. Paint dampers exposed behind louvers, grilles, to match face panels.
- E. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically so indicated; materials and products having factory-applied primers are not considered factory finished.
 - 2. Items indicated to receive other finishes.
 - 3. Items indicated to remain unfinished.
 - 4. Fire rating labels, equipment serial number and capacity labels, and operating parts of equipment.

5. Non-metallic roofing and flashing.
 6. Stainless steel, anodized aluminum, bronze, terne, and lead items.
 7. Marble, granite, slate, and other natural stones.
 8. Floors, unless specifically so indicated.
 9. Ceramic and other tiles.
 10. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
 11. Glass.
 12. Acoustical materials, unless specifically so indicated.
 13. Concealed pipes, ducts, and conduits.
- F. See Schedule - Surfaces to be Finished, at end of Section.

1.02 RELATED REQUIREMENTS

- A. Section 05 5000 - Metal Fabrications: Shop-primed items.
- B. Section 08 1613 – Fiberglass Doors

1.03 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.04 REFERENCE STANDARDS

- A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; current edition.
- B. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2011.
- C. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Base Materials; 2007.
- D. GreenSeal GS-11 - Paints; 1993.
- E. NACE (IMP) - Industrial Maintenance Painting; NACE International; Edition date unknown.
- F. SSPC (PM1) - Good Painting Practice: SSPC Painting Manual, Vol. 1; Society for Protective Coatings; Fourth Edition.
- G. SSPC (PM2) - Steel Structures Painting Manual, Vol. 2, Systems and Specifications; Society for Protective Coatings; 1995, Seventh Edition.

1.05 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data on all finishing products, including VOC content. Include preparation requirements and application instructions.
- C. Samples: Submit two “draw-down” samples on paper, 8-1/2x11 inch in size illustrating each color, texture and sheen for each product scheduled for use on the project.
- 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.
 - 2. VOC content.
- D. Certification: By manufacturer that all paints and coatings comply with VOC limits specified.
- E. Certification: By manufacturer that all paints and coatings do not contain any of the prohibited chemicals specified; GreenSeal GS-11 certification is not required but if provided shall constitute acceptable certification.
- F. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.
- G. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.
- H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Paint and Coatings: 3 gallons of each color; store where directed.
 - 2. Label each container with color and type in addition to the manufacturer's label.

1.06 CLOSEOUT SUBMITTALS

- A. Record Drawings: At time of Substantial Completion, submit building floor plans, indicating all areas that have been painted, complete with legend identifying what colors were used on each type of substrate receiving paint (i.e. walls, doors, trim, etc.). Provide separate color chart, indicating all colors used throughout project.
- B. Record Samples: Provide sample paint draw downs of actual colors used. Identify color, formula, and gloss. Format sample draw downs on rigid backing, 8.5 x 11 inches, bound into a notebook binder,

- C. Contact Information: Provide contact information for painting contractor. Identify name, address, and phone number.

1.07 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum five years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience.
- C. Paints used on project must comply with City of San Diego General Services/Facilities Division Maintenance Standards.
- D. Anti-graffiti coating system must comply with City of San Diego Parks and Recreation Division Guidelines.
- E. Quality: Paint shall be of manufacturer's highest, or 'best', quality appropriate for the substrate and project conditions. No construction grade paint shall be used on City of San Diego projects or facilities.

1.08 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - 1. Owner may engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 - 2. Testing agency will perform tests for compliance with product requirements.
 - 3. Owner may direct Contractor to stop applying coatings 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.

1.09 REGULATORY REQUIREMENTS

- A. Conform to current California Building Code for requirements for products and finishes.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.11 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Minimum Application Temperature for Varnish Finishes: 65 degrees F for interior or exterior, unless required otherwise by manufacturer's instructions.
- F. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Provide all paint and coating products used in any individual system from the same manufacturer; no exceptions.
- B. Paints:
 - 1. Base Manufacturer: Dunn-Edwards, or approved equal: www.dunnedwards.com
- C. Transparent Finishes - Wood:
 - 1. Base Manufacturer: Deft: www.deftfinishes.com; or approved equal.
- D. Transparent Finishes - Concrete/Masonry:
 - 1. Base Manufacturer: OKON, Division of Rust-Oleum Corporation: www.okoninc.com; or approved equal.
- E. Anti-Graffiti Coating System:
 - 1. Base Manufacturer: Monopole, Inc.: www.monopoleinc.com.

F. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions

2.02 PAINTS AND COATINGS - GENERAL

A. Paints and Coatings: Ready mixed, unless intended to be a field-catalyzed coating.

1. Provide paints and coatings of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
4. Supply each coating material in quantity required to complete entire project's work from a single production run.
5. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Volatile Organic Compound (VOC) Content:

1. Provide coatings that comply with the most stringent requirements specified in the following:
 - a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
 - b. Architectural coatings VOC limits of California.
2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

D. Chemical Content: The following compounds are prohibited:

1. Aromatic Compounds: In excess of 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
2. Acrolein, acrylonitrile, antimony, benzene, butyl benzyl phthalate, cadmium, di (2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, 1,2-dichlorobenzene, diethyl phthalate, dimethyl phthalate, ethylbenzene,

formaldehyde, hexavalent chromium, isophorone, lead, mercury, methyl ethyl ketone, methyl isobutyl ketone, methylene chloride, naphthalene, toluene (methylbenzene), 1,1,1-trichloroethane, vinyl chloride, ethylene glycol.

- E. Flammability: Comply with current California Building code for surface burning characteristics.
- F. Colors: As indicated on drawings
 - 1. Extend colors to surface edges; colors may change at any edge as directed by Architect.
 - 2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Paint WE-OP-3L - Wood, Opaque, 3 Coat:
 - 1. One coat of latex primer sealer; E-Z Prime Premium Exterior Wood Primer (EZPR00). (100 percent Acrylic)
 - 2. Semi-gloss: Two coats; 100 percent acrylic Spartasheid (SSHL10) Exterior Acrylic Flat Paint.
- B. Paint WE-TR-VS - Wood, Transparent, Varnish, Stain:
 - 1. Filler coat (for open grained wood only).
 - 2. Satin: Two coats of varnish; Deft Defthane Polyurethane.
- C. Paint ME-OP-3L - Ferrous Metals, 3 Coat:
 - 1. One coat primer; Syn-Lustro Primer rust inhibitive primer (W-8).
 - 2. Semi-gloss: Two coats of; Syn-Lustro, (100 percent acrylic) enamel (W-9).
- D. Paint MgE-OP-3L - Galvanized Metals, 3 Coat:
 - 1. One coat primer: Galv-Alum Premium Interior/Exterior Non-Ferrous Metal Primer (GAPR00).
 - 2. Semi-gloss: Two coats of; Syn-Lustro, (100 percent acrylic) enamel (W-9).
- E. Coating CE-TR-AG - Masonry/Concrete, Anti-Graffiti System, Clear finish:
 - 1. Base Coat: One flood coat silane/siloxane oligomeric; Monochem AQUASEAL ME 12 (#5200).
 - 2. Coats 2 and 3: Two coats aliphatic polyurethane; Monochem PERMA SHIELD BASE (#6100).

3. Coats 4 and 5: Two coats; Monochem PERMA SHIELD PREMIUM (#5600/5650).
4. APPLY TO ALL CONCRETE/MASONRY WALL SURFACES, INTERIOR AND EXTERIOR.
 - a. Exceptions: Apply Concrete/Masonry sealer [CI-TR-S] only at the following locations:
 - 1) Interior walls of Janitor Closet/Plumbing Chase Room.
 - 2) Interior walls of Concessions Room.
5. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions. Any proposed Substitutions MUST meet or exceed published performance criteria for the above graffiti control system AND be approved by City of San Diego Parks and Recreation Department for use on project.

2.04 PAINT SYSTEMS - INTERIOR

- A. Paint WI-OP-3L - Wood, Opaque, 3 Coat:
 1. One coat of latex primer sealer; E-Z Prime (W 708). (100 percent Acrylic)
 2. Semi-gloss: Two coats of latex enamel; Permasheen, California Formula (w 901V). (100 percent Acrylic)
- B. Coating CI-TR-S - Concrete/Masonry, Transparent, Sealer, Clear finish.
 1. Two coats sealer: Okon S-40 Silane/Siloxane Water Repellent Sealer.
- C. Paint MI-OP-3L - Ferrous Metals, 3 Coat:
 1. One coat primer; Syn--Lustro Primer rust inhibitive primer (W-8).
 2. Semi-gloss: Two coats of; Syn-Lustro, (100 percent acrylic) enamel (W-9).
- D. Paint MgI-OP-3L - Galvanized Metals, 3 Coat.
 1. One coat Galv-Alum Premium Interior/Exterior Non-Ferrous Metal Primer (GAPR00).
 2. Semi-gloss: Two coats of; Syn-Lustro, (100 percent acrylic) enamel (W-9).
- E. Paint GI-OP-3L - Gypsum Board/Plaster, 3 Coat:
 1. One coat of Ultra Grip Premium (UGPR00) Interior/Exterior Multi-purpose primer sealer.
 2. Eggshell: Two coats; 100 percent acrylic Spartasheid (SSHL30) Exterior Acrylic Eggshell Paint.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required to achieve the finishes specified whether specifically indicated or not; commercial/premium quality.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Do not begin application of coatings until substrates have been properly prepared.
- B. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of Work.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- D. If substrate preparation is the responsibility of another installer, notify Construction Manager of unsatisfactory preparation before proceeding.
- E. Test shop-applied primer for compatibility with subsequent cover materials.
- F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
 - 4. Exterior Wood: 15 percent, measured in accordance with ASTM D4442.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to coating application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing coatings that exhibit surface defects.
- D. Remove surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

- E. Surfaces: Correct defects and clean surfaces which affect work of this section. Remove or repair existing coatings that exhibit surface defects.
- F. Seal surfaces that might cause bleed through or staining of topcoat.
- G. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- H. Concrete and Unit Masonry Surfaces to be Painted: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- I. Gypsum Board Surfaces to be Painted: Fill minor defects with filler compound. Spot prime defects after repair.
- J. Galvanized Surfaces to be Painted: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- K. Corroded Steel and Iron Surfaces to be Painted: Prepare using at least SSPC-PC 2 (hand tool cleaning) or SSPC-SP 3 (power tool cleaning) followed by SSPC-SP 1 (solvent cleaning).
- L. Uncorroded Uncoated Steel and Iron Surfaces to be Painted: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Prime paint entire surface; spot prime after repairs.
- M. Shop-Primed Steel Surfaces to be Finish Painted: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- N. Interior Wood Surfaces to Receive Opaque Finish: Wipe off dust and grit prior to priming. Seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after primer has dried; sand between coats. Back prime concealed surfaces before installation.
- O. Interior Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.
- P. Exterior Wood to Receive Transparent Finish: Remove dust, grit, and foreign matter; seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes with tinted exterior calking compound after sealer has been applied. Prime concealed surfaces.
- Q. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.
- R. Metal Doors to be Painted: Prime metal door all sides and edge surfaces.

- S. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.03 APPLICATION

- A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- B. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- E. 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.
- F. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- G. 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.
- H. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- I. Sand wood and metal surfaces lightly between coats to achieve required finish.
- J. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- K. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- L. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.04 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Paint shop-primed equipment, where indicated.
- B. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.
- C. Finish equipment, piping, conduit, and exposed duct work in utility areas in colors according to the color coding scheme indicated.
- D. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.05 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
- B. Contractor shall touch up and restore painted surfaces damaged by testing.
- C. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.06 CLEANING

- 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..

3.07 PROTECTION

- A. Protect finished coatings until completion of project.
- B. Touch-up damaged coatings after Substantial Completion.

3.08 SCHEDULE - SURFACES TO BE FINISHED

- A. Do Not Paint or Finish the Following Items:
 - 1. Items fully factory-finished unless specifically noted.

2. Fire rating labels, equipment serial number and capacity labels.
 3. Stainless steel items.
- B. Paint the surfaces described below under Schedule - Paint Systems.
- C. Mechanical and Electrical: Use paint systems defined for the substrates to be finished.
1. Paint all insulated and exposed pipes occurring in finished areas to match background surfaces, unless otherwise indicated.
 2. Paint shop-primed items occurring in finished areas.
- D. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

3.09 SCHEDULE - PAINT SYSTEMS

- A. Concrete, Concrete Block, Brick Masonry: Finish all surfaces exposed to view.
1. Exterior Walls: CE-TR-AG.
 2. Interior Restroom Walls: CE-TR-AG.
 3. Interior Janitor Room/Plumbing Chase Walls: CI-TR-S.
- B. Wood: Finish all surfaces exposed to view.
1. Exterior beams: WE-TR-VS.
 2. Interior beams: WE-TR-VS.
 3. Exterior miscellaneous: WE-OP-3L.
 4. Interior utility/equipment backing boards: WI-OP-3L.
- C. Steel Doors and Frames: Finish all surfaces exposed to view, semi-gloss.
1. Exterior: ME-OP-3L.
 2. Interior: MI-OP-3L.
- D. Steel Fabrications: Finish all surfaces, including concealed surfaces, before installation.
1. Exterior: ME-OP-3L.
 2. Interior: MI-OP-3L.
- E. Galvanized Steel: Finish all surfaces exposed to view.
1. Exterior: MgE-OP-3L.

2. Interior: MgI-OP-3L.
- F. Shop-Primed Metal Items: Finish all surfaces, including concealed surfaces, before installation.
1. Exterior: ME-OP-3L.
 2. Interior: MI-OP-3L.
- G. Floor surfaces: Concrete floor sealer requirements per Section 03 3000 Cast-In-Place Concrete.

END OF SECTION

SECTION 10 1400

SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Etched Metal Room and Door signs.
- B. Directional and informational signs.

1.02 RELATED REQUIREMENTS

- A. Section 08 1613 – Fiberglass Doors

1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
- B. ATBCB ADAAG - Americans with Disabilities Act Accessibility Guidelines; 2010.

1.04 DEFINITIONS

- A. Braille: California ‘Contracted Grade 2 Braille’ including 189 part-word or whole word contractions in addition to Grade 1 Braille 63 characters. Tactile is required whenever braille is required.
- B. Letters and numbers: characters on signs with width-to-height ratio between 3:5 and 1:1 and stroke width ratio between 1:5 and 1:10 using upper case "X" to calculate ratios. Use typestyles with medium weight; upper and lower case lettering is permitted; serif typestyles are permitted.
- C. Symbols: Symbol itself is not required to be tactile but equivalent verbal description is required both in tactile letters and braille.
- D. Tactile: In addition to requiring Braille, 1/32" raised capital letters and numbers without serifs at least 5/8" height and not more than 2" height.

1.05 SYSTEM DESCRIPTION

- A. Signage under this section is intended to include items for identification, direction, control, and information of building where installed as complete integrated system from a single manufacturer.
- B. Access code and ADA design requirements:
 - 1. Signage requiring tactile graphics:
 - a. Wall mounted signs designating permanent rooms and spaces such as, room numbers and restroom, department, office, and fire exit identifications.
 - b. Individually applied characters are prohibited.

2. Signage not requiring tactile graphics but require compliance to other ADA requirements: All other signs providing direction to or information about function of space such as, directional signs (signs with arrow), informational signs (operating hours, policies, etc.), regulatory signs (no smoking, do not enter), ceiling and projected wall mount signs and International Symbol of Accessibility signs denoting the compliance of certain building features with current access code.
- C. ADA performance requirements:
1. Tactile graphics signs mounting requirements:
 - a. Single doors: Mount 60" to sign centerline above finish floor and on wall adjacent to latch side of door.
 - b. Openings: Mount 60" to sign centerline above finish floor adjacent opening.
 - c. No wall space adjacent latch side of door, opening, or double doors: Mount 60" to sign centerline above finish floor on nearest adjacent wall.

1.06 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.
- C. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, colors and location.
 1. When content of signs is indicated to be determined later, request such information from Resident Engineer at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
 2. Submit for approval by Resident Engineer prior to fabrication.
- D. Shop Drawings:
 1. Indicate materials, sizes, configurations and applicable substrate mountings.
 2. Typography sample for copy, for each sign.
 3. Dimensions showing spacing of symbol, text and Braille blocks on each sign.
- E. Samples: Submit one sample, of size similar to that required for project, illustrating sign style, font, and method of attachment.

- F. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.
- G. Verification Samples: Submit samples showing colors specified.
- H. Manufacturer's Installation Instructions: Include installation templates and attachment devices.
- I. Closeout Submittal: Maintenance data and cleaning requirements for exterior surfaces.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Package signs as required to prevent damage before installation.
- B. Package room and door signs in sequential order of installation, labeled by floor or building.
- C. Store tape adhesive at normal room temperature.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Flat Signs:
 - 1. [APCO](#); Metal Etch Signs; 388 Grant Street SE, Atlanta, Georgia, 30312, USA; Phone 404-688-9000; www.apcosigns.com.
 - 2. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions.

2.02 SIGNAGE APPLICATIONS

- A. Accessibility Compliance: All signs are required to comply with ADAAG and ANSI/ICC A 117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most comprehensive and specific requirements.
- B. Room/Area Identification Signs: Provide a sign for every doorway, whether it has a door or not, not including corridors, lobbies, and similar open areas.
 - 1. Sign Type: Type A - Flat metal signs with etched metal panel media.
 - 2. Provide "tactile" signage, with letters raised minimum 1/32 inch and California Contracted Grade II Braille.
 - 3. Copy Contents: Identify with Room Name, copy content to be verified at time of submittal and approved by Resident Engineer prior to fabrication.
 - 4. Character Height: 1 inch.
 - 5. Sign Height: 6 inches, unless otherwise indicated.

6. See signage details on Drawings for more specific information on copy and preferred sign layout.
- C. Restroom/Locker Room/ Shower Room Identification Signs - WALL: Provide a sign for every room that can be identified by WOMENS, MENS or UNISEX.
1. Sign Type: Type A - Flat metal signs with etched metal panel media.
 2. Provide "tactile" signage, with letters raised minimum 1/32 inch and California Contracted Grade II Braille.
 3. Copy Contents: Identify with male and female pictograms, International Symbol of Accessibility, the name WOMEN, MEN or UNISEX as applies; and Braille.
 4. Character Height: 1 inch.
 5. Sign Height: 6 inches, unless otherwise indicated.
 6. See signage details on Drawings for more specific information on copy and preferred sign layout.
- D. Restroom/Locker Room/ Shower Room Identification Signs - DOOR: Provide a sign for every room that can be identified by WOMENS, MENS or UNISEX.
1. Sign Type: Type B - Flat signs, cast acrylic with sub-surface printing.
 2. NON—tactile Signs: No raised characters, symbols or Braille to be used on restroom door signs. Surface of sign to be completely flush.
 3. Copy Contents: Identify with male and female pictograms, International Symbol of Accessibility and the name WOMEN, MEN or UNISEX as applies.
 4. Character Height: 1 inch.
 5. Sign Height/Shape: Provide geometric shape as described in CBC Section 1115B.6.
 6. See signage details on Drawings for more specific information on copy and preferred sign layout.
- E. Interior Directional and Informational Signs:
1. Sign Type: Type A - Flat metal signs with etched metal panel media.
 2. Exit Wall Signs: Identify with the word EXIT and Braille.
 3. See signage details on Drawings for more specific information on copy and preferred sign layout.

- F. International Symbol of Accessibility (ISA):
1. Sign Type: Type A - Flat metal sign.
 2. Locations:
 - a. At each primary entrance to facility. This will include main entry gates as well as building entry doors.
 - b. At each partition door to each accessible stall or compartment in toilet or changing rooms.
 - c. At area of reception counter meeting current access code requirements.
 - d. At other work counters or phone counters meeting current access code requirements.
 - e. At each locker door to locker meeting current access code requirements, IF the locker does not already have a manufacturer-applied ISA.
 - f. Where exterior entrances to single-user accessible restrooms occur. One sign at each entrance.

2.03 SIGN TYPES

- A. Flat Signs – Type A: Metal signage media without frame, etched copy.
1. Material: Light weight zinc metal alloy, suitable for chemical etch.
 2. Thickness: 1/8 inch.
 3. Edges: Eased.
 4. Corners: Radiused to eliminate any sharp edges or points.
 5. Wall Mounting of One-Sided Signs: Tape adhesive AND vandal-proof concealed or exposed screws.
- B. Flat Signs – Type B: Cast acrylic media without frame.
1. Material: Clear non-glare, optically corrected, cast virgin acrylic sheet ready for second surface (backside) graphics application.
 2. Thickness: 1/4 inch.
 3. Edges: Eased.
 4. Corners: Radiused to eliminate any sharp edges or points.
 5. Graphics Media: 0.015" thickness clear non-glare optically correct scuff

resistant plastic with computer generated photo screen printing chemically bonded to back surface with background surface subsequently applied.

6. Door Mounting of One-Sided Signs: Tape adhesive AND vandal-proof concealed or exposed screws.
- C. Color and Font:
1. Character Font: as chosen from manufacturer's standard sans-serif fonts.
 2. Character Case: Upper case only.
 3. Background Color: as chosen from manufacturer's standard colors, to contrast with substrate and adjacent finish color.
 4. Character Color: as chosen from manufacturer's standard colors, to contrast with sign background color.

2.04 ACCESSORIES

- A. Concealed Screws: Stainless steel, galvanized steel, chrome plated, or other non-corroding metal. Vandal-proof.
- B. Exposed Screws: Stainless steel. Vandal-proof.
- C. Tape Adhesive: Double sided tape, permanent adhesive.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install neatly, with horizontal edges level.
- C. Locate signs where indicated:
 1. Tactile Room and Exit Signs: Locate on wall at latch side of door with centerline of sign at 60 inches above finished floor.
 2. Door Signs: Center on door with centerline of sign at 60 inches above finished floor.
 3. If no location is indicated obtain Resident Engineer's instructions.
- D. Protect from damage until Substantial Completion; repair or replace damage items.

END OF SECTION

SECTION 10 2800

TOILET AND UTILITY ROOM ACCESSORIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Public-use toilet room accessories.
- B. Grab bars.
- C. Hand Dryers.
- D. Underlavatory Guards.
- E. Utility Room accessories.

1.02 REFERENCE STANDARDS

- A. ASTM A 269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2008.
- B. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2003.
- C. ASTM F 2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2004.

1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with the placement of reinforcement of toilet partitions to receive anchor attachments.

1.04 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: For each type of product indicated. Include the following:
 - 1. Construction details and dimensions.
 - 2. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Material and finish descriptions.
 - 4. Features that will be included for Project.
 - 5. Manufacturer's warranty.

- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify products using designations indicated.
- D. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.
- E. Maintenance Data: For toilet accessories to include in maintenance manuals.

1.05 QUALITY ASSURANCE

- A. Source Limitations: For products listed together in the same Part 2 articles, obtain products 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.

1.06 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.
- C. Toilet Accessories will comply with the San Diego Park and Recreation Department Standards.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Toilet Accessories:
 - 1. Bobrick Washroom Equipment, Inc.: www.bobrick.com; and as indicated on Restroom Accessory Schedule on Drawings.
 - 2. See GREENBOOK and 2010 City Supplement, Section 4-1.6 for Substitutions.
- B. All items of each type to be made by the same manufacturer.

2.02 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

1. Grind welded joints smooth.
 2. Fabricate units made of metal sheet of seamless sheets, with flat surfaces.
- B. Keys: Provide 4 keys for each accessory to Owner; master key all lockable accessories.
 - C. Stainless Steel Sheet: ASTM A 666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.
 - D. Stainless Steel Tubing: ASTM A 269, Type 304 or 316.
 - E. Brass: ASTM B 19, flat products; ASTM B 16/B 16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B 30, castings.
 - F. Steel Sheet: ASTM A 1008/A 1008M, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.
 - G. Galvanized-Steel Sheet: ASTM A 653/A 653M, with G60 hot-dip zinc coating.
 - H. Galvanized-Steel Mounting Devices: ASTM A 153/A 153M, hot-dip galvanized after fabrication.
 - I. Fasteners: Screws, bolts, and other devices of same material as accessory unit and tamper-and-theft resistant where exposed, and of galvanized steel where concealed.
 - J. Chrome Plating: ASTM B 456, Service Condition Number SC 2 (moderate service).
 - K. Adhesive: Two component epoxy type, waterproof.
 - L. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.03 FINISHES

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.
- B. Back paint components where contact is made with building finishes to prevent electrolysis.

2.04 TOILET ROOM ACCESSORIES

- A. Grab Bars: Stainless steel, 1-1/4 inches outside diameter, minimum 0.05 inch wall thickness, nonslip grasping surface finish, concealed flange mounting; 1-1/2 inches clearance between wall and inside of grab bar, satin finish.
 1. Provide per schedule on plans, custom lengths fabricated where indicated.
 2. Compliance: Barrier-free accessibility guidelines, including ADA-ABA and ICC/ANSI. for structural strength.
 - a. Capacity: Designed to support 900 lbs in compliant installations.

3. Description: Grab bar with 90 degree return to flange. Clearance between grab bar and finished wall is 1-1/2 inches.
 4. Grab Bar Materials: 18-8 S, Type 304, 18 gauge stainless steel tubing with satin finish, ends of grab bar pass through flanges and are heliarc welded to flanges to form one structural unit, outside diameter 1-1/2 inches.
 5. Mounting Flanges: Concealed, 18-8 S, Type 304, 1/8 inch thick, stainless steel plate.
 - a. End Flanges: 2 inches x 3-1/8 inches with two holes for attachment to wall.
 - b. Intermediate Flanges: 2-5/8 inches x 3-1/8 inches wide x 3-1/8 inch diameter.
 6. Snap Flange Covers: 18-8 S, Type 304, 22 gauge drawn stainless steel with satin finish, 3-1/4 inch diameter x 1/2 inches deep; snap over mounting flange to conceal mounting screws.
 7. Mounting Accessories: Provide the following optional mounting accessories as scheduled and indicated on the Drawings and as required for complete installation.
 - a. Mounting Kits: Provide Bobrick Mounting Kit appropriate for project conditions and substrate.
- B. Diaper Changing Station: Wall-mounted folding diaper changing station for use in commercial toilet facilities, meeting or exceeding ASTM F 2285.
1. Style: Horizontal.
 2. Material: Stainless steel.
 3. Mounting: Surface.
 4. Minimum Rated Load: 250 lbs.
 5. Manufacturers:
 - a. Koala Kare Products: www.koalabear.com. Model: KB110-SSWM for surface mount applications and KB110-SSRE for recessed applications.
 - b. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions
- C. All other restroom accessories: as indicated on Restroom Accessory Schedule on Drawings.

2.05 HAND DRYERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide the following
 - 1. or a comparable product, subject to compliance with requirements, and approval of substitution request by Resident Engineer.
- B. Hand Dryer:
 - 1. Murdock Super Secur model # 1118-3 hand dryer (also Fastaire model HD-03).
 - 2. Mounting: Semi-Recessed.
 - 3. Operation: Push button activated with timed power cut-off switch.
 - a. Operation Time: 30 seconds.
 - 4. Electrical Requirements: 120 V AC, 7 A, 60 Hz.

2.06 UNDERLAVATORY GUARD

- A. Lavatory Trap and Water Supply Protection: Insulated coverings for under lavatory waste and supply piping and valves.
 - 1. Material: Soft flexible 100% PVC cover.
 - a. Anti-micorbial / Anti-fungal: Interior and exterior result of 0, ASTM G21.
 - b. Water Absorption: ASTM D 570.
 - c. Tensile Strength and Elongation: ASTM D 412.
 - d. Weatherization and UV: ASTM G 153.
 - e. Density: 21.61 pcf.
 - 2. Color: White.
 - 3. Mounting: Smooth non-abrasive snap-lock fasteners and Velcro, tamper-resistant.
 - 4. Insulation: Complies with ASTM E-84.
 - a. Flame and Smoke Spread: 25 Flame Spread/450 Smoke Index, ASTM E 84-07.
 - b. Thermal: Conductivity of 0.028 (K value), Resistance of 0.504 (R value); ASTM C 177.

- c. Thermal: Conductivity of 0.358 (avg), Resistance of 0.346 (avg), Resistance of 2.790 (“R” per inch); ASTM C 518.
5. Manufacturers:
 - a. Trap Gear: www.plumberex.com. Model: #396. 3-PART SET with P-Trap cover and 2 Valve and Supply covers.
 - b. See GREENBOOK and 2010 City Supplement, Section 4-1.6 for Substitutions

2.07 UTILITY ROOM ACCESSORIES

- A. Combination Utility Shelf/Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, with 1/2 inch returned edges, 0.06 inch steel wall brackets.
 1. Drying rod: Stainless steel, 1/4 inch diameter.
 2. Hooks: 3, 0.06 inch stainless steel rag hooks at shelf front.
 3. Mop/broom holders: 4 spring-loaded rubber cam holders at shelf front.
 4. Length: 36 inches.
 5. Product: B-224x36: Utility Shelf with Mop/Broom Holders and Rag Hooks manufactured by Bobrick Washroom Equipment, Inc., or approved equal.

2.08 FABRICATION AND KEYING

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify exact location of accessories for installation.
- C. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.
- C. Install plumb and level, securely and rigidly anchored to substrate.
- D. Mounting Heights and Locations: As required by accessibility regulations and as indicated on drawings

3.04 ADJUSTMENT AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Remove temporary labels and protective coatings.
- C. Clean and polish exposed surfaces according to manufacturer's written recommendations.

END OF SECTION

SECTION 10 4400

FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Fire extinguishers.
- B. Fire extinguisher cabinets.
- C. Accessories.

1.02 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Shop Drawings: Indicate cabinet physical dimensions and location.
- C. Product Data: Provide extinguisher operational features, color and finish, and anchorage details.
- D. Manufacturer's Installation Instructions: Indicate special criteria and wall opening coordination requirements.
- E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- F. Maintenance Data: Include test, refill or recharge schedules and re-certification requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Fire Extinguishers:
 - 1. Ansul, Inc: www.ansul.com.
 - 2. Pyro-Chem: www.pyrochem.com.
- B. Fire Extinguisher Cabinets and Accessories:
 - 1. Ansul, Inc.: www.ansul.com.
 - 2. JL Industries, Inc: www.jlindustries.com.
 - 3. Larsen's Manufacturing Co: www.larsensmfg.com.
 - 4. Potter-Roemer: www.potterroemer.com.

5. Pyro-Chem: www.pyrochem.com.
6. See GREENBOOK and 2010 City Supplement, Section 4-1.6 for Substitutions

2.02 FIRE EXTINGUISHERS

- A. Fire Extinguishers - General: Comply with product requirements of NFPA 10 and applicable codes, whichever is more stringent.
 1. Provide extinguishers labeled by UL for the purpose specified and indicated.
- B. Dry Chemical Type Fire Extinguishers: Carbon steel tank, with pressure gage.
 1. Class: 2A:10B:C.
 2. Size: 5 pound.
 3. Finish: Baked polyester powder coat, red color.

2.03 FIRE EXTINGUISHER CABINETS

- A. Metal: Formed primed steel sheet; 0.059 inch thick base metal.
- B. Cabinet Configuration: Surface type.
 1. Sized to accommodate accessories.
 2. Exterior nominal dimensions of 9 inch wide x 21 inch high x 6 inch deep.
 3. Trimless type.
- C. Door: 0.059 inch thick, reinforced for flatness and rigidity; lock with break glass access. Hinge doors for 180 degree opening with two butt hinge. Provide nylon catch.
- D. Door Glazing: Glass, clear, 1/8 inch thick tempered. Set in resilient channel gasket glazing.
- E. Cabinet Mounting Hardware: Appropriate to cabinet. Pre-drill for anchors.
- F. Weld, fill, and grind components smooth.
- G. Finish of Cabinet Exterior Trim and Door: Red baked enamel.
- H. Finish of Cabinet Interior: White enamel.
- I. Fire Extinguisher Cabinets must comply with CBC Sections 1117B.6 and 1118B.

2.04 ACCESSORIES

- A. Extinguisher Brackets: Formed steel, galvanized and enamel finished.
- B. Graphic Identification: Fire Extinguisher symbol.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify rough openings for cabinet are correctly sized and located.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install cabinets plumb and level, 40 inches from finished floor to top of cabinet.
- C. Secure rigidly in place.
- D. Place extinguishers in cabinets.
- E. Position cabinet signage at centered vertically 60" above finish floor, centered horizontally over cabinet.

END OF SECTION

SECTION 10 5617

WALL MOUNTED STANDARDS AND SHELVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Shelf standards, brackets, and accessories.
- B. Shelves.
- C. See drawings for locations and configurations.

1.02 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Manufacturer's data sheets on each product to be used.
- C. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. Extra Brackets: Ten of each size of standard straight bracket.

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store products under cover and elevated above grade.
- B. Store products in manufacturer's unopened packaging until ready for installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Shelf Standards and Brackets:
 - 1. Knapé & Vogt Manufacturing Company: www.knapandvogt.com.
 - 2. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions
- B. Shelves:
 - 1. Knapé & Vogt Manufacturing Company: www.knapandvogt.com.

2. See GREENBOOK and City Supplement, Section 4-1.6 for Substitutions

2.02 MATERIALS

- A. Extra Heavy Duty Shelf Standards: Single-slotted channel standards for brackets adjustable in 1 inch increments along entire length of standard, drilled and countersunk for screws.
 1. Acceptable Product: K&V 87.
 2. Load Capacity: Recommended by manufacturer for loading of 540 to 1,060 pounds per pair of standards.
 3. Face Width: 5/8 inch, single slotted.
 4. Material: 12 gage 0.105 inches steel.
 5. Lengths: As indicated on drawings.
 6. Finish: Electroplated, chrome-look.
 7. Brackets: 12 gage 0.105 inches steel, reinforced, locking into slots with molded nylon cam lock lever; size to suit shelves; same finish as standards.
 8. Application: Use extra heavy duty standards at Janitor Closet locations.
 9. Bracket Quantity: Provide one bracket for each 12 inches of standard length.
- B. Heavy Duty Shelf Standards: Double-slotted channel standards for brackets adjustable in 1 inch increments along entire length of standard, drilled and countersunk for screws.
 1. Acceptable Product: K&V 85.
 2. Load Capacity: Recommended by manufacturer for loading of 300 to 680 pounds per pair of standards.
 3. Material: Steel.
 4. Lengths: As indicated on drawings.
 5. Finish: Electroplated, chrome-look.
 6. Brackets: Double tab type, locking into slots; size to suit shelves; same finish as standards.
 7. Application: Use heavy duty standards at Concessions Room.
 8. Bracket Quantity: Provide one bracket for each 12 inches of standard length.

- C. Shelf Standard Accessories:
 - 1. Where shelves are indicated to be fastened to brackets provide brackets with flanges for screwing into end of shelf, steel shelf rests, or flanged brackets; fasten with screws.
 - 2. Provide other accessories as indicated.
- D. Fasteners: Screws as recommended by manufacturer for intended application or as otherwise required by project conditions.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Mount standards to solid backing capable of supporting intended loads.
- C. Install brackets, shelving, and accessories.

3.04 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 13 0541

SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Provide seismic restraint in accordance with the requirements of this section in order to maintain the integrity of nonstructural components of the building so that they remain safe and functional in case of seismic event.
- B. Definitions: Non-structural building components are components or systems that are not part of the building's structural system whether inside or outside, above or below grade. Non-structural components of buildings include:
 - 1. Architectural Elements: Facades that are not part of the structural system and its shear resistant elements; cornices and other architectural projections and parapets that do not function structurally; glazing; nonbearing partitions; suspended ceilings; stairs isolated from the basic structure; cabinets; bookshelves; medical equipment; and storage racks.
 - 2. Electrical Elements: Power and lighting systems; substations; switchgear and switchboards; auxiliary engine-generator sets; transfer switches; motor control centers; motor generators; selector and controller panels; fire protection and alarm systems; special life support systems; and telephone and communication systems.
 - 3. Mechanical Elements: Heating, ventilating, and air-conditioning systems; medical gas systems; plumbing systems; sprinkler systems; pneumatic systems; boiler equipment and components.
 - 4. Transportation Elements: Mechanical, electrical and structural elements for transport systems, i.e., elevators and dumbwaiters, including hoisting equipment and counterweights.

1.2 RELATED WORK

- A. Section 22 1300 – Facility Sanitary and Vent Piping

1.3 QUALITY CONTROL

- A. Shop-Drawing Preparation:
 - 1. Have seismic-force-restraint shop drawings and calculations prepared by a professional structural engineer experienced in the area of seismic force restraints. The professional structural engineer shall be registered in the state of California.
 - 2. Submit design tables and information used for the design-force levels, stamped and signed by a professional structural engineer registered in the State of California.

- B. Coordination:
 - 1. Do not install seismic restraints until seismic restraint submittals are approved by the Project Engineer.
 - 2. Coordinate and install trapezes or other multi-pipe hanger systems prior to pipe installation.

1.4 SUBMITTALS:

- A. Submit prior to installation, a coordinated set of bracing drawings for seismic protection of piping, with data identifying the various support-to-structure connections and seismic bracing structural connections, include:
 - 1. Single-line piping diagrams on a floor-by-floor basis. Show all suspended piping for a given floor on the same plain.
 - 2. Type of pipe (Copper, steel, cast iron, insulated, non-insulated, etc.).
 - 3. Pipe contents.
 - 4. Structural framing.
 - 5. Location of all gravity load pipe supports and spacing requirements.
 - 6. Numerical value of gravity load reactions.
 - 7. Location of all seismic bracing.
 - 8. Numerical value of applied seismic brace loads.
 - 9. Type of connection (Vertical support, vertical support with seismic brace etc.).
 - 10. Seismic brace reaction type (tension or compression). Details illustrating all support and bracing components, methods of connections, and specific anchors to be used.
- B. Submit design calculations prepared and sealed by the registered structural engineer specified above in paragraph 1.3A.
- C. Submit for concrete anchors, the appropriate ICBC evaluation reports or lab test reports verifying compliance with Regulations 28-6.
- D. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.

1.5 APPLICABLE PUBLICATIONS

- A. The Publications listed below (including amendments, addenda revisions, supplements and errata) form a part of this specification to the extent referenced. The publications are referenced in text by basic designation only.

- B. American Concrete Institute (ACI):
- 355.2-07 Qualification for Post-Installed Mechanical Anchors in Concrete and Commentary
- C. American Institute of Steel Construction (AISC):
- Load and Resistance Factor Design, Volume 1, Second Edition.
- D. American Society for Testing and Materials (ASTM):
- A36/A36M-05..... Standard Specification for Carbon Structural Steel.
- A53/A53M-07..... Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
- A307 (REV A-07)..... Standard Specification for Carbon Steel Bolts and Studs; 60,000 PSI Tensile Strength.
- A325-07 Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
- A325M-05..... Standard Specification for High-Strength Bolts for Structural Steel Joints [Metric].
- A490-06 Standard Specification for Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength.
- A490M (REV A-04) Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints [Metric].
- A500/A500M-07..... Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- A501-07 Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- A615/A615M-07..... Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- A992/A992M (REV A-06) Standard Specification for Steel for Structural Shapes for Use in Building Framing.
- A996/A996M (REV A-06) Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
- E488-96(R2003) Standard Test Method for Strength of Anchors in Concrete and Masonry Elements.

- E. California Building Code (CBC) 2007 Edition.
- F. National Uniform Seismic Installation Guidelines (NUSIG).
- G. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
Seismic Restraint Manual - Guidelines for Mechanical Systems, 2008 Edition.

1.6 REGULATORY REQUIREMENT

- A. CBC 2007.
- B. Exceptions: The seismic restraint of the following items may be omitted:
 - 1. Equipment weighing less than 400 pounds, which is supported directly on the floor or roof.
 - 2. Equipment weighing less than 20 pounds, which is suspended from the roof or floor or hung from a wall.
 - 3. All other piping less than 2 ½ inches inside diameter, except for automatic fire suppression systems.
 - 4. All piping suspended by individual hangers, 12 inches or less in length from the top of pipe to the bottom of the support for the hanger.

PART 2 – PRODUCTS

2.1 STEEL

- A. Structural Steel: ASTM A36, A36M, A992.
- B. Structural Tubing: ASTM A500, Grade B.
- C. Structural Tubing: ASTM A501.
- D. Steel Pipe: ASTM A53/A53M, Grade B.
- E. Bolts & Nuts: ASTM A307, A325, A325M, A490, A490M.

PART 3 – EXECUTION

3.1 CONSTRUCTION, GENERAL

- A. Provide piping, ceiling and light supports and anchoring devices to withstand the seismic design forces, so that when seismic design forces are applied, the piping, ceiling and lights cannot displace, overturn, or become inoperable.
- B. Construct seismic restraints and anchorage to allow for thermal expansion.
- C. Testing Before Final Inspection:

1. Test 10-percent of anchors in masonry and concrete per ASTM E488, and ACI 355.2 to determine that they meet the required load capacity. If any anchor fails to meet the required load, test the next 20 consecutive anchors, which are required to have zero failure, before resuming the 10-percent testing frequency.
2. Before scheduling Final Inspection, submit a report on this testing indicating the number and location of testing, and what anchor-loads were obtained.

3.2 PIPING

- A. Support and brace piping to resist directional forces (lateral, longitudinal and vertical).
- B. Brace piping with a minimum of 1 brace per branch.
- C. Provide supports and anchoring so that, upon application of seismic forces, piping remains fully connected as operable systems which will not displace sufficiently to damage adjacent or connecting equipment, or building members.
- D. Seismic Restraint of Piping:
 1. Design criteria:
 - a. Piping resiliently supported: Restrain to support 120-percent of the weight of the systems and components and contents.
 - b. Piping not resiliently supported: Restrain to support 60-percent of the weight of the system components and contents.
- E. Piping Connections: Provide flexible connections where pipes connect to equipment. Make the connections capable of accommodating relative differential movements between the pipe and equipment under conditions of earthquake shaking.

3.3 CEILINGS AND LIGHTING FIXTURES

- A. At regular intervals, laterally brace suspended ceilings against lateral and vertical movements, and provide with a physical separation at the walls.
- B. Independently support and laterally brace all lighting fixtures. Refer to applicable portion of lighting specification, Section 26 0000, ELECTRICAL REQUIREMENTS.

END OF SECTION

SECTION 22 0511

COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The requirements of this Section shall apply to all sections of Division 22.
- B. Definitions:
 - 1. Option or optional: Contractor's choice of an alternate material or method.

1.2 RELATED WORK

- C. Section 09 9000, PAINTING.
- D. Section 13 0541, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS

1.3 QUALITY ASSURANCE

- A. Products Criteria:
 - 1. Standard Products: Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of the products for at least 3 years.
 - 2. All items furnished shall be free from defects that would adversely affect the performance, maintainability and appearance of individual components and overall assembly.
 - 3. The products and execution of work specified in Division 22 shall conform to the referenced codes and standards as required by the specifications. Local codes and amendments enforced by the local code official shall be enforced, if required by local authorities such as the natural gas supplier. If the local codes are more stringent, then the local code shall apply. Any conflicts shall be brought to the attention of the Project Engineer.
 - 4. Multiple Units: When two or more units of materials or equipment of the same type or class are required, these units shall be products of one manufacturer.
 - 5. Nameplates: Nameplate bearing manufacturer's name or identifiable trademark shall be securely affixed in a conspicuous place on equipment, or name or trademark cast integrally with equipment, stamped or otherwise permanently marked on each item of equipment.
 - 6. Asbestos products or equipment or materials containing asbestos shall not be used.

- B. **Manufacturer's Recommendations:** Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations shall be furnished to the Project Engineer prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material.
- C. **Execution (Installation, Construction) Quality:**
 - 1. All items shall be applied and installed in accordance with manufacturer's written instructions. Conflicts between the manufacturer's instructions and the contract drawings and specifications shall be referred to the Project Engineer for resolution. Written hard copies or computer files of manufacturer's installation instructions shall be provided to the Project Engineer at least two weeks prior to commencing installation of any item.
 - 2. Complete layout drawings shall be required by Paragraph, SUBMITTALS. Construction work shall not start on any system until the layout drawings have been approved.
- D. **Guaranty: Warranty of Construction, FAR clause 52.246-21.**
- E. **Plumbing Systems: CPC, California Plumbing Code.**

1.4 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Information and material submitted under this section shall be marked "SUBMITTED UNDER SECTION 22 0511, COMMON WORK RESULTS FOR PLUMBING", with applicable paragraph identification.
- C. Contractor shall make all necessary field measurements and investigations to assure that the assemblies will meet contract requirements.

1.5 DELIVERY, STORAGE AND HANDLING

- A. **Protection of Material:**
 - 1. Material placed on the job site shall remain in the custody of the Contractor until phased acceptance, whether or not the Owner has reimbursed the Contractor for the equipment and material. The Contractor is solely responsible for the protection of such equipment and material against any damage.
 - 2. Damaged equipment shall be replaced with an identical unit as determined and directed by the Project Engineer. Such replacement shall be at no additional cost to the Owner.

3. New piping systems shall be protected against entry of foreign matter. Both inside and outside shall be cleaned before painting or placing system in operation.
 4. Existing equipment and piping being worked on by the Contractor shall be under the custody and responsibility of the Contractor and shall be protected as required for new work.
- B. Cleanliness of Piping and Equipment Systems:
1. Care shall be exercised in the storage and handling of equipment and piping material to be incorporated in the work. Debris arising from cutting of piping shall be removed.
 2. Piping systems shall be flushed, blown or pigged as necessary to deliver clean systems.
 3. Contractor shall be fully responsible for all costs, damage, and delay arising from failure to provide clean systems.

1.6 APPLICABLE PUBLICATIONS

A. The publications listed below shall form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

A36/A36M-2008..... Standard Specification for Carbon Structural Steel

A575-96 (R 2007)..... Standard Specification for Steel Bars, Carbon, Merchant Quality, M-Grades R (2002)

E84-2005..... Standard Test Method for Surface Burning Characteristics of Building Materials

E119-2008a..... Standard Test Methods for Fire Tests of Building Construction and Materials

C. Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry, Inc:

SP-58-02 Pipe Hangers and Supports-Materials, Design and Manufacture

SP 69-2003 (R 2004) Pipe Hangers and Supports-Selection and Application

D. Code Council:

CBC, (2007)..... California Building Code

CPC, (2007)..... California Plumbing Code

PART 2 - PRODUCTS

2.1 FACTORY-ASSEMBLED PRODUCTS

- A. STANDARDIZATION OF COMPONENTS SHALL BE MAXIMIZED TO REDUCE SPARE PART requirements.
- B. Components of equipment shall bear manufacturer's name and trademark, model number, serial number and performance data on a name plate securely affixed in a conspicuous place, or cast integral with, stamped or otherwise permanently marked upon the components of the equipment.

2.2 COMPATIBILITY OF RELATED EQUIPMENT

- A. Equipment and materials installed shall be compatible in all respects with other items being furnished and with existing items so that the result will be a complete and fully operational system that conforms to contract requirements.

2.3 EQUIPMENT AND MATERIALS IDENTIFICATION

- A. Identification for piping is specified in Section 09 91 00, PAINTING.

2.4 GALVANIZED REPAIR COMPOUND

- A. Mil. Spec. DOD-P-21035B, paint.

2.5 PIPE AND EQUIPMENT SUPPORTS AND RESTRAINTS

- A. In lieu of the paragraph which follows, suspended equipment support and restraints may be designed and installed in accordance with the International Building Code (IBC), latest edition, and SECTION 13 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS. Submittals based on the International Building Code (IBC), latest edition, SECTION 13 05 41 requirements, or the following paragraphs of this Section shall be stamped and signed by a professional engineer registered in a state where the project is located. The Support system of suspended equipment over 227 kg (500 pounds) shall be submitted for approval of the Resident Engineer in all cases. See these specifications for lateral force design requirements.
- B. For Attachment to Concrete Construction:
 - 1. Self-drilling expansion shields and machine bolt expansion anchors: Permitted in concrete not less than 102 mm (4 inches) thick when approved by the Project Engineer for each job condition.
 - 2. Power-driven fasteners: Permitted in existing concrete or masonry not less than 102 mm (4 inches) thick when approved by the Project Engineer for each job condition.
- C. For Attachment to Steel Construction: MSS SP-58.
 - 1. Welded attachment: Type 22.

2. Beam clamps: Types 20, 21, 28 or 29. Type 23 C-clamp may be used for individual copper tubing up to 23 mm (7/8-inch) outside diameter.
- D. Hanger Rods: Hot rolled steel, ASTM A36 or A575 for allowable load listed in MSS SP-58. For piping, provide adjustment means for controlling level or slope. Types 13 or 15 turn-buckles shall provide 38 mm (1-1/2 inches) minimum of adjustment and incorporate locknuts. All-thread rods are acceptable.
- E. Multiple (Trapeze) Hangers: Galvanized, cold formed, lipped steel channel horizontal member, not less than 41 mm by 41 mm (1-5/8 inches by 1-5/8 inches), 2.7 mm (No. 12 gage), designed to accept special spring held, hardened steel nuts.
1. Allowable hanger load: Manufacturers rating less 91kg (200 pounds).
 2. Guide individual pipes on the horizontal member of every other trapeze hanger with 6 mm (1/4-inch) U-bolt fabricated from steel rod. Provide Type 40 insulation shield, secured by two 13 mm (1/2-inch) galvanized steel bands, or insulated calcium silicate shield for insulated piping at each hanger.
- F. Pipe Hangers and Supports: (MSS SP-58), use hangers sized to encircle insulation on insulated piping. To protect insulation, provide Type 39 saddles for roller type supports or insulated calcium silicate shields. Provide Type 40 insulation shield or insulated calcium silicate shield at all other types of supports and hangers including those for insulated piping.
1. General Types (MSS SP-58):
 - a. Standard clevis hanger: Type 1; provide locknut.
 - b. Riser clamps: Type 8.
 - c. Wall brackets: Types 31, 32 or 33.
 - d. Roller supports: Type 41, 43, 44 and 46.
 - e. Saddle support: Type 36, 37 or 38.
 - f. Turnbuckle: Types 13 or 15.
 - g. U-bolt clamp: Type 24.
 2. Plumbing Piping (Other Than General Types):
 - a. Horizontal piping: Type 1, 5, 7, 9, and 10.
- G. Pre-insulated Calcium Silicate Shields:
1. Provide 360 degree water resistant high density 965 kPa (140 psi) compressive strength calcium silicate shields encased in galvanized metal.
 2. Pre-insulated calcium silicate shields to be installed at the point of support during erection.

3. Shield thickness shall match the pipe insulation.
 4. The type of shield is selected by the temperature of the pipe, the load it must carry, and the type of support it will be used with.
 - a. Shields for supporting cold water shall have insulation that extends a minimum of one inch past the sheet metal.
 - b. The insulated calcium silicate shield shall support the maximum allowable water filled span as indicated in MSS-SP 69. To support the load, the shields shall have one or more of the following features: structural inserts 4138 kPa (600 psi) compressive strength, an extra bottom metal shield, or formed structural steel (ASTM A36) wear plates welded to the bottom sheet metal jacket.
 5. Shields may be used on steel clevis hanger type supports, roller supports or flat surfaces.
- H. Seismic Restraint of Piping: Refer to Section 13 0541, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS.

2.6 ASBESTOS

Materials containing asbestos are not permitted.

PART 3 - EXECUTION

3.1 ARRANGEMENT AND INSTALLATION OF EQUIPMENT AND PIPING

- A. Location of piping, hangers, and equipment, access provisions shall be coordinated with the work of all trades. Piping, sleeves, inserts, hangers, and equipment shall be located clear of windows, doors, openings, light outlets, and other services and utilities. Equipment layout drawings shall be prepared to coordinate proper location and personnel access of all facilities. The drawings shall be submitted for review.

Manufacturer's published recommendations shall be followed for installation methods not otherwise specified.

- B. Operating Personnel Access and Observation Provisions: All equipment and systems shall be arranged to provide clear view and easy access, without use of portable ladders, for maintenance and operation of all devices including, but not limited to: all equipment items, valves, filters, strainers, transmitters, sensors, control devices. All gages and indicators shall be clearly visible by personnel standing on the floor or on permanent platforms. Maintenance and operating space and access provisions that are shown on the drawings shall not be changed nor reduced.
- C. Structural systems necessary for pipe and equipment support shall be coordinated to permit proper installation.
- D. Location of pipe sleeves, trenches and chases shall be accurately coordinated with equipment and piping locations.

E. Cutting Holes:

1. Holes through concrete and masonry shall be cut by rotary core drill. Pneumatic hammer, impact electric, and hand or manual hammer type drill will not be allowed, except as permitted by Project Engineer where working area space is limited.
2. Holes shall be located to avoid interference with structural members such as beams or grade beams. Holes shall be laid out in advance and drilling done only after approval by Project Engineer. If the Contractor considers it necessary to drill through structural members, this matter shall be referred to Project Engineer for approval.
3. Waterproof membrane shall not be penetrated. Pipe floor penetration block outs shall be provided outside the extents of the waterproof membrane.

F. Protection and Cleaning:

1. Equipment and materials shall be carefully handled, properly stored, and adequately protected to prevent damage before and during installation, in accordance with the manufacturer's recommendations and as approved by the Project Engineer. Damaged or defective items in the opinion of the Project Engineer, shall be replaced.
2. Close pipe openings with caps or plugs during installation. Pipe openings shall be tightly covered against dirt or mechanical injury. At completion of all work thoroughly clean fixtures, exposed materials and equipment.

- G. Work in bathrooms, restrooms, housekeeping closets: All pipe penetrations behind escutcheons shall be sealed with plumber's putty.

3.2 TEMPORARY PIPING AND EQUIPMENT

- A. Continuity of operation of existing facilities may require temporary installation or relocation of piping. Temporary pipe installation or relocation shall be provided to maintain continuity of operation of existing facilities.
- B. The Contractor shall provide all required facilities in accordance with the requirements of phased construction and maintenance of service. All piping shall be properly supported, sloped to drain, operate without excessive stress, and shall be insulated where injury can occur to personnel by contact with operating facilities. The requirements of Paragraph 3.1, this section, shall apply.
- C. Temporary facilities and piping shall be completely removed and any openings in structures sealed. Necessary blind flanges and caps shall be provided to seal open piping remaining in service.

3.3 RIGGING

- A. Openings in building structures shall be planned to accommodate design scheme.

- B. Alternative methods of material delivery may be offered and will be considered by Owner under specified restrictions of phasing and service requirements as well as structural integrity of the building.
- C. All openings in the building shall be closed when not required for rigging operations to maintain proper environment in the facility for operation and maintenance of service.
- D. Contractor shall provide all facilities required to deliver specified material. Attachments to structures for rigging purposes and support of material on structures shall be Contractor's full responsibility.
- E. Contractor shall check all clearances, weight limitations and shall provide a rigging plan designed by a Registered Professional Engineer. All modifications to structures, including reinforcement thereof, shall be at Contractor's cost, time and responsibility.
- F. Rigging plan and methods shall be referred to Project Engineer for evaluation prior to actual work.

3.4 PIPE AND EQUIPMENT SUPPORTS

- A. Where hanger spacing does not correspond with joist or rib spacing, use structural steel channels secured directly to joist and rib structure that will correspond to the required hanger spacing, and then suspend the equipment and piping from the channels. Holes shall be drilled or burned in structural steel ONLY with the prior written approval of the Resident Engineer.
- B. The use of chain pipe supports, wire or strap hangers; wood for blocking, stays and bracing, or hangers suspended from piping above shall not be permitted. Rusty products shall be replaced.
- C. Hanger rods shall be used that are straight and vertical. Turnbuckles for vertical adjustments may be omitted where limited space prevents use. A minimum of 15 mm (1/2-inch) clearance between pipe or piping covering and adjacent work shall be provided.
- D. For horizontal and vertical plumbing pipe supports, refer to the California Plumbing Code (CPC), latest edition, and these specifications.
- E. Overhead Supports:
 - 1. The basic structural system of the building is designed to sustain the loads imposed by piping to be supported overhead.
 - 2. Provide steel structural members, in addition to those shown, of adequate capability to support the imposed loads, located in accordance with the final approved layout of piping.

3.5 CLEANING AND PAINTING

- A. Prior to final inspection and acceptance of the plant and facilities for beneficial use by the owner, the plant facilities systems shall be thoroughly cleaned.

END OF SECTION

SECTION 22 1100

FACILITY WATER DISTRIBUTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Domestic water systems, including piping, equipment and all necessary accessories as designated in this section.

1.2 RELATED WORK

- A. Section 22 0511, COMMON WORK RESULTS FOR PLUMBING.

1.3 SUBMITTALS

- A. Submittals shall be submitted in accordance with City of San Diego Requirements.
- B. Manufacturer's Literature and Data:
 - 1. Piping.
 - 2. Strainers.
 - 3. All items listed in Part 2 - Products.

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Federal Specifications (Fed. Spec.):

A-A-1427C..... Sodium Hypochlorite Solution

A-A-59617 Unions, Brass or Bronze Threaded, Pipe Connections and Solder-Joint Tube Connections

- C. American National Standards Institute (ANSI):

American Society of Mechanical Engineers (ASME): (Copyrighted Society)

A13.1-96..... Scheme for Identification of Piping Systems

B16.3-98..... Malleable Iron Threaded Fittings ANSI/ASME

B16.15-85(R 1994)..... Cast Bronze Threaded Fittings ANSI/ASME

B16.18-01 Cast Copper Alloy Solder-Joint Pressure Fittings
ANSI/ASME

B16.22-01	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings ANSI/ASME
	Element ANSI/ASME
D. American Society for Testing and Materials (ASTM):	
A47-99.....	Ferritic Malleable Iron Castings Revision 1989
	A53-02 Pipe, Steel, Black And Hot-Dipped, Zinc-coated Welded and Seamless
A183-83(R1998)	Carbon Steel Track Bolts and Nuts
A536-84(R1999) E1	Ductile Iron Castings
B32-03	Solder Metal
B61-02.....	Steam or Bronze Castings
B62-02.....	Composition Bronze or Ounce Metal Castings
B75-99(Rev A).....	Seamless Copper Tube
B88-03	Seamless Copper Water Tube
	B584-00 Copper Alloy Sand Castings for General Applications Revision A
B687-99	Brass, Copper, and Chromium-Plated Pipe Nipples
C564-03	Rubber Gaskets for Cast Iron Soil Pipe and Fittings
D4101-03b	Propylene Plastic Injection and Extrusion Materials
	D2447-93 Polyethylene (PE) Plastic Pipe, Schedule 40 and 80, Based on Outside Diameter
	D2564-94 Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings
	D2665-94 Revision A Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings
D4101-03b.....	Propylene Plastic Injection and Extrusion Materials
E1120	Standard Specification For Liquid Chlorine
E1229	Standard Specification For Calcium Hypochlorite

- E. American Water Works Association (AWWA):
 - C110-03/ A21.10-03..... Ductile Iron and Gray Iron Fittings - 3 inch thru 48 inches for Water and other liquids AWWA/ ANSI
 - C151-00/ A21.51-02..... Ductile-Iron Pipe, Centrifugally Cast in Metal Molds or Sand-Lined Molds, for Water or Other Liquids AWWA/ ANSI
 - C203-02..... Coal-Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot Applied AWWA/ ANSI
 - C651-99..... Disinfecting Water Mains
- F. American Welding Society (AWS):
 - A5.8-92..... Filler Metals for Brazing
- G. National Association of Plumbing - Heating - Cooling Contractors (PHCC):
 - National Standard Plumbing Code - 1996
- H. International Association of Plumbing and Mechanical Officials (IAPMO):
 - Uniform Plumbing Code - 2000
 - IS6-93..... Installation Standard
- I. Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS):
 - SP-72-99..... Ball Valves With Flanged or Butt Welding For General Purpose
 - SP-110-96..... Ball Valve Threaded, Socket Welding, Solder Joint, Grooved and Flared Ends
- J. American Society of Sanitary Engineers (ASSE):
 - 1001-02..... Pipe Applied Atmospheric Type Vacuum Breakers
 - 1018-01..... Performance for trap seal primer valve-water supply fed
 - 1020-04..... Vacuum Breakers, Anti-Siphon, Pressure Type
- K. Plumbing and Drainage Institute (PDI):
 - PDI WH-201..... Water Hammer Arrestor

PART 2 - PRODUCTS

2.1 WATER SERVICE CONNECTIONS TO BUILDINGS

- A. From inside face of exterior wall to a distance of approximately 25 feet outside of building and underground inside building, material selected shall be the same for the size specified.
- B. Under 3 inch diameter: Copper tubing, ASTM B88, Type K, seamless, annealed. Use brazing alloys, AWS A5.8, Classification BCuP.
- C. Flexible Expansion Joint: Ductile iron with ball joints rated for 1725 kPa (250 psi) working pressure conforming to ANSI/AWWA A21.53/C153, capable of deflecting a minimum of 30 degrees and expanding simultaneously to the amount shown on the drawings. Flexible expansion joint shall have the expansion capability designed as an integral part of the ductile iron ball castings. Pressure containing parts shall be lined with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213 and shall be factory holiday tested with a 1500 volt spark test. Flexible expansion joint shall have flanged connections conforming to ANSI/AWWA A21.11/C110. Bolts and nuts shall be 316 stainless steel and gaskets shall be neoprene.

2.2 INTERIOR DOMESTIC WATER PIPING

- A. Pipe: Copper tube, ASTM B88, Type K or L, drawn.
- B. Fittings for Copper Tube:
 - 1. Wrought copper or bronze castings conforming to ANSI B16.18 and B16.22. Unions shall be bronze, MSS SP72 & SP 110, Solder or braze joints.
 - 2. Mechanically formed tee connection: Form mechanically extracted collars in a continuous operation by drilling pilot hole and drawing out tube surface to form collar, having a height of not less than three times the thickness of tube wall. Adjustable collaring device shall insure proper tolerance and complete uniformity of the joint. Notch and dimple joining branch tube in a single process to provide free flow where the branch tube penetrates the fitting. Braze joints.
- C. Adapters: Provide adapters for joining screwed pipe to copper tubing.
- D. Solder: ASTM B32 Composition Sb5 HA or HB. Provide non-corrosive flux.
- E. Brazing alloy: AWS A5.8, Classification BCuP.

2.3 EXPOSED WATER PIPING

- A. Unfinished Rooms, Mechanical Rooms and Kitchens: Chrome-plated brass piping is not required. Paint piping systems as specified in Section 09 9000, PAINTING.

2.4 TRAP PRIMER WATER PIPING:

- A. Pipe: Copper tube, ASTM B88, type K, hard drawn.
- B. Fittings: Bronze castings conforming to ANSI B16.18 Solder joints.
- C. Solder: ASTM B32 composition Sb5. Provide non-corrosive flux.

2.5 WATERPROOFING

- A. Provide at points where pipes pass through membrane waterproofed floors or walls in contact with earth.
- B. Floors: Provide cast iron stack sleeve with flashing device and a underdeck clamp. After stack is passed through sleeve, provide a waterproofed caulked joint at top hub.
- C. Walls: See detail shown on drawings.

2.6 DIELECTRIC FITTINGS

- A. Provide dielectric couplings or unions between ferrous and non-ferrous pipe.

2.7 STERILIZATION CHEMICALS

- A. Liquid Chlorine: ASTM E1120.
- B. Hypochlorite: ASTM E1229, or Fed. Spec. AA-1427C, grade B.

2.8 WATER HAMMER ARRESTER:

- A. Closed copper tube chamber with permanently sealed 410 kPa (60 psig) air charge above a Double O-ring piston. Two high heat Buna-N O-rings pressure packed and lubricated with FDA approved Dow Corning No. 11 silicone compound. All units shall be designed in accordance with ASSE 1010 for sealed wall installations without an access panel. Size and install in accordance with Plumbing and Drainage Institute requirements (PDI WH 201). Unit shall be as manufactured by Precision Plumbing Products Inc., Watts or Zurn. Provide water hammer arrestors at all solenoid valves, at all groups of two or more flush valves, at all quick opening or closing valves.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with the PHCC National Standard Plumbing Code and the following:
 - 1. Install branch piping for water from the piping system and connect to all fixtures, valves, cocks, outlets.
 - 2. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe shall be reamed to full size after cutting.

3. All pipe runs shall be laid out to avoid interference with other work.
4. Install union and shut-off valve on pressure piping at connections to equipment.
5. Pipe Hangers, Supports and Accessories:
 - a. All piping shall be supported per of the National Standard Plumbing Code, Chapter No. 8.
 - b. Shop Painting and Plating: Hangers, supports, rods, inserts and accessories used for Pipe supports shall be shop coated with red lead or zinc Chromate primer paint. Electroplated copper hanger rods, hangers and accessories may be used with copper tubing.
 - c. Floor, Wall and Ceiling Plates, Supports, Hangers:
 - 1) Solid or split unplated cast iron.
 - 2) All plates shall be provided with set screws.
 - 3) Pipe Hangers: Height adjustable clevis type.
 - 4) Adjustable Floor Rests and Base Flanges: Steel.
 - 5) Concrete Inserts: "Universal" or continuous slotted type.
 - 6) Hanger Rods: Mild, low carbon steel, fully threaded or Threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.
 - 7) Riser Clamps: Malleable iron or steel.
 - 8) Rollers: Cast iron.
 - 9) Self-drilling type expansion shields shall be "Phillips" type, with case hardened steel expander plugs.
 - 10) Miscellaneous Materials: As specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories.
6. Penetrations:
 - a. Waterproofing: At floor penetrations, completely seal clearances around the pipe and make watertight with sealant as specified in Section 07 92 00, JOINT SEALANTS.

- B. Piping shall conform to the following:
 - 1. Domestic Water:
 - a. Where possible, grade all lines to facilitate drainage. Provide drain valves at bottom of risers. All unnecessary traps in circulating lines shall be avoided.
 - b. Connect branch lines at bottom of main serving fixtures below and pitch down so that main may be drained through fixture.

3.2 TESTS

- A. General: Test system in its entirety.
- B. Potable Water System: Test after installation of piping and domestic water heaters, but before piping is concealed, before covering is applied, and before plumbing fixtures are connected. Fill systems with water and maintain hydrostatic pressure of 100 psi gage for two hours. No decrease in pressure is allowed. Provide a pressure gage with a shutoff and bleeder valve at the highest point of the piping being tested.

3.3 STERILIZATION

- A. After tests have been successfully completed, thoroughly flush and sterilize the interior domestic water distribution system in accordance with AWWA C651.
- B. Use either liquid chlorine or hypochlorite for sterilization.

END OF SECTION

SECTION 22 1300

FACILITY SANITARY AND VENT PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

This section pertains to sanitary sewer and vent systems, including piping, equipment and all necessary accessories as designated in this section.

1.2 RELATED WORK

- A. Section 09 9000, PAINTING: Preparation and finish painting and identification of piping systems.
- B. Section 22 0511, COMMON WORK RESULTS FOR PLUMBING: Pipe Hangers and Supports, Materials Identification.

1.3 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Manufacturer's Literature and Data:
 - 1. Piping.
 - 2. All items listed in Part 2 - Products.
- C. Detailed shop drawing of clamping device and extensions when required in connection with the waterproofing membrane or the floor drain.

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society of Mechanical Engineers (ASME): (Copyrighted Society)
 - A13.1-07..... Scheme for Identification of Piping Systems
- C. American Society for Testing and Materials (ASTM):
 - A53/A53M-07 Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-coated, Welded and Seamless
 - A74-06..... Standard Specification for Cast Iron Soil Pipe and Fittings
 - C564-03a Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings

D. Code Council:

CPC-07..... California Plumbing Code

E. Cast Iron Soil Pipe Institute (CISPI):

301-05..... Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

310-04..... Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications

F. American Society of Sanitary Engineers (ASSE):

1018-01..... Trap Seal Primer Valves – Potable, Water Supplied

PART 2 - PRODUCTS

2.1 SANITARY WASTE, DRAIN, AND VENT PIPING

A. Cast iron waste, drain, and vent pipe and fittings

1. Cast iron waste, drain, and vent pipe and fittings shall be used for the following applications:
 - a. pipe buried in or in contact with earth
 - b. sanitary pipe extensions to a distance of approximately 1500 mm (5 feet) outside of the building.
 - c. interior waste and vent piping above grade.
2. Cast iron Pipe shall be bell and spigot or hubless (plain end or no-hub or hubless).
3. The material for all pipe and fittings shall be cast iron soil pipe and fittings and shall conform to the requirements of CISPI Standard 301, ASTM A-888, or ASTM A-74.
4. Joints for hubless pipe and fittings shall conform to the manufacturer's installation instructions. Couplings for hubless joints shall conform to CISPI 310. Joints for hub and spigot pipe shall be installed with compression gaskets conforming to the requirements of ASTM Standard C-564 or be installed with lead and oakum.

2.2 SPECIALTY PIPE FITTINGS

- A. Transition pipe couplings shall join piping with small differences in outside diameters or different materials. End connections shall be of the same size and compatible with the pipes being joined. The transition coupling shall be elastomeric, sleeve type reducing or transition pattern and include shear and corrosion resistant

metal, tension band and tightening mechanism on each end. The transition coupling sleeve coupling shall be of the following material:

1. For cast iron soil pipes, the sleeve material shall be rubber conforming to ASTM C564.
2. For dissimilar pipes, the sleeve material shall be PVC conforming to ASTM D5926, or other material compatible with the pipe materials being joined.

2.3 CLEANOUTS

- A. Cleanouts shall be the same size as the pipe, up to 100 mm (4 inches); and not less than 100 mm (4 inches) for larger pipe. Cleanouts shall be easily accessible and shall be gastight and watertight. Minimum clearance of 600 mm (24 inches) shall be provided for clearing a clogged sanitary line.
- B. Floor cleanouts shall be gray iron housing with clamping device and round, secured, scoriated, gray iron cover conforming to ASME A112.36.2M. A gray iron ferrule with hubless, socket, inside calk or spigot connection and counter sunk, taper-thread, brass or bronze closure plug shall be included. The frame and cover material and finish shall be nickel-bronze copper alloy with a square shape. The cleanout shall be vertically adjustable for a minimum of 50 mm (2 inches). When a waterproof membrane is used in the floor system, clamping collars shall be provided on the cleanouts. Cleanouts shall consist of wye fittings and eighth bends with brass or bronze screw plugs. Cleanouts in the resilient tile floors, quarry tile and ceramic tile floors shall be provided with square top covers recessed for tile insertion. In the carpeted areas, carpet cleanout markers shall be provided. Two way cleanouts shall be provided where indicated on drawings and at every building exit. The loading classification for cleanouts in sidewalk areas or subject to vehicular traffic shall be heavy duty type.
- C. Cleanouts shall be provided at or near the base of the vertical stacks with the cleanout plug located approximately 600 mm (24 inches) above the floor. If there are no fixtures installed on the lowest floor, the cleanout shall be installed at the base of the stack. The cleanouts shall be extended to the wall access cover. Cleanout shall consist of sanitary tees. Nickel-bronze square frame and stainless steel cover with minimum opening of 150 by 150 mm (6 by 6 inches) shall be furnished at each wall cleanout. Where the piping is concealed, a fixture trap or a fixture with integral trap, readily removable without disturbing concealed pipe, shall be accepted as a cleanout equivalent providing the opening to be used as a cleanout opening is the size required.
- D. In horizontal runs above grade, cleanouts shall consist of cast brass tapered screw plug in fitting or caulked/hubless cast iron ferrule. Plain end (hubless) piping in interstitial space or above ceiling may use plain end (hubless) blind plug and clamp.

2.4 TRAPS

- A. Traps shall be provided on all sanitary branch waste connections from fixtures or equipment not provided with traps. Exposed brass shall be polished brass chromium plated with nipple and set screw escutcheons. Concealed traps may be rough cast brass or same material as pipe connected to. Slip joints are not permitted on sewer

side of trap. Traps shall correspond to fittings on cast iron soil pipe or steel pipe respectively, and size shall be as required by connected service or fixture.

2.5 WATERPROOFING

- A. A sleeve flashing device shall be provided at points where pipes pass through membrane waterproofed floors or walls. The sleeve flashing device shall be manufactured, cast iron fitting with clamping device that forms a sleeve for the pipe floor penetration of the floor membrane. A galvanized steel pipe extension shall be included in the top of the fitting that will extend 50 mm (2 inches) above finished floor and galvanized steel pipe extension in the bottom of the fitting that will extend through the floor slab. A waterproof caulked joint shall be provided at the top hub.

PART 3 - EXECUTION

3.1 PIPE INSTALLATION

- A. The pipe installation shall comply with the requirements of the California Plumbing Code (CPC) and these specifications.
- B. Branch piping shall be installed for waste from the respective piping systems and connect to all fixtures and outlets.
- C. Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe shall be reamed to full size after cutting.
- D. All pipe runs shall be laid out to avoid interference with other work.
- E. The piping shall be installed above accessible ceilings where possible.
- F. The piping shall be installed to permit valve servicing or operation.
- G. Unless specifically indicated on the drawings, the minimum slope shall be 1% slope.
- H. The piping shall be installed free of sags and bends.
- I. Seismic restraint shall be installed where required by code.
- J. Changes in direction for soil and waste drainage and vent piping shall be made using appropriate branches, bends and long sweep bends. Sanitary tees and short sweep quarter bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Long turn double wye branch and eighth bend fittings shall be used if two fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Proper size of standard increaser and reducers shall be used if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.
- K. Cast iron piping shall be installed according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings"

3.2 JOINT CONSTRUCTION

- A. Hub and spigot, cast iron piping with gasket joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
- B. Hub and spigot, cast iron piping with calked joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.
- C. Hubless or No-hub, cast iron piping shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless piping coupling joints.

3.3 SPECIALTY PIPE FITTINGS

- A. Transition coupling shall be installed at pipe joints with small differences in pipe outside diameters.
- B. Dielectric fittings shall be installed at connections of dissimilar metal piping and tubing.

3.4 PIPE HANGERS, SUPPORTS AND ACCESSORIES:

- A. All piping shall be supported according to the California Plumbing Code (CPC), and these specifications. Where conflicts arise between the two, the most restrictive or the requirement that specifies supports with highest loading or shortest spacing shall apply.
- B. Hangers, supports, rods, inserts and accessories used for pipe supports shall be shop coated with zinc chromate primer paint.
- C. Horizontal piping and tubing shall be supported within 300 mm (12 inches) of each fitting or coupling.
- D. Horizontal cast iron piping shall be supported with the following maximum horizontal spacing and minimum hanger rod diameters:
 - 1. 40 mm or DN40 to 50 mm or DN50 (NPS 1-1/2 inch to NPS 2 inch): 1500 mm (60 inches) with 10 mm (3/8 inch) rod.
 - 2. 80 mm or DN 80 (NPS 3 inch): 1500 mm (60 inches) with 13 mm (1/2 inch) rod.
 - 3. 100 mm or DN100 to 125 mm or DN125 (NPS 4 to NPS 5): 1500 mm (60 inches) with 16 mm (5/8 inch) rod.
 - 4. 150 mm or DN150 to 200 mm or DN200 (NPS 6 inch to NPS 8 inch): 1500 mm (60 inches) with 19 mm (3/4 inch) rod.
 - 5. 250 mm or DN250 to 300 mm or DN 300 (NPS 10 inch to NPS 12 inch): 1500 mm (60 inch) with 22 mm (7/8 inch) rod.

- E. Vertical piping and tubing shall be supported at the base, at each floor, and at intervals no greater than 4.57 m (15 feet).
- F. In addition to the requirements in Section 22 0511, COMMON WORK RESULTS FOR PLUMBING, floor, Wall and Ceiling Plates, Supports, Hangers shall have the following characteristics:
 - 1. Solid or split unplated cast iron.
 - 2. All plates shall be provided with set screws.
 - 3. Height adjustable clevis type pipe hangers.
 - 4. Adjustable floor rests and base flanges shall be steel.
 - 5. Hanger rods shall be low carbon steel, fully threaded or threaded at each end with two removable nuts at each end for positioning rod and hanger and locking each in place.
 - 7. Riser clamps shall be malleable iron or steel.
 - 8. Rollers shall be cast iron.
 - 9. See Section 22 0511, COMMON WORK RESULTS FOR PLUMBING, for requirements on insulated pipe protective shields at hanger supports.
- G. Miscellaneous materials shall be provided as specified, required, directed or as noted on the drawings for proper installation of hangers, supports and accessories. If the vertical distance exceeds 6 m (20 feet) for cast iron pipe additional support shall be provided in the center of that span. All necessary auxiliary steel shall be provided to provide that support.
- H. Cast escutcheon with set screw shall be provided at each wall, floor and ceiling penetration in exposed finished locations and within cabinets and millwork.
- I. Piping shall conform to the following:
 - 1. Waste and Vent Drain to main stacks:

Pipe Size	Minimum Pitch
80 mm or DN 80 (3 inches) and smaller	2%
100 mm or DN 100 (4 inches) and larger	1%

2. Exhaust vents shall be extended separately through roof. Sanitary vents shall not connect to exhaust vents.

3.5 TESTS

- A. Sanitary waste and drain systems shall be tested either in its entirety or in sections.
- B. Waste System tests shall be conducted before trenches are backfilled or fixtures are connected. A water test or air test shall be conducted, as directed.
 1. If entire system is tested for a water test, tightly close all openings in pipes except highest opening, and fill system with water to point of overflow. If the waste system is tested in sections, tightly plug each opening except highest opening of section under test, fill each section with water and test with at least a 3 m (10 foot) head of water. In testing successive sections, test at least upper 3 m (10 feet) of next preceding section so that each joint or pipe except upper most 3 m (10 feet) of system has been submitted to a test of at least a 3 m (10 foot) head of water. Water shall be kept in the system, or in portion under test, for at least 15 minutes before inspection starts. System shall then be tight at all joints.
 2. For an air test, an air pressure of 35 kPa (5 psig) gage shall be maintained for at least 15 minutes without leakage. A force pump and mercury column gage shall be used for the air test.
 3. After installing all fixtures and equipment, open water supply so that all p-traps can be observed. For 15 minutes of operation, all p-traps shall be inspected for leaks and any leaks found shall be corrected.
- C. Final Tests: Either one of the following tests may be used.
 - a. Smoke Test: After fixtures are permanently connected and traps are filled with water, fill entire drainage and vent systems with smoke under pressure of 1.3 kPa (1 inch of water) with a smoke machine. Chemical smoke is prohibited.
 - b. Peppermint Test: Introduce (2 ounces) of peppermint into each line or stack.

END OF SECTION

SECTION 22 4000

PLUMBING FIXTURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Plumbing fixtures, associated trim and fittings necessary to make a complete installation from wall or floor connections to rough piping, and certain accessories.

1.2 RELATED WORK

- A. Sealing between fixtures and other finish surfaces: Section 07 9005, JOINT SEALANTS.
- B. Section 22 0511, COMMON WORK RESULTS FOR PLUMBING.

1.3 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Submit plumbing fixture information in an assembled brochure, showing cuts and full detailed description of each fixture.

1.4 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

- B. American National Standard Institute (ANSI):

The American Society of Mechanical Engineers (ASME):

A112.6.1M-02(R2008)..... Floor Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use

A112.19.1M-04 Enameled Cast Iron Plumbing fixtures

A112.19.3-2001(R2008) Stainless Steel Plumbing fixtures (Designed for Residential Use)

- C. American Society for Testing and Materials (ASTM):

A276-2003 Stainless and Heat-Resisting Steel Bars and Shapes

- D. National Association of Architectural Metal Manufacturers (NAAMM): NAAMM AMP 500-505

Metal Finishes Manual (1988)

- E. National Sanitation Foundation (NSF)/American National Standards Institute (ANSI):
61-03..... Drinking Water System Components-Health Effects
- F. American with Disabilities Act(A.D.A) Section 4-19.4 Exposed Pipes and Surfaces

PART 2 - PRODUCTS

2.1 STAINLESS STEEL

- A. Corrosion-resistant Steel (CRS):
 - 1. Plate, Sheet and Strip: CRS flat products shall conform to chemical composition requirements of any 300 series steel specified in ASTM A276.
 - 2. Finish: Exposed surfaces shall have standard polish (ground and polished) equal to NAAMM finish Number 4.
- B. Die-cast zinc alloy products are prohibited.

2.2 STOPS

- A. Provide lock-shield loose key or screw driver pattern angle stops, straight stops or stops integral with faucet, with each compression type faucet whether specifically called for or not, including sinks in wood and metal casework, laboratory furniture and pharmacy furniture. Locate stops centrally above or below fixture in accessible location.
- B. Furnish keys for lock shield stops to Project Engineer.
- C. Supply from stops not integral with faucet shall be chrome plated copper flexible tubing or flexible stainless steel with inner core of non-toxic polymer.
- D. Supply pipe from wall to valve stop shall be rigid threaded IPS copper alloy pipe, i.e. red brass pipe nipple.

2.3 ESCUTCHEONS

Heavy type, chrome plated, with set screws. Provide for piping serving plumbing fixtures and at each wall, ceiling and floor penetrations in exposed finished locations and within cabinets and millwork.

2.4 LAMINAR FLOW CONTROL DEVICE

- A. Smooth, bright stainless steel or satin finish, chrome plated metal laminar flow device shall provide non-aeration, clear, coherent laminar flow that will not splash in basin. Device shall also have a flow control restrictor and have vandal resistant housing.

- B. Flow Control Restrictor:
 - 1. Capable of restricting flow from 1.5 to 1.7 GPM for lavatories; 2.0 to 2.2 GPM for sinks.
 - 2. Compensates for pressure fluctuation maintaining flow rate specified above within 10 percent between 25 and 80 psi.
 - 3. Operates by expansion and contraction, eliminates mineral/sediment build-up with self-clearing action, and is capable of easy manual cleaning.
- C. Device manufactured by OMNI Products, Inc. or equal.

2.5 CARRIERS

- A. ASME/ANSI A112.6.1M, with adjustable gasket faceplate chair carriers for wall hung closets with auxiliary anchor foot assembly, hanger rod support feet, and rear anchor tie down.
- B. ASME/ANSI A112.6.1M, lavatory, chair carrier for 8" wall construction. All lavatory chair carriers shall be capable of supporting the lavatory with a 250-pound vertical load applied at the front of the fixture.

2.6 WATER CLOSETS

- A. Water Closet (Wall Hung, ASME/ANSI A112.19.2M, Figure 9) office and industrial, elongated bowl, siphon jet 1.6 gallons per flush, wall outlet. Top of rim shall be between 16 to 17 inches above finished floor. Handicapped water closet shall have rim set 18 inches above finished floor.
 - 1. Seat: Institutional/Industrial, extra heavy duty, chemical resistant, solid plastic, open front less cover for elongated bowls, integrally molded bumpers, concealed check hinge with stainless steel post. Seat shall be posture contoured body design. Color shall be white.
 - 2. Fittings and Accessories: Gaskets - neoprene; bolts with chromium plated caps nuts and washers.
 - 3. Flush valve: Large chloramines resistant diaphragm, semi-red brass valve body, exposed chrome plated, non-hold open ADA approved side oscillating handle, water saver design 1.6 gallons per flush with maximum 10 percent variance one-inch screwdriver back check angle stop with vandal resistant cap, adjustable tailpiece, a high back pressure vacuum breaker, spud coupling for 1-1/2 inch top spud, wall and spud flanges, and sweat solder adapter with cover tube and set screw wall flange. Valve body, cover, tailpiece and control stop shall be in conformance with ASTM alloy classification for semi-red brass. Seat bumpers shall be integral part of flush valve. Set centerline of inlet 11-1/2 inches above rim.

2.7 LAVATORIES

- A. Dimensions for lavatories are specified, Length by width (distance from wall) and depth.
- B. Brass components in contact with water shall contain no more than 3 percent lead content by dry weight.
- C. Lavatory: Single Lever Handle Control ASME/ANSI A112.19.2M, Figure 16) angled backsplash, approximately 18 inches in diameter and a 5-inch maximum apron, stainless steel. Push button metering valve centered on backsplash. Set with rim 34 inches above finished floor.
 - 1. Faucet: Solid cast brass construction, vandal resistant, deck mounted push button, center set. Control shall be washerless ceramic disc cartridge type. Provide laminar flow control device and vandal proof screws.
 - 2. Drain: Cast or wrought brass with flat grid strainer offset tailpiece, chrome plated. Provide cover per A.D.A 4-19.4.
 - 3. Stops: Angle type, see paragraph 2.2 Stops. Provide cover per A.D.A 4-19.4.
 - 4. Trap: Cast copper alloy, 1-1/2 by 1-1/4 inch P-trap. Adjustable with connected elbow and 17 gauge tubing extensions to wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish. Set trap parallel to wall. Provide cover per A.D.A 4-19.4.

2.8 SERVICE SINK

- A. Dimensions for sinks and laundry tubs are specified, length by width (distance from wall) and depth.
- B. Service Sink (Regular, ASME/ANSI A112.19.1M, Figure 24) service sink, class 1, single bowl, acid resistant enameled cast iron, approximately 24 by 20 inches with a 9 to 12-inch raised back with faucet holes. Equip sink with CRS rim guard, and mounted on trap standard. Set sinks rim 28-inches above finished floor.
 - 1. Faucet: Part B, Type II, solid brass construction, combination faucet with replaceable monel seat, removable replacement unit containing all parts subject to wear, integral stops, mounted on wall above sink. Spout shall have a pail hook, 3/4-inch hose coupling threads, vacuum breaker, and top or bottom brace to wall. Four-arm handles on faucets shall be cast, formed, or drop forged copper alloy. Escutcheons shall be either forged copper alloy or CRS. Exposed metal parts, including exposed part under valve handle when in open position, shall have a smooth bright finish.
 - 2. Drain: Grid.
 - 3. Trap: Trap standard, painted outside and enameled inside with acid-resistant enamel, drain through adjoining wall.

2.9 DISPENSER, DRINKING WATER

- A. Drinking Fountain: bi-level, pedestal mount, barrier free vandal resistant with attached pet fountain, CRS, with stainless steel receptor, 18 gage, type 304 with satin finish. Unit dimensions, 42 inches wide by 14 inches front to back by 42 inches high. Lead free.
 - 1. Provide frost-proof self-closing, drain back valve assembly with automatic stream height control and an 3-3/8 inch high bubbler.
 - 2. Provide 1-1/2 inch cast brass P-trap mounted in pipe space, with opening to accept drain back from the frost-proof valve assembly.
 - 3. All exposed accessories shall be chrome plated. Set receptor rim 42-inches above grade.

2.10 HYDRANT, HOSE BIBB AND MISCELLANEOUS DEVICES

- A. (P-801) Wall Hydrant: Cast bronze non-freeze hydrant with detachable T-handle. Brass operating rod within casing of bronze pipe of sufficient length to extend through wall and place valve inside building. Brass valve with coupling and union elbow having metal-to-metal seat. Valve rod and seat washer removable through face of hydrant; 3/4-inch hose thread on spout; 3/4-inch pipe thread on inlet. Finish may be rough; exposed surfaces shall be chrome plated. Set not less than 1-1/2 feet nor more than 3-feet above grade. Provide integral vacuum breaker which automatically drains when shut off.

2.11 SAND INTERCEPTORS

- A. Sand interceptor of the size indicated shall be of reinforced concrete, [or precast concrete construction] [or equivalent capacity commercially available steel sand interceptor] with manufacturer's standard checker-plate cover, and shall be installed [outside the building][top flush with the floor][floor mounted]. Steel sand interceptor shall be installed in accordance with manufacturer's recommendations and shall be coated to resist corrosion as recommended by the manufacturer. [Concrete shall have 21 MPa 3,000 psi minimum compressive strength at 28 days.]

PART 3 - EXECUTION

3.1 GENERAL

- A. Fixture Setting: Opening between fixture and floor and wall finish shall be sealed as specified under Section 07 9005, JOINT SEALANTS.
- B. Supports and Fastening: Secure all fixtures, equipment and trimmings to partitions, walls and related finish surfaces. Exposed heads of bolts and nuts in finished rooms shall be hexagonal, polished chrome plated brass with rounded tops.
- C. Toggle Bolts: For hollow masonry units, finished or unfinished.

- D. Expansion Bolts: For brick or concrete or other solid masonry. Shall be 6 mm (1/4-inch) diameter bolts, and to extend at least 75 mm (3-inches) into masonry and be fitted with loose tubing or sleeves extending into masonry. Wood plugs, fiber plugs, lead or other soft metal shields are prohibited.
- E. Power Set Fasteners: May be used for concrete walls, shall be 6 mm (1/4-inch) threaded studs, and shall extend at least 35 mm (1-1/4 inches) into wall.
- F. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.
- G. Where water closet waste pipe has to be offset due to beam interference, provide correct and additional piping necessary to eliminate relocation of water closet.
- H. Do not use aerators on lavatories and sinks.

3.2 CLEANING

- A. At completion of all work, fixtures, exposed materials and equipment shall be thoroughly cleaned.

END OF SECTION

SECTION 26000

ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL CONDITIONS

- A. The Bidding Requirements, Conditions of the Contract, General Provisions, Special Conditions and Division 1 are a part of this section and the contract for this work and apply to this Section as fully as if repeated herein.

1.2 SCOPE

- A. Work Included: All labor, materials, appliances, tools, equipment necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this Section, complete, as shown on the drawings and/or specified herein. Work includes, but is not necessarily limited to the following:
 - 1. Examine all other sections for work related to those other sections and required to be included as work under this section.
 - 2. Examine the general provisions and requirements for electrical work.

1.3 GENERAL SUMMARY OF ELECTRICAL WORK

- A. These specifications and drawings are intended to cover a complete operation of systems. The omission of expressed references to any item of labor or material for the proper execution of the work in accordance with present practice of the trade shall not relieve the Contractor from providing such additional labor and materials.
- B. This specification, the drawings and General Conditions cover the complete furnishing and installation of the electrical system and all related work including, but not limited to the following:
 - 1. Intercept existing feeder, reroute and extend to new building
 - 2. Panelboard
 - 3. Grounding
 - 4. Interior and exterior lighting and controls
 - 5. Receptacles
 - 6. Branch circuiting to hand dryer and irrigation controller

1.4 COORDINATION

- A. Examine all other sections of these specifications and drawings to determine the complete scope of the electrical work and coordinate all of the electrical work required for the entire project. Provide the correct electrical service to each piece of

electrical equipment whether or not shown on the drawings, and check and coordinate the required electrical distribution and controls with the actual equipment provided under the other sections of the project.

1.5 INTERPRETATION OF CONTRACT DOCUMENTS

- A. These drawings showing the layout of the electrical system indicate approximate locations of outlets, apparatus and equipment. The runs of feeders and branch circuits shown on the drawings are schematic only and are not intended to show the exact routing and location of conduits and conduit termination.

1.6 ORDINANCES AND REGULATIONS

- A. All work and materials shall be in full accordance with the latest rules of the City of San Diego, State of California Code of Regulations (CCR) Title 24 and NFPA Fire Codes referenced by CCR Title 24.
- B. Nothing in these plans and specifications is to be construed as permitting work not conforming to these codes.

1.7 PERMITS AND INSPECTIONS

- A. Apply and pay for all permits required by any of the legally constituted public authorities for the installation or construction of the work included under this Division.

1.8 REFERENCE STANDARDS

- A. Materials and workmanship shall conform to the editions of the following standards, codes, or specifications in effect on the date of this specification, unless otherwise specified.

Codes and Regulations:

CCR California Code of Regulations (CCR) Title 24 Parts 1 through 13.

CEC California Electrical Code (CCR Title 24 Part 3),

NEMA National Electrical Manufacturers Association - applicable standards

NFPA National Fire Protection Association – applicable sections referenced by CCR Title 24

UL Underwriter's Laboratories, Inc. - applicable standards

- B. UL Label: All electrical materials and equipment falling within the scope of the underwriters' standards shall bear the UL Label.

1.9 EXAMINATION OF DRAWINGS AND SITE

- A. Contractor shall carefully examine the site and existing building(s), shall compare the drawings with the existing electrical installations, and shall thoroughly familiarize himself with all existing conditions within the scope of this work.

1.10 SEQUENCING AND SCHEDULING OF WORK

- A. Coordinate work with the work of the other trades, so that the work may proceed as expeditiously as possible.

1.11 INTERRUPTION OF SERVICE

- A. Electrical systems including feeders and branch circuits, shall remain in service at all times. Where interruption of any electrical service or feeder is necessary, prepare a written Method of Procedure (MOP) for review by the Owner.

1.12 RECORD DRAWINGS

- A. On one (1) set of contract drawings, kept at the site during construction, mark all work that is installed differently from that shown on plans, including revised circuitry, material or equipment. Sufficient dimensions shall be provided to locate all materials installed beneath and outside the building including, but not limited to, underground conduits, cabling, ground rods and stubouts.
- B. All changes or revisions to the contract drawings including, but not limited to, those indicated by amendment, change order, field order, written response to RFI or other contractual means shall be kept current as the work progresses and shall be incorporated onto the final record drawings.
- C. Accurately locate and dimension all underground and embedded conduit runs on the record drawings.
- D. The marked drawings shall be kept current as the work progresses and shall be available for inspection upon request. At the close of construction, prepare a set of accurate reproducible record drawings and turn them over to the Architect. The correct and completed record drawings are a prerequisite to final contract payment.
 - 1. As part of the reproducible record drawings, the Contractor shall produce full size reproducible drawings with the final panelboard schedules as modified during construction and final light fixture schedule as modified during construction.
 - 2. These drawings shall be on Architectural base sheets and numerically sequenced to follow the last "E" sheet.
- E. As part of the reproducible record drawings, the Contractor shall produce full size reproducible drawings for all signal systems which shall include exact "As-Built" device locations, "As-Built" interconnection drawings, and "As-Built" riser diagrams.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. All material shall be new unless specifically noted otherwise.

2.2 OUTLET BOXES

- A. Provide outlet boxes with integral mounting bracket for attachment to structure.
- B. Unless otherwise specified or noted on the drawings, boxes for the various outlets shall be as follows:
 - 1. For convenience outlets, use 4" PVC boxes with single gang plaster ring.
- C. All outlet boxes shall be accurately placed and securely fastened to the structure independent of the conduit.

2.3 CAST BOXES

- A. Exposed outlet boxes shall be cast metal with threaded plugged conduit openings and a gasket cover plate specifically designed for the box use and intend function. Cast boxes shall be Rayco or approved equal.

2.4 PULL BOXES

- A. Indoor dry locations: Unless otherwise noted provide UL listed NEMA 250 Type 4X Code gauge boxes.
- B. Damp and Wet Locations: Unless otherwise noted provide UL listed NEMA 250 Type 4X Code gauge boxes.

2.5 PANELBOARDS

- A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- B. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Section 260548 "Vibration and Seismic Controls for Electrical Systems."
- C. Enclosures: Flush- and/or surface-mounted NEMA 4X cabinets as indicated on drawings.

See "Enclosures" Article in the Evaluations for discussion of enclosure types. Coordinate first five subparagraphs below with Drawings (by identifying the designated areas) or schedules (by including the required enclosure type). Availability of some enclosure types are limited by a panelboard's ampacity rating, included devices, or physical size; consult manufacturers for availability of, and limitations on, other than Type 1 enclosures.

Retain one of first two subparagraphs below.

1. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.

First two subparagraphs below are optional features. Coordinate with Drawings.

Retain first subparagraph below for installations in humid tropical environments.

2. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.
3. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.
4. Directory Card: Inside panelboard door, mounted in metal frame with transparent protective cover.

Retain first paragraph below, and coordinate with Drawings and schedules, if Project requirements include identifying specific entry locations for incoming service or feeder raceways.

D. Incoming Main Location: As indicated on drawings.

E. Phase, Neutral, and Ground Buses:

In first subparagraph below, first option is standard with most manufacturers; second option costs more.

1. Material: Hard-drawn copper, 98 percent conductivity.

Five subparagraphs below are optional features. Ground and neutral buses in lighting and appliance panelboards are also referred to as "bars" in manufacturers' literature. Coordinate with Drawings.

2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.

Isolated ground bus in first subparagraph below is sometimes physically located above and attached to the equipment ground bus with standoff insulators. Frequently and incorrectly, contractors connect equipment grounding conductors to this bus instead of to the equipment ground bus, which can be hazardous if separate equipment grounding and isolated ground conductors are not both included in the feeder serving the panelboard.

Include instructions in first paragraph below if special sizing or oversizing of lugs is required, if allowing optional use of aluminum for circuits sized for copper conductors, or when upsizing conductors for voltage drop.

F. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Tin-plated copper.

2. Main and Neutral Lugs: Mechanical type.

See Editing Instruction No. 4 in the Evaluations for guidance on using compression versus mechanical lugs in first four subparagraphs below.

3. Ground Lugs and Bus-Configured Terminators: Mechanical type.

First three subparagraphs below are optional features.

In first subparagraph below, NEMA PB 1 allows subfeed lugs to be located on the load or line side of main devices or on main-lugs-only panelboards; however, coordinate with specific manufacturers as some have restrictions on which options are available.

G. Thermal-Magnetic Circuit Breakers: Bolt-in inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits.

H. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

Not all accessories and options listed in subparagraphs below are available for every rating and from every listed manufacturer. Verify availability and unique characteristics with manufacturers selected.

a. Standard frame sizes, trip ratings, and number of poles.

See Editing Instruction No. 4 in the Evaluations for guidance on using compression versus mechanical lugs.

b. Lugs: Mechanical 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.

Select first option in first subparagraph below for solid-state trip units; select second option for thermal-magnetic units. If selecting second option, also retain "Shunt Trip" Subparagraph below.

For first subparagraph below, 120-V units trip at 55 percent or more of rated voltage; all other voltages trip at 75 percent or more of rated voltage.

d. Multipole units enclosed in a single housing or factory assembled to operate as a single unit.

e. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.

Device defined in subparagraph below is not, and should not be, used as a safety device; it is used for holding the circuit-breaker handle in designated position to avoid accidental interruption of important circuits such as circuits for fire-alarm control panel or emergency lighting.

Retain first paragraph below for panelboards that incorporate one or more main service disconnecting and overcurrent protective devices and that are used as the service entrance, outside feeder, or separately derived source means of disconnect and overcurrent protection.

- I. Service Equipment Label: NRTL labeled for use as service equipment for panelboards with one or more main service disconnecting and overcurrent protective devices.

Retain first paragraph below if future provisions are required.

- J. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

Retain one or both paragraphs below for series-rated system or system that has panelboards and circuit breakers rated for full value of short-circuit current available at location of equipment.

- K. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

- L. Manufacturers: Subject to compliance with requirements, provide products 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 and Automation
4. Square D; a brand of Schneider Electric

2.6 RECEPTACLES

- A. On exposed conduit runs, weatherproof convenience outlets shall be duplex grounding type as herein specified, installed in a cast outlet box with a weatherproof “while in use” cover.
- B. Ground fault interrupter (GFCI) type duplex receptacles shall be 20 ampere, 120 volt self-diagnostic, with red “ground fault” LED. GFCI receptacles shall be as manufactured by Arrow-Hart, Hubbell, Leviton or Pass & Seymour. Color: Same as duplex receptacles above. Provide weather-resistant receptacles in damp and wet locations per CEC.
- C. All receptacles of a given type shall be the product of one manufacturer for uniform appearance.

2.7 FACEPLATES

- A. Finished dry indoor spaces: 0.035 inch thick satin finish 302 stainless steel with matching painted steel screws. Color to match device.

2.8 TIME SWITCHES

- A. Lighting controls:
 - 1. Title 24 Part 6 California Energy Code compliant.
 - 2. Electronic, solid-state programmable units with alphanumeric display; complying with UL 917, 20A DPDT contacts rated for 120V or 277V ballast loads.
 - 3. Astronomic schedule adjustment and battery backup.
 - 4. 120V input unless otherwise shown.

2.9 CONNECTORS TERMINAL LUGS AND FITTINGS

- A. All connectors shall be UL listed for the intended use.
- B. Terminals: For #10 AWG and smaller conductor cable: Tin-plated copper pressure connectors with nonflammable, self-extinguishing insulation grip with temperature rating equal to that of conductor insulation.
- C. For #8 AWG to #4/0 AWG conductor cable: Tin-plated copper compression connectors and terminal lugs with nylon insulating sleeve for insulation grip.
- D. For #14 to #10: Wire connector bodies shall consist of a cone shape expandable coil spring insert, insulated with Teflon or plastic shell. The connectors shall be the "Wing Nut" as manufactured by "Ideal Industries" or "Scotchlok" as manufactured by Minnesota Mining Manufacturing Company. Connectors installed underground or in wet or damp areas shall be waterproof.
- E. Push-in connectors are not acceptable.

2.10 INSULATING TAPE

- A. Plastic tape: Vinyl plastic tape with rubber-based pressure-sensitive adhesive, pliable at zero degrees F.
- B. Rubber tape: Silicone-rubber tape with silicone pressure-sensitive adhesive.
- C. Acceptable Manufacturers: Minnesota Mining and Minerals Co. (3M) #33 or an approved equal.

2.11 FLEXIBLE METALLIC CONDUIT

- A. Flexible metallic conduit shall be the weatherproof type with an extruded polyvinyl chloride jacket, as manufactured by American Brass Company, Columbia, Anaconda or Electri-Flex Co.

2.12 RIGID NON-METALLIC CONDUIT

- A. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- B. Fittings for ENT and RNC: Comply with NEMA TC 3; primed and cemented, match to conduit or tubing type and material.

2.13 WIRE AND CABLE

- A. All wire shall be delivered to the job in unbroken packages, and each package shall bear the Underwriters' and Manufacturer's labels, showing the date of manufacture and the maximum allowable voltage.
- B. Wire smaller than #8 AWG may be solid or stranded conductor. #8 AWG and larger wire shall be stranded conductor.
- C. Conductors shall be soft drawn annealed copper, ninety-eight (98%) percent conductivity, continuous from outlet to outlet, without welds, splices or joints.
- D. All conductors shall be copper.
- E. The minimum conductor size shall be #12 AWG for all power and lighting systems unless specifically noted otherwise on drawings or in other sections of this specification.

2.14 INSULATION

- A. Conductors of the follow types shall be used in the following locations:
 - 1. Indoor branch circuit and feeder cables in all sizes shall have "THHN-2" or "THWN-2", 600-volt insulation unless noted otherwise.
 - 2. Type "XHHW-2" 90 degree C rated shall be used for feeders and branch circuits installed underground or in areas of direct solar exposure.
- B. All conductors supplied under the scope of this project shall be insulated for 600 volts minimum. Wire and cable shall meet the applicable requirements of CEC and UL 83 for the type of insulation, jacket, and conductor specified or indicated. Wires and cables manufactured more than 12 months prior to date of delivery to the site shall not be used.
- C. Temperature rating: comply with CEC 110.14(C).
- D. Color-Coding of Secondary Phase Conductors: Use the following colors:
 - 1. 120/240V Conductors:
 - a. Phase A: Black
 - b. Phase B: Red

- c. Neutral: White
- d. Ground: Green

2.15 WIRE MARKERS

- A. Heat shrinkable, flame-retarded, crosslinked polyolefin wire marker. Wire tags shall have a dielectric strength of 500 V/mil minimum and a temperature range from 16 degrees F to 228 degrees F. Thermoplastic or wraparound tags shall not be used. All tags shall be printed using a 9 or 24 pin dot matrix printer. Manufacturer: RacheM ShrinkMark, Brady Permasleeve or approved equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. All work shall be in conformance with recognized practices of the National Electrical Contractors Association (NECA) NECA 1 – Standard Practice of Good Workmanship in Electrical Contracting.
 - 1. Perform all cutting and patching of construction work that may be required for the proper installation of the electrical work. All patching shall be of the same materials, workmanship, and finish as, and shall accurately match all surrounding work.
 - 2. All work shall be done under the Owner's instructions, and, when so required, by the trade which performed the original work.
- B. Electrical outlets, devices and equipment furnished by disciplines under the scope of this project shall be installed and fully connected to the electric circuits.
 - 1. Furnish the necessary flexible conduit, connectors, cords, and other equipment that may be required for the proper connection of equipment.

3.2 LOCATIONS AND DIMENSIONS

- A. Install all material and equipment in such a manner as to avoid obstructions, preserve clearances, maintain code spacing and keep openings and passageways clear.
- B. These drawings are diagrammatic to the extent that many offsets, bends, fittings and exact locations are not shown. Determine the best methods, exact locations and routes for installation and note any conflicts or obstructions. The locations shown for conduits, outlets, materials and equipment may be refined to meet the architectural, structural and mechanical conditions with the approval of the Owner.

3.3 OUTLET BOXES

- A. Outlet boxes shall be used as pull boxes wherever possible, and junction boxes or pull boxes shall be installed only as required by the drawings or specifications, or as directed.

- B. Outlet boxes shall be installed. All devices shall be installed in outlet boxes sized per CEC according to the conductor fill. Where oversized boxes are necessary due to the number of conductors, the contractor shall furnish the required box size.
- C. Outlet boxes shall be independently supported to framing, ceiling slabs or other structures in an approved manner. Conduit shall not be the sole support of outlet boxes.

3.4 PANELBOARD

- A. 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.
- B. Install overcurrent protective devices and controllers not already factory installed.
- C. Install filler plates in unused spaces.
- D. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.
- E. Provide typewritten circuit directory on heavy card stock.
- F. Provide engraved nameplate indicating panelboard designation, voltage, phase and “fed from” power source.
- G. Comply with NECA 1.

3.5 EQUIPMENT GROUNDING

- A. Comply with CEC and local amendments.
- B. A green insulated copper ground wire, sized per CEC shall be provided with each feeder and branch circuit of operating over 50 volts to ground. This ground wire shall be used for the grounding of all equipment.

3.6 FLEXIBLE METALLIC CONDUIT

- A. Final connections of conduit systems to all motors and direct wired vibrating equipment for interior and exterior locations not to exceed three (3) foot length.

3.7 INSTALLING WIRE:

- A. All branch circuit and feeder wires shall be continuous from switch to terminal or farthest outlet. No joints shall be made except in pull, junction or outlet boxes, or in panelboard.
- B. All branch circuit and fixture wiring joints, splices and tapes for conductors #10 and smaller shall be made with UL listed connectors listed for 600 volts.
- C. Make all connections and splices necessary to properly install and complete the work. All splices shall be taped. All connections and splices shall be electrically and mechanically perfect, and in strict accordance with all Code requirements.

END OF SECTION

SECTION 31 1000

SITE CLEARING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Clearing and protection of vegetation.
- B. Removal of existing debris.

1.02 RELATED REQUIREMENTS

- A. Section 02 4100 - Demolition: Removal of built elements and utilities.
- B. Section 31 2200 - Grading: Fill material for filling holes, pits, and excavations generated as a result of removal operations.
- C. Section 31 2323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.
- D. GREENBOOK and 2010 City Supplement provisions for Clearing and Grubbing.

1.03 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Site Plan: Showing:
 - 1. Vegetation removal limits.
 - 2. Areas for temporary construction and field offices.

1.04 QUALITY ASSURANCE

- A. Clearing Firm: Company specializing in the type of work required.
 - 1. Minimum of 3 years of documented experience.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Fill Material: As specified in Section 31 2200 - Grading

PART 3 - EXECUTION

3.01 SITE CLEARING

- A. Comply with other requirements specified in GREENBOOK section 300-1.
- B. 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, or other pollution.

3.02 EXISTING UTILITIES AND BUILT ELEMENTS

- A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.
- B. Protect existing utilities to remain from damage.
- C. Do not disrupt public utilities without permit from authority having jurisdiction.
- D. Protect existing structures and other elements that are not to be removed.

3.03 VEGETATION

- A. Scope: Remove trees, shrubs, brush, and stumps in areas to be covered by building structure, paving, playing fields, lawns, and planting beds.
- B. Do not begin clearing until vegetation to be relocated has been removed.
- C. Do not remove or damage vegetation beyond the limits indicated on drawings.
- D. Install substantial, highly visible fences at least 3 feet high to prevent inadvertent damage to vegetation to remain:
 - 1. At vegetation removal limits.
- E. In areas where vegetation must be removed but no construction will occur other than pervious paving, remove vegetation with minimum disturbance of the subsoil.
- F. Vegetation Removed: Do not burn, bury, landfill, or leave on site, except as indicated.
 - 1. Chip, grind, crush, or shred vegetation for mulching, composting, or other purposes; preference should be given to on-site uses.
 - 2. Trees: Sell if marketable; if not, treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
 - 3. Existing Stumps: Treat as specified for other vegetation removed; remove stumps and roots to depth of 18 inches.
 - 4. Sod: Re-use on site if possible; otherwise sell if marketable, and if not, treat as specified for other vegetation removed.

- 5. Fill holes left by removal of stumps and roots, using suitable fill material, with top surface neat in appearance and smooth enough not to constitute a hazard to pedestrians.
- G. Dead Wood: Remove all dead trees (standing or down), limbs, and dry brush on entire site; treat as specified for vegetation removed.
- H. Restoration: If vegetation outside removal limits or within specified protective fences is damaged or destroyed due to subsequent construction operations, replace at no cost to Owner.

3.04 DEBRIS

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 31 2200

GRADING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Removal of topsoil.
- B. Rough grading the site for site structures and building pads.
- C. Finish grading.

1.02 RELATED REQUIREMENTS

- A. Section 31 1000 - Site Clearing.
- B. Section 31 2316 - Excavation.
- C. Section 31 2323 - Fill: Filling and compaction.
- D. Section 31.2316.13 - Trenching
- E. GREENBOOK and 2010 City Supplement provisions for Earthwork and Grading.

1.03 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Topsoil: See Section 31 2323.
- B. Other Fill Materials: See Section 31 2323.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.

- B. Stake and flag locations of known utilities.
- C. Locate, identify, and protect from damage above- and below-grade utilities to remain.
- D. Notify utility company to remove and relocate utilities.
- E. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.
- F. Protect trees to remain by providing substantial fencing around entire tree at the outer tips of its branches; no grading is to be performed inside this line.
- G. Protect plants and other features to remain as a portion of final landscaping.
- H. Prior to grading, the project area is to be cleared of all rubble, trash and debris. Any buried organic debris or other unsuitable contaminated material encountered during subsequent excavation and grading work to also be removed.

3.03 ROUGH GRADING

- A. Remove topsoil from marked areas, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from marked areas.
- D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.
- E. When excavating through roots, perform work by hand and cut roots with sharp axe.
- F. See Section 31 2323 for filling procedures.
- G. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 SOIL REMOVAL

- A. Remove excavated topsoil from site.
- B. Remove excavated subsoil from site.

3.05 FINISH GRADING

- A. Before Finish Grading:
 1. Verify building and trench backfilling have been inspected.
 2. Verify subgrade has been contoured and compacted.

- B. Remove debris, roots, branches, stones, in excess of 2 inch in size. Remove soil contaminated with petroleum products.
- C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.
- D. Place topsoil in areas indicated.
- E. Place topsoil where required to level finish grade.
- F. Place topsoil to thickness indicated.
- G. Place topsoil during dry weather.
- H. Remove roots, weeds, rocks, and foreign material while spreading.
- I. Near plants and buildings spread topsoil manually to prevent damage.
- J. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- K. Lightly compact placed topsoil.

3.06 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.
- B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

3.07 REPAIR AND RESTORATION

- A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.
- B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Architect as to remedy.
- C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.08 FIELD QUALITY CONTROL

- A. See Section 31 2323 for compaction density testing.

3.09 CLEANING

- A. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 2316.13

TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Backfilling and compacting for utilities outside the building to utility main connections, or as indicated on drawings.

1.02 RELATED REQUIREMENTS-

- A. Section 31 2200 - Grading: Site grading.
- B. Section 31 2316 - Excavation: Building and foundation excavating.
- C. GREENBOOK and City Supplement provisions for Trenching and Trenches.

1.03 DEFINITIONS

- A. Finish Grade Elevations: Indicated on drawings.
- B. Subgrade Elevations: Indicated on drawings.

1.04 REFERENCES

- A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2009.
- B. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2007.
- C. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
- D. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)); 2009.
- E. ASTM D 2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.
- F. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2006.
- G. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.05 SUBMITTALS

- A. See GREENBOOK and 2010 City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Materials Sources: Submit name of imported materials source.
- C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- D. Compaction Density Test Reports.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where designated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - 3. Conforming to ASTM D 2487 Group Symbol CL.
 - 4. Conforming to instructions, requirements and considerations as indicated in project soils report.
- B. Structural Fill: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - 3. Conforming to ASTM D 2487 Group Symbol CL.
 - 4. Conforming to instructions, requirements and considerations as indicated in project soils report.

- C. Topsoil: See Section 31 2200.

2.02 SOURCE QUALITY CONTROL

- A. See GREENBOOK section 300-4 for Fill materials and requirements.
- B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- C. If tests indicate materials do not meet specified requirements, change material and retest.
- D. Provide materials of each type from same source throughout the Work.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. See GREENBOOK section 300-4 and Section 31 2200 for additional requirements.

3.03 TRENCHING

- A. Notify Resident Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Cut trenches wide enough to allow inspection of installed utilities.
- E. Hand trim excavations. Remove loose matter.
- F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
- G. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.
- H. Remove excavated material that is unsuitable for re-use from site.
- I. Stockpile excavated material to be re-used in area designated on site in accordance with Section 31 2200.
- J. Remove excess excavated material from site.

3.04 PREPARATION FOR UTILITY PLACEMENT

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.05 BACKFILLING

- A. Backfill to contours and elevations indicated using unfrozen materials.
- B. Fill up to subgrade elevations unless otherwise indicated.
- C. Employ a placement method that does not disturb or damage other work.
- D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- E. Maintain optimum moisture content of fill materials to attain required compaction density.
- F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.
- G. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- H. Correct areas that are over-excavated.
 - 1. Other areas: Use general fill, flush to required elevation, compacted to minimum 97 percent of maximum dry density.
- I. Compaction Density Unless Otherwise Specified or Indicated:
 - 1. Under paving, slabs-on-grade, and similar construction: 95 percent of maximum dry density.
- J. Reshape and re-compact fills subjected to vehicular traffic.

3.06 BEDDING AND FILL AT SPECIFIC LOCATIONS

- A. Use general fill unless otherwise specified or indicated.

3.07 FIELD QUALITY CONTROL

- A. Perform compaction density testing on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D3017, or ASTM D6938.

- B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor"), ASTM D 1557 ("modified Proctor"), or AASHTO T 180.
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- D. Frequency of Tests: Per Resident Engineer's request.

3.08 CLEANING

- A. Remove unused stockpiled materials; leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 31 2316

EXCAVATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Excavating for slabs-on-grade, site structures, and utilities within the building.
- B. Trenching for utilities outside the building to utility main connections.

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Grading.
- B. Section 31 2323 - Fill: Fill materials, filling, and compacting.
- C. GREENBOOK and 2010 City Supplement provisions for Excavation.
- D. GREENBOOK section 7-8.6 and 2010 City Supplement section 801 for Water Pollution Control measures.

1.03 PROJECT CONDITIONS

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. See GREENBOOK and Section 31 2200 for additional requirements.

3.03 EXCAVATING

- A. Underpin and/or shore adjacent structures that could be damaged by excavating work.
- B. Excavate to accommodate new structures and construction operations.
- C. Excavations for removal of any existing footings, utility lines, tanks and any other subterranean structures to be processed and backfilled in the following manner:
 - 1. Clear the excavation bottom and sidecuts of all loose and/or disturbed matter.

2. Prior to placing backfill, the excavation bottom should be moisture conditioned to within 2 percent of the optimum moisture content and compacted to at least 90 percent of the ASTM D-1557 laboratory test standard.
 3. Backfill should be placed, moisture conditioned (i.e. watered, and/or aerated as required and thoroughly mixed to a uniform, near optimum moisture content), and compacted by mechanical means in approximate 6-inch lifts. The degree of compaction obtained should be at least 90 or 95 percent of the ASTM D-1557 laboratory test standard, as applicable.
- D. Any surficial subgrade materials disturbed during initial demolition and clearing work to be removed and/or recompacted in the course of subsequent site preparation earthwork operations.
 - E. Over-excavate the undocumented fill at least 3 feet below the finished pad grades, as required to expose native formation, or 1 foot below footing bottoms, whichever is deeper. The over-excavations shall extend at least 5 feet laterally beyond the building footprints or as constrained by existing adjacent features.
 - F. Notify Construction Manager of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
 - G. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.
 - H. Do not interfere with 45 degree bearing splay of foundations.
 - I. Cut utility trenches wide enough to allow inspection of installed utilities.
 - J. Hand trim excavations. Remove loose matter.
 - K. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.
 - L. Correct areas that are over-excavated and load-bearing surfaces that are disturbed; See Section 31 2323.
 - M. Grade top perimeter of excavation to prevent surface water from draining into excavation.
 - N. Remove excavated material that is unsuitable for re-use from site.
 - O. Remove excess excavated material from site.

3.04 FIELD QUALITY CONTROL

- A. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.

3.05 PROTECTION

- A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

SECTION 31 2323

FILL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Filling, backfilling, and compacting for slabs-on-grade, site structures, and utilities within the building.
- B. Backfilling and compacting for utilities outside the building to utility main connections.
- C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Removal and handling of soil to be re-used.
- B. Section 31 2200 - Grading: Site grading.
- C. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.
- D. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.
- E. GREENBOOK and City Supplement provisions for Fill materials and requirements.

1.03 DEFINITIONS

- A. Finish Grade Elevations: Indicated on drawings.
- B. Subgrade Elevations: 4 inches below finish grade elevations indicated on drawings, unless otherwise indicated.

1.04 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; American Association of State Highway and Transportation Officials; 2009.
- B. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2007.
- C. ASTM D 1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)); 2009.
- D. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2006.

1.05 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Samples: 10 lb sample of each type of fill; submit in air-tight containers to testing laboratory.
- C. Materials Sources: Submit name of imported materials source.
- D. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- E. Compaction Density Test Reports.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where indicated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

- A. General Fill: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - 3. Conforming to ASTM D 2487 Group Symbol CL.
 - 4. Conforming to instructions, requirements and considerations as indicated in project soils report.
- B. Structural Fill: Subsoil excavated on-site.
 - 1. Graded.
 - 2. Free of lumps larger than 3 inches, rocks larger than 2 inches, and debris.
 - 3. Conforming to ASTM D 2487 Group Symbol CL.

4. Conforming to instructions, requirements and considerations as indicated in project soils report.
- C. Topsoil: See Section 31 2200.

2.02 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Provide materials of each type from same source throughout the Work.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the Work are as indicated.
- B. Identify required lines, levels, contours, and datum locations.
- C. See GREENBOOK and Section 31 2200 for additional requirements.

3.02 PREPARATION

- A. Scarify subgrade surface to a depth of 6 inches to identify soft spots.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.
- C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

- A. The resulting over-excavations from Section 31 2316 may be back-filled with clean soils with an EI less than 50 and maximum rock size of 3 inches, below 2 feet from pad grades. Backfills within 2 feet of pad grades shall consist of very low expansive import/on-site soils with an EI of 20 or less and maximum rock size of 3 inches.
- B. All bottoms of over-excavations shall be scarified a minimum of 8 inches, moisture conditioned to within 2 percent of the optimum moisture content, and compacted to at least 90 percent of the maximum dry density per ASTM D-1557 test method. Where over-excavation bottoms expose competent undisturbed formation only proof-rolling need be performed. The bottom of over-excavations are to be inspected by the Geotechnical Engineer of record prior to placement of any compacted fill materials.

- C. Fill to contours and elevations indicated using unfrozen materials.
- D. Fill up to subgrade elevations unless otherwise indicated.
- E. Employ a placement method that does not disturb or damage other work.
- F. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- G. Maintain optimum moisture content of fill materials to attain required compaction density.
- H. Slope grade away from building minimum 2 inches in 10 ft, unless noted otherwise. Make gradual grade changes. Blend slope into level areas.
- I. All fills shall be compacted to at least 90 percent relative compaction per ASTM D-1557. All fills shall be compacted to a firm unyielding condition.
- J. The Expansion Index (EI) value of on-site and import fill soils is not to exceed a maximum of 20 or less within the upper 2 feet of finished pad grades.
- K. Reshape and re-compact fills subjected to vehicular traffic.

3.04 FIELD QUALITY CONTROL

- A. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor"), ASTM D 1557 ("modified Proctor"), or AASHTO T 180.
- B. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- C. Frequency of Tests: Per Resident Engineer's request.
- D. Proof roll compacted fill at surfaces that will be under slabs-on-grade.

3.05 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 1123

AGGREGATE BASE COURSES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Aggregate base course.
- B. Paving aggregates.

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for base course.
- B. Section 31 2316.13 - Trenching: Compacted fill over utility trenches under base course.
- C. Section 31 2323 - Fill: Compacted fill under base course.
- D. GREENBOOK and City Supplement provisions for Base materials and requirements.

1.03 REFERENCE STANDARDS

- A. ASTM D 698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2007.
- B. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
- C. ASTM D 2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2006.

1.04 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Samples: 10 lb sample of each type of aggregate; submit in air-tight containers to testing laboratory.
- C. Materials Sources: Submit name of imported materials source.
- D. Aggregate Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- E. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. When necessary, store materials on site in advance of need.
- B. When aggregate materials need to be stored on site, locate stockpiles where indicated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Coarse Aggregate: Coarse aggregate, conforming to State of California Highway Department standard.
- B. Fine Aggregate: Sand; conforming to State of California Highway Department standard.

2.02 SOURCE QUALITY CONTROL

- A. Where aggregate materials are specified using ASTM D 2487 classification, test and analyze samples for compliance before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest.
- C. Provide materials of each type from same source throughout the Work.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.
- B. Verify substrate has been inspected, gradients and elevations are correct, and is dry.

3.02 PREPARATION

- A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place aggregate on soft, muddy, or frozen surfaces.

3.03 INSTALLATION

- A. Under Portland Cement Concrete Paving:
 - 1. Place coarse aggregate to a total compacted thickness as indicated on drawings.
 - 2. Compact to 95 percent of maximum dry density.
- B. Place aggregate in maximum 4 inch layers and roller compact to specified density.
- C. Level and contour surfaces to elevations and gradients indicated.
- D. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.
- E. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.04 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.

3.05 FIELD QUALITY CONTROL

- A. Compaction density testing will be performed on compacted aggregate base course in accordance with ASTM D1556.
- B. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor").
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- D. Frequency of Tests: Per Resident Engineer's request.
- E. Proof roll compacted aggregate at surfaces that will be under slabs-on-grade.

3.06 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION

SECTION 32 1216

ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Double course bituminous concrete paving.
- B. Surface sealer.

1.02 RELATED REQUIREMENTS

- A. Section 31 2200 - Grading: Preparation of site for paving and base.
- B. Section 31 2323 - Fill: Compacted subgrade for paving.
- C. Section 32 1123 - Aggregate Base Courses: Aggregate base course.
- D. GREENBOOK and City Supplement provisions for Asphalt Paving.

1.03 REFERENCE STANDARDS

- A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute; 1994.
- B. AI MS-19 - A Basic Asphalt Emulsion Manual; The Asphalt Institute; Third Edition.

1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with Standard Specifications for Public Works Construction.
- B. Mixing Plant: Conform to Standard Specifications for Public Works Construction.
- C. Obtain materials from same source throughout.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable code for paving work on public property.

1.06 FIELD CONDITIONS

- A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aggregate for Binder Course: In accordance with Standard Specifications for Public Works Construction.

- B. Aggregate for Wearing Course: In accordance with Standard Specifications for Public Works Construction.
- C. Fine Aggregate: In accordance with Standard Specifications for Public Works Construction standards.
- D. Primer: In accordance with Standard Specifications for Public Works Construction.
- E. Tack Coat: Homogeneous, medium curing, liquid asphalt.
- F. Seal Coat: AI MS-19, sand type.

2.02 ASPHALT PAVING MIXES AND MIX DESIGN

- A. Binder Course: 4.5 to 6 percent of asphalt cement by weight in mixture in accordance with AI MS-2.
- B. Wearing Course: 5 to 7 percent of asphalt cement by weight in mixture in accordance with AI MS-2.
- C. Submit proposed mix design of each class of mix for review prior to beginning of work.

2.03 SOURCE QUALITY CONTROL

- A. Test mix design and samples in accordance with AI MS-2.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

3.02 PREPARATION - PRIMER

- A. Apply primer in accordance with manufacturer's instructions.
- B. Apply primer on aggregate base or subbase at uniform rate of 1/3 gal/sq yd.
- C. Use clean sand to blot excess primer.

3.03 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with manufacturer's instructions.
- B. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of 1/3 gal/sq yd.

- C. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.04 PLACING ASPHALT PAVEMENT - DOUBLE COURSE

- A. Place asphalt binder course within 24 hours of applying primer or tack coat.
- B. Place wearing course within two hours of placing and compacting binder course.
- C. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- D. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.05 SEAL COAT

- A. Apply seal coat to surface course and asphalt curbs in accordance with AI MS-19.

3.06 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- B. Variation from True Elevation: Within 1/2 inch.

3.07 FIELD QUALITY CONTROL

- A. Provide field inspection and testing. Take samples and perform tests in accordance with AI MS-2.

3.08 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury until surface temperature is less than 140 degrees F.

END OF SECTION

SECTION 32 1313
CONCRETE PAVING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Concrete curbs and gutters.
- B. Concrete walks.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete.
- B. Section 07 9005 - Joint Sealers: Sealant for joints.
- C. Section 31 2200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- D. Section 31 2323 - Fill: Compacted subbase for paving.
- E. Section 33 0513 - Manholes and Structures: Manholes and Drains, including frames; gutter drainage grilles, covers, and frames for placement by this section.

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 2005.
- C. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 2010.
- D. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988 (Reapproved 2002).
- E. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2009a.
- F. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2009a.
- G. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).

- H. ASTM D 1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2004a (Reapproved 2008).

1.04 PERFORMANCE REQUIREMENTS

- A. Static Coefficient of Friction: For concrete pavement installed as walkway surfaces, provide values equivalent to the following values as determine by testing per ASTM C 1028:
 - 1. Level Surfaces: Minimum 0.6.
 - 2. Step Treads: Minimum 0.6.
 - 3. Ramp Surfaces: Minimum 0.6
- B. Area Paving: Portland cement concrete paving shall have a medium salted (medium broom) finish on all surfaces sloped less than 6% and slip resistant (heavy broom finish) on all surfaces sloped greater than 6%. CBC Section 1133B.7.1.

1.05 SUBMITTALS

- A. See GREENBOOK and City Supplement, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data on joint filler, admixtures, and curing compound.
- C. Samples: Submit two sample panels, 12 x 12 inch in size illustrating exposed aggregate finish.
- D. Design Data: Indicate pavement thickness, design mixture, designed concrete strength, reinforcement, and typical details.
- E. Qualification Data: For qualified Installer of detectable warnings ready-mix concrete manufacturer and testing agency.
- F. Material Certificates: For the following, from manufacturer:
 - 1. Cementitious materials.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Fiber reinforcing.
 - 4. Admixtures.
 - 5. Curing compounds.
 - 6. Applied finish materials.
 - 7. Bonding agent or epoxy adhesive.

8. Joint fillers.

1.06 QUALITY ASSURANCE

- A. Ready-Mix-Concrete 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" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- C. Concrete Testing Service: Engage a qualified testing agency to perform material evaluation tests and to design concrete mixtures.
- D. ACI Publications: Comply with ACI 301 unless otherwise indicated.
- E. Preinstallation Conference: Conduct conference at Project site.
 1. Review methods and procedures related to concrete paving, including but not limited to, the following:
 - a. Concrete mixture design.
 - b. Quality control of concrete materials and concrete paving construction practices.
 2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete paving subcontractor.
 - e. Manufacturer's representative of stamped concrete paving system used for detectable warnings.
- F. Concrete paving will comply with the Greenbook 2009, City Supplement and City of San Diego Standard Drawings, including the following guidelines:
 1. All repairs should be doveled into existing concrete

2. Pedestrian paving to provide safe, durable, carefully thought-out ADA Accessible pedestrian access to support all facility functions.
 - a. Ponding is not acceptable. Ensure proper drainage, with 1% to drain slope minimum and 2% maximum cross slope.
 - b. Provide expansion joints and control joints to control cracking
 - c. Control joints in walkways should be located a maximum of 5 feet on center with expansion joints at 45 feet. No panel should be larger than 100 square feet.
 - d. Concrete paving expansion joints shall receive sealant. Use only elastomeric expansion joint sealants.
 - e. Downspouts should not drain across pedestrian flatwork
 - f. Slope flatwork away from utility vault lids
 - g. Finish for concrete walks is a medium broom finish, with brush strokes perpendicular to the primary direction of travel. Do not use salt finish or stamped textures.
 - h. At stairs, use metal nosings. Provide access that is as direct as possible between building entrances and activity areas.

1.07 PROJECT CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS (NOT USED - per Greenbook, City Supplement, City of San Diego Standard Drawings)

PART 3 - EXECUTION

3.01 GENERAL EXECUTION (NOT USED - per Greenbook, City Supplement, City of San Diego Standard Drawings)

3.02 SUBBASE

- A. See Section 32 1123 for construction of base course for work of this Section.

3.03 FINISHING

- A. Area Paving - General: Portland cement concrete paving shall have a medium broom finish on all surfaces sloped less than 6% and slip resistant (heavy broom finish) on all surfaces sloped greater than 6%. CBC Section 1133B.7.1.

3.04 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 32 1723.13

PAINTED PAVEMENT MARKINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Parking space markings, including curb markings and International Symbol of Accessibility.
- B. Curb Painting.

1.02 RELATED DOCUMENTS

- A. GREENBOOK and provisions and materials for Paint for Traffic Striping, Pavement Marking and Curb Marking.

1.03 REFERENCE STANDARDS

- A. FS TT-P-1952 - Paint, Traffic Black, and Airfield Marking, Waterborne; Rev. E, 2007.
- B. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.
- C. FHWA MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; <http://mutcd.fhwa.dot.gov>; current edition.

1.04 SUBMITTALS

- A. See GREENBOOK and , Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Certificates: Submit for each batch of paint stating compliance with specified requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based

materials, in accordance with requirements of local authorities having jurisdiction.

1.06 FIELD CONDITIONS

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Materials as specified in GREENBOOK section 210-1.6 and Appendix to 2010 City Supplement. For materials NOT specified in GREENBOOK and City Supplement, see below.
- B. Line and Zone Marking Paint: MPI No. 97 Latex Traffic Marking Paint; color(s) as indicated.
 - 1. Handicapped Symbols: Blue and White.
 - 2. Curb Markings: Blue and Red.
- C. Paint For Obliterating Existing Markings: FS TT-P-1952; black for bituminous pavements, gray for portland cement pavements.
- D. Temporary Marking Tape: Preformed, reflective, pressure sensitive adhesive tape in color(s) required; Contractor is responsible for selection of material of sufficient durability as to perform satisfactorily during period for which its use is required.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Obliteration of existing markings using paint is acceptable in lieu of removal; apply the black paint in as many coats as necessary to completely obliterate the existing markings.

- D. Clean surfaces thoroughly prior to installation.
 - 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
 - 2. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement, by scraping, wire brushing, sandblasting, mechanical abrasion, or approved chemicals.
 - 3. Sandblasting: Use equipment of size and capacity necessary, providing not less than 150 cfm of air at pressure not less than 90 psi at each nozzle used.
- E. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- F. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.
- G. Temporary Pavement Markings: When required or directed by Architect, apply temporary markings of the color(s), width(s) and length(s) as indicated or directed.
 - 1. After temporary marking has served its purpose, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that surface to which the marking was applied will not be damaged.
 - 2. At Contractor's option, temporary marking tape may used in lieu of temporary painted marking; remove unsatisfactory tape and replace with painted markings at no additional cost to Resident Engineer.

3.03 INSTALLATION

- A. Install pavement and curb markings as directed in GREENBOOK section 310-5.6 and section 310-5.6.
- B. Begin pavement marking as soon as practicable after surface has been cleaned and dried.
- C. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.
- D. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- E. Comply with FHWA MUTCD manual (<http://mutcd.fhwa.dot.gov>) for details not shown.

- F. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- G. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.
 - 1. Apply paint in one coat only.
 - 2. Wet Film Thickness: 0.015 inch, minimum.
 - 3. Length Tolerance: Plus or minus 3 inches.
 - 4. Width Tolerance: Plus or minus 1/8 inch.
- H. Parking Spaces: Apply parking space lines, painted curbs, and other markings indicated on drawings.
 - 1. Mark the International Symbol of Accessibility at indicated parking spaces, in relative location, size and color per City Standard Drawings.
 - 2. Hand application by pneumatic spray is acceptable.
- I. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

3.04 DRYING, PROTECTION, AND REPLACEMENT

- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
- D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.
- F. Replace removed markings at no additional cost to Resident Engineer.

END OF SECTION

SECTION 32 1726

DETECTABLE/TACTILE WARNING SURFACES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Stainless Steel Cast In Place Detectable/Tactile Warning Surface Tiles

1.02 RELATED DOCUMENTS

- A. section 216 – Detectable Warning Tiles.
- B. City of San Diego’s Approved Materials List (AML) for Detectable Warning Tiles (DWT), published November 2011.

1.03 SUBMITTALS

- A. See GREENBOOK and , Section 2-5.3 for Shop Drawings and Submittals.
- B. Materials from the Manufacturers listed in the or on the City’s AML do not require a submittal. In lieu of the submittal, the Contractor is required to certify in writing, that material incorporated in the Work comply with the Contract Documents. For any substitutions requested by the Contractor, refer to the City’s AML for DWT.

1.04 QUALITY ASSURANCE

- A. Provide Cast In Place Detectable/Tactile Warning Surface Tiles and accessories as produced by a single manufacturer that specializes in manufacturing the products specified in this section, with a minimum of three (3) years experience.
- B. Installer’s Qualifications: Engage an experienced Installer certified in writing by Cast In Place Detectable/Tactile Warning Surface Tile manufacturer as qualified for installation, who has successfully completed installations similar in material, design, and extent to that indicated for Project.
- C. Americans with Disabilities Act (ADA): Provide Cast In Place Detectable/Tactile Warning Surface Tiles which comply with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2 DETECTABLE WARNINGS ON WALKING SURFACES).
- D. California Code of Regulations (CCR): Provide only approved DSAAC detectable warning products as provided in the California Code of Regulations (CCR) Title 24, Part 2, Section 205 definition of "Detectable Warning". Section 1117A.4 and 1127B.5 for "Curb Ramps" and Section 1133B.8.5 for "Detectable Warnings at Hazardous Vehicular Areas".
- E. Tile and installation to comply with San Diego City Standard Drawing SDG-130.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Cast In Place Detectable/Tactile Warning Surface Tiles shall be suitably packaged or crated to prevent damage in shipment or handling. Finished surfaces shall be protected by sturdy plastic wrappings to protect tile from concrete residue during installation and tile type shall be identified by part number.
- B. Cast In Place Detectable/Tactile Warning Surface Tiles shall be delivered to location at building site for storage prior to installation.

1.06 SITE CONDITIONS

- A. Environmental Conditions and Protection: Maintain minimum temperature of 40°F in spaces to receive Cast In Place Detectable/Tactile Warning Surface Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.
- B. The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public.

1.07 GUARANTEE

- A. Cast In Place Detectable/Tactile Warning Surface Tiles shall be guaranteed in writing for a period of five (5) years (minimum) from date of final completion. The guarantee includes defective work, breakage, deformation, fading and loosening of tiles.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approved Manufacturer: Advantage Tactile Systems Inc. (800-679-4022); www.advantagetactile.com. or approved equal.
 - 1. See GREENBOOK and , section 4-1.6 for substitutions.
 - 2. Any product submitted for this project must be on the City of San Diego's Approved Materials List (AML) for Detectable Warning Tiles (DWT), published November 2011.
- B. Color: Yellow conforming to Federal Color No. 33538.
- C. Material: Stainless Steel, with ultra violet stabilized color coating.
- D. Product Characteristics: Cast In Place Detectable/Tactile Warning Surface Tiles shall have an integral non-slip surface stamped into the stainless steel plate on the top of the domes and in the field surface between the domes. The tile shall incorporate an in-line pattern of truncated domes measuring nominal 0.2" height, 0.9" base diameter, and 0.45" top diameter, spaced center-to-center 2.4" as measured on a

diagonal and 1.7" as measured side by side. For wheelchair and high heel shoe safety

the field area shall consist of an integral non-slip surface (within the stainless steel plate) that measure 0.03 above the adjacent surface.

1. Dimensions: Cast In Place Detectable/Tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:
 - a. Length and Width: 24x48 nominal
2. Slip Resistance: The combined Wet and Dry Static Co-Efficients of Friction not to be less than 0.80 on top of domes and field area, ASTM C 1028-96.
2. Chemical Stain Resistance: To withstand without discoloration or staining - saturated calcium chloride, red enamel spray paint, red lipstick, red wax crayon, black liquid ink, chewing gum, mustard, ketchup, urine, coffee, diesel fuel, asphalt, tobacco juice, hydraulic oil and motor oil. ASTM D 543-95 (re approved 2001)
3. Abrasive Wear of Tile: Average wear depth shall not exceed 0.010 after 1,000 abrasion cycles when measured on the top surface of the dome representing the average of three measurement locations per sample. Tested by BYK – Gardener Tester ASTM D 2486-00 with reciprocating linear motion of 37± cycles per minute over a 10” travel. The abrasive medium, a 40 grit Norton Metallite sand paper, to be fixed and leveled to a holder. The combined mass of sled, weight and wood block is to be 3.2 lb.
4. Abrasive Wear of Tile: Average wear index shall be a minimum of 480 after 1,000 abrasion cycles with ASTM C 501-84 parameters and 210 with SS-T-308b parameters when measured on the top surface of the dome representing the average of four sample measurements. When tested by Taber Tester ASTM C 501-84 and US Specifications SS-T-308b with H22 coarse Calibrade Wheels with each testing coupon weighed to the nearest 0.01 gram
5. Gardner Impact to Geometry "GE" of the standard when tested by ASTM D 5420-04 to have a mean failure energy expressed as a function of specimen thickness of not less than 550 in. lbf/in. A failure is noted when a crack is visible in coating or a 3mm depression on domes for coated tile.
6. Accelerated Weathering of Tile when tested by ASTM G 155-05a for 3,000 hours shall exhibit the following result – $\Delta E < 2.6$, as well as no deterioration, fading or chalking of surface of federal yellow color tile (federal No. 33538).
7. Accelerated Aging and Freeze Thaw Test of Tile and Adhesive System when tested to ASTM D 1037-99 shall show no evidence of cracking, delamination, warpage, checking, blistering, color change, loosening of tiles or other detrimental defects.
8. Salt and Spray Performance of Tile when tested to ASTM B 117-03 not to show any deterioration or other defects after 1,000 hours of exposure.
9. Tensile Strength of Concrete Repair and Overlay Materials by Direct Pull-off Method ASTM C 153-04 tensile bond strength shall not be less than 160 psi

10. Determining the Adhesion of Lamination Films to Prints Utilizing Mechanical Stress by Four (4) Different Test Methods -Score/Tape, Cross Hatch, X-Cut, and Crease Folding by ASTM F 2296-04 not to show any failure of coating delaminating from metal panel.
11. Craze resistance by thermal shock with breaches in coating by ASTM C 554-93 no failure up to 450 degrees Fahrenheit
12. AASHTO HB-17 single wheel HS20-44 loading "Standard Specifications for Highways and Bridges". The Cast In Place Tile shall be mounted on a concrete platform then subjected to the specified maximum load of 10,400 lbs., corresponding to an 8,000 lb individual wheel load and a 30% impact factor. The tile shall exhibit no visible damage at the maximum load of 10,400 lbs.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. During Cast In Place Detectable/Tactile Warning Surface Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- B. Prior to placement of the Cast In Place Detectable/Tactile Warning Surface Tile system, review manufacturer and contract drawings with the Contractor prior to the construction and refer any and all discrepancies to the Resident Engineer.
- C. The structural embedment flange system and related materials shall be installed in strict accordance with their respective manufacturers written instructions. Not recommended for asphalt applications.
- D. The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4 - 7 to permit solid placement of the Cast In Place Detectable/Tactile Warning Surface Tile system. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (25 lb) shall be placed on each tile.
- E. The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, 25 lb. weights, and a large non-marring rubber mallet are specific to the installation of the Cast In Place Detectable/Tactile Warning Surface Tile system. A vibrating mechanism such as that manufactured by Vibco can be employed, if desired. The vibrating unit should be fixed to a soft base such as wood, at least 1 foot square.
- F. The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- G. When preparing to set the tile, it is important that no concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Holes in the tile perimeter allow air to escape during the installation process. Concrete will flow through the large holes in each embedment

flange on the underside of the tile. This will lock the tile solidly into the cured concrete.

- H. The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. Immediately after finishing concrete, the electronic level should be used to check that the required slope is achieved. The tile shall be placed true and square to the curb edge in accordance with the contract drawings. The Cast In Place Detectable/Tactile Warning Surface Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the field level of the tile is flush to the adjacent concrete surface. The embedment process should not be accomplished by stepping on the tile as this may cause uneven setting which can result in air voids under the tile surface. The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes.
- I. In cold weather climates it is recommended that the Cast In Place Detectable/Tactile Warning Surface Tiles be set deeper such that the top of domes are level to the adjacent concrete on the top and sides of ramp and that the base of domes to allow water drainage. This installation will reduce the possibility of damage due to snow clearing operations.
- J. Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage to curb as the design dictates. Ensure that the field surface of the tile is flush with the surrounding concrete and back of curb so that no ponding is possible on the tile at the back side of curb.
- K. While concrete is workable, a 3/8" radius edging tool shall be used to create a finished edge of concrete, then a steel trowel shall be used to finish the concrete around the tile's perimeter, flush to the field level of the tile.
- L. During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external forces placed on the tile that may rock the tile causing a void between the underside of tile and concrete.
- M. Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Two suitable weights of 25 lb each may be required to be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.
- N. Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brush will clean the residue without damage to the tile surface.

3.02 CLEANING, PROTECTING AND MAINTENANCE

- A. Protect tiles against damage during construction period to comply with Tactile Tile manufacturer's specification.
- B. Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.

- C. Clean Tactile Tiles not more than four days prior to date scheduled for inspection intended to establish date of substantial completion in each area of project. Clean Tactile Tile by method specified by Tactile Tile manufacturer.
- D. Comply with manufacturers maintenance manual for cleaning and maintaining tile surface and it is recommended to perform annual inspections for safety and tile integrity.

END OF SECTION

SECTION 32 8400

PLANTING IRRIGATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Special Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section covers the furnishings of all materials and performing all operations to provide a complete operable Landscape Irrigation System as directed on the drawings including the following:

1. Trenching, stockpiling excavated material and refilling trenches.
2. Irrigation System components including but not limited to: pressure regulators, piping, backflow prevention enclosures, valves, fittings, stream rotator heads, controllers, wiring and final adjustments as determined by the City of San Diego or City of San Diego's Representative to insure efficient and uniform distribution.
3. Pipe connections to backflow prevention device.
4. Testing and inspection of Irrigation System.
5. Clean up and maintenance.

- B. Related Sections include the following:

1. Division 22 Section "Water Distribution" for water supply piping, water meters, and backflow preventers.
2. Division 31 Section "Grading" for excavating, trenching, and backfilling.
3. Division 31 Section "Site Clearing."
4. Division 32 Section "Landscaping."

1.03 DEFINITIONS

- A. Lateral Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.
- B. Pressure Piping: Downstream from point of connection to water distribution piping to and including control valves. Piping is under water distribution system pressure.

C. The following are industry abbreviations for plastic materials.

1. ABS: Acrylonitrile-butadiene-styrene plastic
2. NP: Nylon plastic
3. PE: Polyethylene plastic
4. PP: Polypropylene plastic
5. PTEF: Polytetrafluoroethylene plastic
6. PVC: Polyvinyl chloride plastic

1.04 GENERAL REQUIREMENTS

- A. Code Requirements shall be those of State and Municipal Codes and Regulations locally governing this work, providing that any requirements of the Drawings and Specifications, not conflicting therewith but exceeding the Code Requirements shall govern, unless written permission to the contrary is granted by the Landscape Architect.
- B. Conform to the requirements of the reference information listed below except where more stringent requirements are shown or specified in the most current set of construction documents:
1. American Society for Testing Material (ASTM), for test methods specifically referenced in this section.
 2. Underwriter's Laboratories (UL), for UL wires and cables.
 3. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
 4. Comply with requirements the City of San Diego Water Utilities Department for preventing backflow and back siphonage.
 5. Comply with ASTM F 645, "Guide for Selection, Design, and Installation of Thermoplastic Water Pressure Piping Systems."
 6. Comply with NFPA 70, "National Electrical Code," for electrical connections between wiring and electrically operated devices.
 7. Furnish plastic pipe and fittings permanently marked with size, class, and type of pipe, working pressure at 73.4 degrees F, and National Sanitation Foundation (NSF) rating.
- C. A licensed and bonded plumbing contractor shall execute work involving substantial plumbing for installation of copper piping, backflow prevention devices and other related work. Obtain any necessary permits prior to beginning work.

- D. Specified depths of pressure supply lines, laterals and pitch of pipes as stated in this section are minimums. Settlement of trenches lower than grades specified on the final grading plans is cause for removal of finish grade treatment, refilling trenches, recompacting and repairing of finish grade treatment.
- E. Follow current printed manufacturer's specifications and drawings for items or information not specified or graphically indicated in the most current set of construction drawings.
- F. Dimensions indicated are approximate. It is not possible to indicate all required offsets, fittings and other related equipment graphically on the construction drawings. Contractor shall be responsible for minor changes caused by actual site conditions. Before proceeding with any work, Contractor shall carefully check and verify all dimensions of related architectural elements, utilities and landscaping; and furnish and install required fittings.
- G. Do not install the irrigation system as shown on the construction drawings when it is obvious that actual field conditions such as physical obstructions, grading discrepancies and field dimensions vary from those recorded on the construction drawings. Immediately bring any such discrepancies to the attention of the City of San Diego or City of San Diego's Representative prior to proceeding with work. If immediate notification is not given and such discrepancies exist, Contractor shall assume full responsibility for necessary revisions, as determined by the City of San Diego or City of San Diego's Representative.
- H. Central control system communication cable installation and splicing or radio communication shall be tested and certified in writing by the appropriate manufacturer's representative. The system shall also be tested on line with the central computer system prior to requesting a walk through for Substantial Completion.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Exercise caution in handling, loading and storing of plastic pipe and fittings to avoid damage.
- B. Transport pipe in a vehicle with a bed long enough to allow the length of pipe to lay flat so as not to be subjected to undue bending or concentrated external load at any point. Support pipe during storage from sagging and bending. Store plastic piping protected from direct sunlight.
- C. Discard pipe that has been dented or damaged unless such dent or damaged section is cut and rejoined with a coupling.
- D. Protect valves, fittings, and specialties from moisture, dirt, and other possible contaminants.

1.06 SEQUENCING AND SCHEDULING

- A. Install landscape headers, sidewalks, and mowing strips before installation of sprinkler system. Sleeves and mainlines under paving shall be in place before paving construction.

- B. Specimen trees (24 inches box and larger) shall be installed before the location of the irrigation system.
- C. Coordinate lawn sprinkler piping with utility work.
- D. Obtain permission, in writing, from the City of San Diego at least 2 working days before shutting off existing in-use water lines. Contractor shall receive instructions from the City of San Diego as to the exact length of time of each shut-off. Notify the City of San Diego's Landscape Inspector of said intent.

1.07 EXISTING FIELD CONDITIONS

- A. Preserve and protect all existing trees, plants, monuments, structures, hardscape and architectural elements from damage due to work in this section. In the event that damage does occur to inanimate object and structures, Contractor shall repair or replace such damage to the satisfaction of the City of San Diego or City of San Diego's Representative. Contractor at Contractor's expense shall replace damaged or injured living plant material.
- B. Trenching in areas where root diameter exceeds 2 inches shall be done by hand. Exposed roots of this size shall be heavily wrapped with moistened burlap to avoid scarring or excessive drying. Where a trenching machine is operated in proximity to roots that are less than 2 inches, the wall of the trench shall be hand trimmed, making clean cuts through roots.
- C. Protect, maintain and coordinate work with other contracts, specifications, trades, and utilities. Exercise extreme care in excavating and working in areas where utilities exist. Contractor shall be responsible for damages caused by its operations. In the event that damage does occur, Contractor shall pay the costs of such repairs.
- D. Use caution where trenches and piping cross existing roadways, sidewalks, hardscape, paths or curbs. Contractor shall be responsible for damages caused by its operations.

1.08 REQUIRED DOCUMENTS

- A. Service Manuals
 - 1. Submit, prior to beginning construction, a list of irrigation equipment to be used, accompanied by manufacturer's catalog data, specifications, or other literature clearly indicating compliance with specification requirements for each item.
 - 2. Furnish (4) four service manuals to the City of San Diego prior to scheduling a walk through for Substantial Completion. Submit manuals in bound form complete with a table of contents, copy of contractor's warranty, and workmanship form on company letterhead. Manuals shall contain complete large-scale drawings of all installed equipment showing component warranties and catalog numbers together with the manufacturer's name and address. Manuals shall include operation instructions. Manuals shall be subject to approval by the City of San Diego or City of San Diego's Representative as to completeness.

B. Record Drawings

1. Prior to beginning work in the field, secure a complete set of irrigation plans, details, and specifications on diazo mylars at the original scale. Contractor shall be responsible for making a set of blueline prints for every week on the project. At the end of each working day, Contractor shall record all work accomplished for that day on the set of blueline prints in red ink. These record drawings shall be brought up to date at the end of each workweek by a qualified draftsman. The drawings should indicate the following:
 - a. Any zoning changes.
 - b. Dimension from two permanent points of reference (building corners, fixed hardscape corners, road intersections, permanent existing utilities) the location of the following items:
 - 1) Water meters
 - 2) Connection to existing water lines
 - 3) Routing of pressure supply lines at every 100 feet along routing
 - 4) Backflow prevention devices
 - 5) Flow sensors
 - 6) Master valves
 - 7) Isolation ball valves
 - 8) Quick coupling devices
 - 9) Electric control valves
 - 10) Check valves
 - 11) Field satellite units/controllers
 - 12) Grounding rods
 - 13) Control wire routing (if routed separately from pressure supply line)
 - 14) Communication cable routing (if routed separately from pressure supply line)
 - 15) Communication cable and control wire splices that are outside of control unit or field satellite unit
 - 16) Other equipment as directed by City of San Diego

2. Prior to scheduling a walk through for Substantial Completion, provide a record set of field drawings as described above to the City of San Diego for review. After review, the City of San Diego will return the set to the field foreman requesting further information or will notify that the record set of field drawings are complete. After approval from the City of San Diego, a walk through for Substantial Completion may be scheduled.
3. Prior to scheduling the final walk through, the final set of irrigation record drawings shall be professionally drafted.
4. Contractor is responsible for delivering the final set of record drawings to the City of San Diego or City of San Diego's Representative prior to initiating the maintenance period.

C. Controller Charts

1. Provide drawings for each controller unit installed on the project. The controller drawings shall be an actual blue print reduction of the area covered by that controller unit and shall be at the maximum allowable scale that will fit inside the controller door without folding the drawing. The chart shall be a plot plan, entire or partial, showing building(s), walks, roads and walls. Drawings shall show valves and sprinkler heads serviced by that particular controller identifying each station by separate color. Number valves shall match the operation schedule and the drawings. All zones controlled by a controller shall be included on a single sheet. Only those areas controlled by that controller shall be shown. Resident Engineer's Landscape Inspector shall review this print prior to submittal. It shall be hermetically sealed by plastic, and then be secured to the inside door of the controller enclosure.
2. Prepare and submit additional copies of color coded controller drawings as follows: two - 11 inches x 17 inches laminated copies, one - 8 inches x 11 inches laminated copy, and one - 11 inches x 17 inches non-laminated copy.
3. Submit controller charts to the City of San Diego or City of San Diego's representative prior to requesting a walk-thru for substantial completion.

1.09 WARRANTY

- A. Contractor shall warrant materials against defects and guarantee workmanship for the period of one year. Contractor shall be responsible for coordinating warranty items with manufacturer/distributor and City of San Diego.
- B. Settlement of trenches, which may occur during the one-year warranty period, will be repaired by Contractor at no expense to the City of San Diego.

1.10 EXTRA STOCK AND EQUIPMENT CERTIFICATIONS

- A. Prior to a release of responsibility, schedule a walk through with the City of San Diego or City of San Diego's representative and disclose and provide the following:
 1. Five (5) stream rotator heads with nozzles of each type used, for every 100 rotors installed on the project. Five (5) rotor heads with nozzles, minimum.

2. Two (2) sets of the required equipment specific specialty tools for removing, disassembling and adjusting each type of sprinkler head and electric control valve used on the project.
3. Two (2) keys for opening and locking the existing automatic controller.
4. All manufacturers' rebate certificates (bonus dollars).
5. One (1) nickel-chrome plated 16-gauge steel 36 inches tube sampler soil probe, as manufactured by Oakfield or approved equal.
6. All manufacturers' warranty information stating length of warranty and how to exercise warranty on all valves, irrigation controllers and sprinkler heads.
7. Copy of backflow prevention device equipment operation certification as required by City Regulations.
8. Five (5) spare keys matching equipment enclosure locks used.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. The design of the irrigation system is based on the manufacturers and products specified herein or indicated on the Drawings. Substitutions will be permitted only with the Landscape Architect or Resident Engineer Landscape Inspector's approval. Where such substitution will change the coverage or flow rates of the sprinkler heads, the request for substitution shall include layout plans showing revised sprinkler head locations. Such revised layout plans shall provide coverages and watering rates equivalent to those indicated. The Resident Engineer's Landscape Inspector shall be notified of any design changes or substitutions.

2.02 PIPING

- A. General Piping:
 1. Pipe sizes shown are nominal inside diameter unless otherwise noted.
 2. Pipe shall be identified with the following indelible markings:
 - a. Manufacturer's name
 - b. Nominal pipe size
 - c. Schedule or class
 - d. Pressure rating
 - e. NSF (National Sanitation Foundation) seal of approval
 - f. Date of extrusion

B. Solvent Weld Pressure Supply Line:

1. Solvent Weld Pressure Supply Line: (downstream of Backflow prevention device) shall be PVC schedule 40 conforming to ASTM D1785-83 for pipe sizes 3/4" through 1 1/2", and PVC Class 315 BE (SDR 13.5) conforming to ASTM D 2241 for pipe sizes 2" and larger.
 - a. Manufactured from virgin polyvinyl chloride (PVC) compound in accordance with ASTM D2241 and ASTM D1784; cell classification 12454-B.
 - b. Type 1, Grade 1.
2. Fittings: Standard weight, Schedule 40, injection molded PVC, complying with ASTM D1784 and D2466, cell classification 12454-B.
 - a. Threads- Injection molded type (where required)
 - b. Tees and Ells- side gated
3. Threaded Nipples: ASTM D2464, Schedule 80 with molded threads
4. Joint Cement and Primer: Type as recommended by manufacturer of pipe and fittings

C. Non-pressure Lateral Lines:

1. Non-Pressure Lateral Lines: (downstream of electric remote control valve) PVC Schedule 40, conforming to ASTM D1785-83.

Fittings: Standard weight, Schedule 40, injection molded PVC, complying with ASTM D1784 and D2466, cell classification 12454-B.

 - a. Threads- Injection molded type (where required)
 - b. Tees and Ells-side gated
 - c. Threaded Nipples: ASTM D2464, Schedule 80 with molded threads.
2. Joint Cement and Primer: Type as recommended by manufacturer of pipe and fittings

Sleeving and Conduit:

3. All sleeving for pressure supply line and non-pressure supply lines shall be twice the nominal size of the pipe within, minimum.
4. Sleeving and Conduit Material:
 - a. PVC SCH 40 for 1" to 2 1/2" pressure supply line
 - b. PVC SCH 40 for 3" and larger pressure supply line

- c. PVC SCH 40 for non-pressure lines
 - d. (1) one ¾" PVC SCH 40 conduit for up to 5 wires
 - e. (1) one 1" PVC SCH 40 conduit for up to 8 wires
 - f. (1) one 1¼" PVC SCH 40 conduit for up to 15 wires
 - g. (1) one 1½" PVC SCH 40 conduit for up to 20 wires
 - h. (1) one 2" PVC SCH 40 conduit for up to 30 wires.
 - i. (1) one 2½" PVC SCH 40 conduit for up to 35 wires
 - j. (1) one 1 1/4" PVC SCH 40 wire conduit for Master Valve and Flow Sensing cable
 - k. (1) one 1 1/2" PVC SCH 40 wire conduit for Maxicom 2-wire path communication cable
5. Flow sensing cable and master valve wires shall be installed in the same conduit and apart from all other wires.

Brass Pipe and Fittings:

- 6. Pressure Supply line (from point of connection through Backflow Prevention Device) Brass pipe shall be regular weight, 85% red brass, ANSI Schedule 40 screwed pipe.
- 7. Fittings: Medium brass, screwed at 125 pound class.

2.03 BACKFLOW PREVENTION ENCLOSURE

- A. Backflow Prevention Device Enclosure: Enclosure shall have full release locking mechanism, 100% stainless steel, and tube and wire construction. Stainless Steel Backflow Enclosure as manufactured by VIT Products, Strong Box model number SBBC-45SS or approved equal.

2.04 PRESSURE REGULATORS

- A. ASSE 1003, single-seated, direct-operated, water-pressure regulators, rated for 150-psi minimum, initial-inlet working pressure, with size, flow rate, and inlet and outlet pressures indicated (75-125psi adjustable). Include integral factory-installed or separate field-installed Y-pattern strainer that is compatible with unit for size and capacity:
- B. 2-Inch NPS (DN50) and Smaller: Bronze body with threaded ends.
- C. Interior Components: Corrosion-resistant materials

2.05 ELECTRIC CONTROL VALVES

- A. Remote Control Valves: Normally closed electrically actuated diaphragm type, corrosion and UV-resistant PVC material construction to operate at pressures up to 150 psi. Including a 24-volt solenoid, one-piece epoxy encapsulated and coated, with captured plunger and spring. Diaphragm one-piece molded construction with integral "O" ring seal reinforced with 600-pound test fabric. Capable of multi-angle installation (globe or angle) and manual slow closing operation with internal bleed. Valve shall be as manufactured by Rain Bird Manufacturing Corporation, model PGA (without pressure regulator option), or approved equal.
- B. Valve identification tags shall be pre-printed, double sided standard yellow tags as manufactured by Christy's or approved equal.

2.06 VALVE BOXES

- A. Valve Boxes: Boxes adjacent to paved areas subject to vehicular traffic shall be precast concrete with cast iron lids designed to resist vehicular traffic. Concrete valve boxes shall have lockable covers. Boxes in all other areas shall be plastic valve boxes as follows:
- B. Quick Couplers, Isolation Ball Valves, Manifold Ball Valves, Spare Wire Boxes and Pull Boxes: Round 10" diameter valve box, green in color, with stainless steel hex bolt, including washer, size and type to secure lid. Manufactured by Carson-Brooks Series 910-4B with "T" cover or approved equal.
- D. Electric Control Valves, Flow sensors, and Master Valves: Rectangular 12" valve box, green in color, with stainless steel hex bolt, including washer, size and type to secure lid. As manufactured by Carson-Brooks Series 1419-12-2B hinged cover or approved equal.

2.07 STREAM ROTATOR HEADS

- A. Pop-up Stream Rotator Type: Rotary sprinkler of the gear driven type. Nozzles shall be available for true matched precipitation rates.
- B. The sprinkler shall be available in adjustable arc or in full or part circle configuration. The adjustable arc sprinkler shall be adjustable from 40 degrees to 360 degrees in 1-degree increments. Adjustments shall be made from the top of the riser assembly in either the up or down position. The part circle unit shall be a fixed arc type available in 90 degree and 180 degree arcs.
- C. The pop-up sprinkler shall be of height as indicated on plans. Nozzle shall be integrally molded multiple orifice type that can be changed with tools included. Radius shall be adjustable by means of a movable diffuser pin. Nozzle turret shall be molded with a service indentation to accept a tool for raising nozzle piston for service.
- D. The sprinkler shall have a 3/4 or 1 inch NPT inlet and shall be accessible by a threaded cap for easy service.
- E. The body of the sprinkler shall be constructed of non-corrosive heavy duty ABS. The sprinkler shall be equipped with a filter screen for debris stoppage. The sprinkler shall

also be available in shrub model with the same nozzle package. The sprinkler shall carry a 2-year unconditional warranty

- F. The body of the sprinkler shall be constructed of non-corrosive heavy duty ABS. The sprinkler shall be equipped with a filter screen for debris stoppage. The sprinkler shall also be available in shrub model with the same nozzle package. The sprinkler shall carry a 2-year unconditional warranty.
- G. All sprinkler heads with similar functions shall be of common manufacture and, with the exception of shrubbery heads, shall be marked with the manufacturer's name and identification in a position where they may be identified without being removed from the system.
- H. Anti-Vandal Apparatus shall be as follows or equal approved in accordance with Section 01630: King Brothers Industries; Head Lok.
- I. Swing Joints for 3/4" and larger sprinkler inlet size shall be pre-assembled, schedule 40 with ACME O-ring sealed threads, with 8" minimum lay length, as manufactured by Lasco or approved equal. Swing joints assemblies for 1/2" sprinkler inlets shall use three marlex street ells with schedule 80 nipple, minimum length of 6".

2.08 PRE-ASSEMBLED AUTOMATIC CONTROLLER UNIT

- A. Existing wall-mounted controller to be salvaged and relocated per plan.
- B. The CCU shall connect directly to the telephone company lines via standard connector Model RJ11C, in full compliance with Part 68, FCC docket 19528, or local telephone company standards.
- C. The CCU shall include a rain gauge to be properly located per plan (to avoid interference from trees and buildings) and connected to the nearest CCU or satellite assembly. This assembly shall consist of a rain gauge, pulse decoder and mounting bracket. All interconnecting wiring shall be in continuous conduit.

2.09 RAIN GAUGE EQUIPMENT

- A. The site shall be provided with one rain sensor connected to the Resident Engineer's Irrigation Central Control System. Type used is Irritrol model RS-1000 (compatible with existing controller). Conduit for roof mounting to be per Resident Engineer Specifications (including U-channel wall mounting brackets), and shall meet Division 16 requirements.

2.10 COMMUNICATION CABLE AND ELECTRIC CONTROL VALVE WIRE

- A. All wire for control for valves shall be insulated solid copper conductor of a type approved for direct burial. Provide a different color for each controller, and install per valve manufacturer's specifications and wire chart. Common wire for each controller shall be white with stripe of same color as controller wires. Extra wires shall be black, one extra from controller to each valve manifold.

- B. Sizing of low voltage wire shall be in accordance to manufacturer's recommendations, in no case less than #14 in size. AWG UF UL approved direct burial copper wire for all control wires and all common wires.
- C. 120 volt wire to be type required by local codes and ordinances, of proper size to accommodate needs of equipment serviced.
- D. Connections on 24-volt wire shall be made by Pentite pre-filled waterproof connector, or approved equal.
- E. Trench Marker Tape: Tape shall be detectable, blue marking tape with the words "Caution – Irrigation Line Buried Below." Widths shall be at least ¾ of the diameter of the pipe being protected. Tape shall be manufactured by "Christy's" or approved equal.

2.11 THRUST BLOCKS

Thrust Blocks: Concrete thrust and anchor blocks shall be placed at each fitting 3" or greater, or where indicated on drawings, and shall consist of Class C @ 2000 psi with 4" slump Portland cement concrete.

2.12 SAND BEDDING

Sand bedding on all pipe shall be clean construction grade type.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine field conditions prior to beginning the work of this section. Grading operations shall be completed and approved prior to beginning work.
- B. Verify all sleeve locations prior to beginning work in this section. Flag all existing sleeves and conduits installed by other trades. Report any conflicts and discrepancies to the City of San Diego's Representative immediately.
- C. Verify location of existing underground utilities, valves, manholes, catch basins, and other appurtenances that will affect the layout of the sprinkler system. Verify location of new specimen trees, and other obstructions that will affect the layout of the sprinkler system. Verify location of stub outs and points of connection to the water supply system.

3.02 PREPARATION

- A. Locations of piping and equipment indicated on plans are diagrammatic and approximate and shall be adjusted as necessary and as directed to meet existing conditions and obtain complete water coverage. Contractor is responsible for irrigation system operation and complete coverage of the system. Report any conflicts and discrepancies to the Landscape Architect and Resident Engineer Landscape Inspector immediately.
- B. Sprinkler lines shall have a minimum clearance of 6 inches from each other and from

other utility lines. Do not install parallel lines directly over one another.

- C. Construct irrigation system to the sizes and grades at the locations indicated. Mark with powdered lime or marking paint routing of pressure supply line and stake the location of each stream rotator head, electric control valve and other related equipment. City of San Diego's Representative shall review staking and direct any necessary changes with Contractor. This review does not in any way alleviate Contractor from the responsibilities associated with proper uniformity and distribution of head placement after staking.
- D. Install sleeves to accommodate pipes and wires under paving, hardscape areas, sidewalks, and paths prior to asphalt and concrete operations. Compact backfill around sleeves to 95% Modified Proctor Density within 2% of optimum moisture content in accordance with ASTM D1557. Where not yet utilized, close sleeve ends with cloth duct tape.

3.03 EXCAVATION AND BACKFILLING OF TRENCHES

- A. Follow layout indicated on drawings as closely as possible in excavating trenches. Trenches shall be straight in alignment and support pipe continuously on bottom of trench. Remove rocks and debris greater than 1" in diameter. Over excavate as required for bedding material.
- B. Depth of Trench (in landscape areas):
 - 1. Pressure Supply Line: 18" from top of pipe to finish grade.
 - 2. Non-Pressure Line (for all non-rotor sprinkler heads): 12" from top of pipe to finish grade.
 - 3. Control Wiring: directly at side and bottom of pressure supply line.
 - 4. Pressure Supply line Locator Tape: above pipe, 6" below finish grade, (at a maximum depth of 12").
- C. Width of Trench:
 - 1. Pipe greater than 3": 14" minimum.
 - 2. Pipe less than 3": 7" minimum.
- D. Width Between Trenches:
 - 1. Irrigation trench to irrigation trench: 6" minimum.
 - 2. Irrigation trench to other trade trenches: 12" minimum.
- E. Boring: Boring is only permitted where pipe must pass under an obstruction that cannot be avoided or removed. Backfill shall match surrounding soil density and grain. Boring under existing paving, sidewalks, or hardscape shall be permitted at Contractor's risk. Contractor shall repair all damage to such items at Contractor's own expense.

- F. Backfilling: Backfilling of trenches shall not be done until all required testing for the irrigation system has been completed.
1. Material: Excavated material is generally considered to be adequate for backfilling operations. Before beginning the backfilling operation, insure that backfill material is free from debris and rocks greater than 1" in diameter, and is not mixed with topsoil. These materials after separated from backfill, shall be legally disposed of at Contractor's expense.
 2. Bed pressure supply line with construction grade sand 6" above and 6" below pipe. Remaining backfill shall be as described above.
 3. Bed all electrical control wire trenched separate from pressure supply line, with construction grade sand 6" above and 6" below wires.
 4. Bed all sleeves with sand bedding with construction grade sand 6" above and 6" below pipe sleeves.
 5. Set in place, cap and pressure test piping in the presence of the City of San Diego's Representative prior to backfilling.
 6. Compact backfill to a 90% maximum density in accordance with ASTM D1557 with a mechanical tamper. Do not leave trenches open for a period greater than 48 hours. Open trenches shall be protected in accordance with current OSHA regulations. Slightly mound filled trenches for settlement after backfilling is compacted.
 7. Smooth trenches to match surrounding finish grade prior to requesting walk through for Substantial Completion.

3.04 POINT(S) OF CONNECTION

- A. Point of connection shall be approximately as indicated on drawings. Connect new underground piping and valves, and provide all flanges, adapters, or other necessary fittings.

3.05 INSTALLATION OF SOLVENT WELD POLYVINYL CHLORIDE PIPE (PVC)

- A. Polyvinyl chloride pipe shall be cut with an approved PVC pipe cutter designed only for that purpose.
- B. All plastic-to-plastic solvent weld joints shall use solvent recommended by the pipe manufacturer. Do not install solvent weld pipe when temperature is below 40° F.
- C. Pipe ends and fittings shall be wiped with MEK, or approved equal, before welding solvent is applied. Welded joints shall be given a minimum of 15 minutes to set before moving or handling.
- D. Snake pipe from side-to-side on trench bottom to allow for expansion and contraction.
- E. All changes of direction over 15 degrees shall be made with appropriate fittings.

- F. When pipe laying is not completed by the end of the workday, close pipe ends with tight plug or cap.
- G. Install pressure supply line locating tape along the entire length of pressure supply line.
- H. Coordinate pressure supply line with sand bedding operations.
- I. No water shall be permitted in the pipe until inspections have been completed and a period of at least 24 hours has elapsed for solvent weld setting and curing.
- J. Center load pipe with small amount of backfill to prevent arching and slipping under pressure. Leave joints exposed for inspection during testing.
- K. Construct thrust blocks behind each fitting according to the following schedule (For 2" and larger pipe):

Thrust developed per 100 psi pressure (lbs. force) for various fitting configurations:

Pipe Size: Ends:	90° Elbow:	45° Elbow:	Valves, Tees, Dead
1 1/2"	300	200	200
2"	500	300	400
3"	1,000	600	800
4"	1,800	1,100	1,300
6"	4,000	2,300	2,900
8"	7,200	4,100	5,100
10"	11,200	6,300	7,900
12"	16,000	9,100	11,300

Approximate bearing strength of typical soils:

Soil Type	Lbs/sqft
Mulch, Peat, Etc.	0
Soft Clay	500
Sand	1,000
Sand and Gravel	1,500
Sand and Gravel with Clay	2,000

Sand and Gravel Cemented with Clay	4,000
Hard Pan	5,000

Divide the soil bearing strength by the thrust developed for each specific fitting size to determine the minimum size (ft/2) of each thrust block face. Excavate a minimum of 6" into virgin soil when forming thrust block. Don't over excavate. No thrust block shall be smaller than 1 cubic foot.

3.06 INSTALLATION OF BRASS PIPE

- A. Brass piping shall be cut by a power hacksaw, a circular cutting machine using an abrasive wheel, or by means of a hand hacksaw. All pipes shall be reamed and rough edges or burrs removed so that a smooth and unobstructed flow is obtained.
- B. Eccentric reducing fittings shall be used where change in pipe size occurs. Bushings shall not be used unless specifically authorized by the City of San Diego's Representative.
- C. Carefully and smoothly place joint compound on the male thread only. All screwed joints shall be tightened with tongs or wrenches. Caulking of any kind is not permitted.
- D. All exposed piping under structural slabs shall be stenciled with "Irrigation Main" or "Irrigation Lateral" as required, at ten foot (10') intervals in black permanent ink lettering, 3/4" minimum high.

3.07 INSTALLATION OF BACKFLOW PREVENTION DEVICE

- A. Install backflow prevention device and associated equipment as close as possible to the water meter or point-of-connection. Installation detail shall be per Resident Engineer Standard Detail drawing.
- B. Coordinate installation with local governing codes and ordinances. No pressure regulator shall be installed unless supplied pressure exceeds 80 psi, per California Plumbing Code. Install Y-strainer after the backflow device per City of San Diego Regulations.
- C. Install backflow device with stainless steel enclosure and keyed lock.

3.08 INSTALLATION OF ELECTRONIC CONTROL VALVES

- A. Install each electric control valve in a separate valve box so that cross handle is 3" minimum below valve box cover. Install with union type connection. All plastic valve boxes shall be secured with a stainless steel locking bolt mechanism, and set over 3/4" gravel with filter fabric.
- B. Group electric control valves together with no more than 3 per cluster. Allow a maximum of 12" between each valve boxes. Install valve boxes in the same direction and parallel with one another and perpendicular to paving, hardscape, sidewalks and paths. Install each manifold group with a ball valve sized equal to the largest non pressure lateral line in the manifold.

3.09 INSTALLATION OF VALVE BOXES

- A. Install valve boxes with each type of irrigation equipment so that top of valve box is above finish grade as specified on the Resident Engineer Standard Detail drawings. Valve box extensions are not acceptable except for mainline isolation gate valves.
- B. Place gravel sump below and around each valve box prior to installing valve box as specified on the detail drawings. Place remaining portion of gravel inside valve box, allowing full access in and around all fittings. Valve box shall be fully supported by gravel sump. No brick or wood supports are allowed.
- C. Brand the valve box lid of associated equipment as follows:
 - 1. Electric control valve box lid with "Controller Letter and Station Number"
- D. Letter and number size of brands shall be no less than 1" and no greater than 1 1/2" in height and shall be 1/8" maximum in depth. Provide sample branding to the City of San Diego or City of San Diego's Representative prior to commencement of work. Coordinate with City of San Diego or City of San Diego's Representative any non-listed equipment box identification required.
- E. Walk through for Substantial Completion shall not be allowed until all branding is complete and approved by City of San Diego or City of San Diego's Representative.

3.10 INSTALLATION OF STREAM ROTATOR HEADS

- A. Flush circuit piping with full water pressure and install sprinklers after hydrostatic test is completed.
- B. Locate part circle sprinklers to maintain a minimum distance of 2" to a maximum of 4" between paving, hardscape, sidewalks, and paths and a minimum distance of 12" from walls.
- C. Stream rotators shall not exceed the maximum head and row spacing specified on the drawings or staked in the field unless approved by the City of San Diego's Representative. In no case may stream rotator heads be installed at a distance between heads that exceeds the manufacturer's recommended distance.
- D. Angled nipples on swing joints below any sprinkler type, where applies, shall not exceed 45° nor be less than 10°.
- E. After installation adjust nozzle sizes, arcs and radius of throw to allow head to head uniform distribution. Adjust all stream rotator heads to correct height above sod as detailed. No overspray will be allowed on paving, hardscape, sidewalks, and paths.
- F. Adjust adjacent new plant material placement or trim existing plants so that it does not interfere with uniform distribution of each stream rotator head.
- G. Landscape Architect or Resident Engineer's Landscape Inspector may request nozzle changes and/or adjustments without additional cost to the City of San Diego.

3.11 INSTALLATION OF AUTOMATIC CONTROLLER UNIT

- A. Verify electrical power at location of automatic controller unit prior to its installation. Control unit shall have a dedicated separate circuit on the panel. Electrical panel and circuit number serving the irrigation control equipment to be labeled inside the controller enclosure.
- B. Hardwire controller to the on/off switch and existing power source. Controller shall not be plugged into socket provided for other equipment.
- C. Install automatic controller unit where indicated on drawings on concrete base, plumb and true per manufacturer's specifications. Controller shall be tested with complete electrical connections.
- D. Connect electric control valve assembly wiring to controller unit in the same numerical sequence as indicated on the drawings, or as directed by the City of San Diego's Representative in the field.
- E. Connect flow sensing and master valve wiring to controller unit into proper terminals for their purpose.
- F. Install a separate ground wire for each controller unit as specified on the drawings and per manufacturer's specifications. Each cluster control unit, satellite and decoder shall be grounded by means that conform to the requirements of the National Electrical Code, current edition as adopted by the City of San Diego, the California Electrical Code, and the manufacturer's specifications. An 8-foot height grounding rod shall be used. No solder connections will be allowed. Resistance to ground shall be no greater than 5 ohms.
- G. Above ground conduit shall be rigid galvanized pipe with the appropriate fittings. Below ground conduit shall be PVC SCH 40 pipe with appropriate sweeps and fittings. Conduit sweeps shall extend a minimum of 3" above concrete controller base.
- H. Label each automatic controller unit with the letter or number designated on the drawings. Letter or number shall be located in a visible location on the inside panel cover with 3" high vinyl letters.
- I. Each automatic controller unit shall be completely operable and sequence tested prior to scheduling a walk through for substantial completion.

3.12 INSTALLATION OF ELECTRICAL WIRE

- A. Low Voltage Wiring:
 - 1. Bury control wiring in same trench as pressure supply line as specified.
 - 2. Bundle all 24 volt wires at 20' intervals with electrical tape.
 - 3. Provide expansion loops at every pressure supply line angle fitting, inside each electric remote control valve box, and at 250' length intervals along

routing. Form expansion loop by wrapping wire a minimum of 10 times around a 3/4" pipe and withdrawing pipe.

4. Limit splicing of electrical wiring. Provide each splice made at intervals or in electric control valve assembly valve boxes with approved connectors.
 5. Wire splices occurring at intervals outside electric control valve box shall be installed in a separate valve box.
 6. Provide (1) one electrical control wire for every electric remote control valve. Piggy backing like zones on the same electrical control wire or into the same station terminal is not allowed.
 7. Install (2) two spare #14-1 electrical control wires (with common wire) from the automatic controller unit to the last electric control valve on each leg of pressure supply line. Locate the spare wires in their own valve box as specified. Provide (1) one additional spare electrical control wire at every electric remote control valve manifold (valve grouping). In addition to these spare wires, check the drawings for additional wires that are required and locate them in the same valve box as the spare wires. Length of spare wires at each end enclosure shall be sufficient for connection into possible fixture equipment or connection point.
- B. High Voltage Wiring: Install 120 volt power source to automatic controller unit following local governing codes and ordinances.

3.13 INSTALLATION OF COMMUNICATION AND CONTROL EQUIPMENT CABLE

- A. Install communication cable (Maxicom 2-wire path) in 1-1/2" conduit and according to manufacturer's specifications. Control equipment cable (flow sensor and master valve) shall be in the same 1-1/4" conduit. All cable shall be pulled by hand and shall be a continuous wire run. A minimum of 2 feet of slack shall be left at each field controller and within pull boxes.
- B. The two-conductor communication wire shall be extended to a maximum distance of 26,400 feet from the CCU to the satellite unit(s). Wire shall be installed in 1-1/2 inch gray PVC Schedule 40 pipe for the entire length.
- C. Each cluster control unit, satellite, and decoder shall be grounded by means that conform to the requirements of the California Electrical Code, and National Electrical Code, current edition as adopted by the City of San Diego, and the manufacturer's specifications. No solder connections will be allowed. Resistance to ground shall be no greater than 5 ohms.
- D. Irrigation interconnect cable and flow sensor cable shall be installed within continuous run with no splices. Communication cables conductors shall be installed with NO UNDERGROUND splices. Any and all splices that are required to be made must be approved by the Resident Engineer's Landscape Inspector prior to installation and shall be placed in a suitable type valve box. Remove any unauthorized splices immediately and install new cable.

- E. Splices in communication cable are only allowed at the following locations:
 - 1. Within each field satellite unit.
 - 2. At the end of each entire length of communication cable line.
 - 3. At the cluster control unit.
- F. Install communication cable splices occurring at the end of each entire length in their own separate valve box utilizing manufacturer approved splice connectors capable of satisfactory operation under continuous submersion in water.
- G. Pull boxes shall be installed at intervals not to exceed two hundred feet and at each location that the installation of the conduit shall be phased. Pull boxes shall be installed in planted areas whenever possible. The bottom shall be bedded in pea gravel six inches deep and with one inch of grout.

3.14 CONTROL EQUIPMENT INSPECTION

- A. Contractor shall cause the following warranty tests to be performed by Rain Bird Services Corporation (888) 444-5756, equipment supplier, on all electrical circuits and system components, and shall submit a written approval from the equipment supplier to the Resident Engineer Landscape Inspector prior to the start of the maintenance period. All tests shall be made to the satisfaction of the Resident Engineer Landscape Inspector:
 - 1. Each circuit shall be tested for continuity.
 - 2. Each circuit shall be tested for leaks to ground with an ohmmeter after each interconnect circuit has been installed and connections have been made. No circuit checking lower than 1 megohm will be acceptable.
 - 3. The grounding system shall be tested with a meter and shall not measure more than 5 ohms.
 - 4. A functional test shall be made in which it is demonstrated that each and every part of the system functions as specified or intended. The test may commence only with the approval of the Resident Engineer Inspector.
 - 5. The functional test for each new or modified electrical system shall consist of not less than five days of continuous, satisfactory operation. If unsatisfactory performance of the system develops, the condition shall be corrected and the test shall be repeated until the five days of continuous satisfactory operation are obtained.
 - 6. Shutdown caused by factors beyond the contractors control shall not constitute discontinuity of the functional test.
 - 7. Any material revealed by these tests to be faulty shall be replaced or corrected, and the same test shall be repeated until no fault is evident.

8. Results of circuitry tests shall be recorded and submitted to the Resident Engineer Inspector prior to acceptance of work.

3.15 QUALITY CONTROL

- A. Preconstruction Meeting: Contractor is responsible for contacting the Landscape Architect, City of San Diego, and City of San Diego's Representative, prior to beginning construction and/or ordering materials, to establish a meeting to review and discuss project objectives, concerns and to review the construction documents to ensure a complete understanding of required installation procedures.
- B. General Observation: The Resident Engineer's Inspector will visit the construction site at interim times during the construction process to assess construction progress regarding installation of irrigation equipment to be in compliance with the drawings, details, specifications and site conditions. The Resident Engineer's Inspector will prepare a site report after each visit noting progress of installation, verbal communication with Contractor and identifying any field adjustments necessary which require modifications to the designed irrigation system. A copy of this site report will be delivered to both Contractor and the Resident Engineer's Construction Manager. Contractor shall immediately address each item on the site report before proceeding with further construction.
- C. Hydrostatic Pressure Testing the Pressure Supply Line: After backfilling, flushing, and prior to the installation of each electric control valve, drip valve assembly, isolation ball valve, quick coupling valve, and manual drain valve the irrigation system shall be pressure tested.
 1. Pressure testing shall be performed in the presence of the Landscape Architect and City of San Diego or City of San Diego's Representative utilizing the following procedure:
 - a. Pressurize the irrigation system to 40 psi greater than the designated static pressure or 150 psi whichever is greater for a period of no less than 4 hours. The pressure gauge used for the pressure test shall not exceed readings greater than 300psi. Pressure pump and other equipment necessary for the test shall be furnished by Contractor.
 - b. Test is acceptable if no leakage occurs within the system for the duration of the testing period.
 - c. If leaks occur, repair said leaks and begin pressure test again. Repeat this operation until no leaks occur in the irrigation system.
 - d. Before requesting a walk through for Substantial Completion, the entire irrigation system shall remain under pressure for a period of no less than 48 hours.
 2. Inspection: In cases where inspection of the sprinkler system construction is required or where portions of the construction are specified to be performed under the direction or inspection of the Resident Engineer's Inspector,

Contractor is required to notify the Resident Engineer's Inspector at least 3 working days in advance of the time such inspection or direction is required.

3. Inspection will be required for the following parts of the construction:
 - a. Upon installation and testing of main lines and lateral lines; when pipes are laid and are to be submitted to pressure tests. Do not cover lines until they have been inspected and approved.
 - b. Upon installation and testing of valves, quick couplers, backflow preventer device, automatic controllers, control valves, and wires.
 - c. When the sprinkler system is completed, perform a coverage test, in the presence of the Resident Engineer's Landscape Inspector, to determine if the coverage is complete and adequate for the lawn and planting areas. Furnish materials and perform construction required to correct inadequacies in the coverage.
 - d. Final inspection and performance test shall be at the same time as the final inspection of the landscape construction.

D. Flushing: Center load all piping prior to flushing. After all new irrigation piping and risers are in place and connected and all necessary diversion work has been completed and prior to the installation of sprinkler heads, rotors and quick coupling valves, thoroughly flush piping system under full head of pressure. After the furthestmost riser from the point of connection begins to flush, continue flushing for duration of five minutes. After the system is thoroughly flushed, cap all risers.

E. Repairs required due to vandalism before final acceptance will be performed at the contractor's expense.

F. Walk Through for Substantial Completion:

1. Before requesting a walk through for Substantial Completion the following requirements must be entirely satisfied:
 - a. The entire irrigation system shall be completely installed, flushed and satisfactorily pressure tested. If Contractor fails to notify the Landscape Architect and Resident Engineer Inspector for the pressure test and flushing procedures stated above then Contractor assumes full responsibility for any design modifications directed by the Resident Engineer during the walk through for Substantial Completion regarding pressure and flushing issues.
 - b. All valve boxes shall be branded.
 - c. All automatic controllers or field satellite units are fully operable, control equipment has been certified by Rain Bird Services Corporation (888) 444-5756, and operation tested for interface with the Resident Engineer's Irrigation Central Control System (through Resident Engineer's Irrigation Control System Specialist in the Energy / Utilities Management Section).

- d. Record drawings shall have been submitted to the Landscape Architect and City of San Diego for review as to completeness.
 - e. (4) Four Services manuals shall have been delivered to the City of San Diego or City of San Diego's Representative.
2. Once the above requirements have been met a walk through for Substantial Completion shall be requested. The following procedures shall be used during the walk through:
- a. Contractor shall have (2) two personnel available with radio communication for the entire length of the walk through.
 - b. All valve box lids shall be removed from valve boxes and placed faced up adjacent to the valve box prior to beginning the walk through.
 - c. The scheduling of each walk through type will be divided over several days as needed to provide adequate time to complete the review of all zones. The walk through will be divided into (2) two sections and proceed as follows:
 - 1) Visual Walk Through: This will consist of walking through the entire irrigation system and examining all components of the system without turning on zones. A punch list will be established of deficiencies in the construction and workmanship of the irrigation system as compared to the construction drawings, details, and specifications.
 - 2) Operational Walk Through: This will consist of walking through the entire irrigation system observing each zone in a fully operable condition. Valves must be activated from the automatic controller unit (Manual bleeding of individual electric control valves will not be acceptable). A punch list will be established of deficiencies in the operation of each zone in the irrigation system evaluating but not limited to head spacing, row spacing, nozzle sizing, correct radius of throw, correct stationing, and flushing operation of zones as compared to the construction drawings, details, and specifications.
 - 3) Once the Walk Through for Substantial Completion has been completed the Landscape Architect will provide a copy of all punch list items to the City of San Diego for review and distribution to Contractor. It is Contractor's responsibility to repair, replace, and adjust all items on the punch prior to requesting a final walk through.

G. Final Walk Through:

1. Before commencement of a final walk through is requested, the following requirements shall be entirely satisfied:
 - a. Each item on the walk through for Substantial Completion shall be thoroughly addressed and resolved by Contractor.
 - b. All final record drawings shall have been provided to the Landscape Architect and submitted to the City of San Diego.
 - c. The maintenance manual for the project shall be completed and submitted to the City of San Diego.
 - d. Controller charts for each automatic controller unit shall be completed, installed, and submitted to the City of San Diego.
2. Once the above requirements are met a final walk through shall be requested. The following procedures will be used:
 - a. Contractor shall have (2) two personnel available with radio communication for the entire length of the walk through.
 - b. Only those valve box lids shall be removed from valve boxes as indicated on the walk through for Substantial Completion punch list. The valve box lids shall be placed faced up adjacent to the valve box prior to beginning the final walk through.
 - c. The final walk through shall be divided into (2) two sections and proceed as follows:
 - 1) Visual Walk Through: This will consist of walking through the punch list items created at the time of the walk through for Substantial Completion, examining all components of the system without turning on zones. Any remaining deficiencies in the construction and workmanship of the irrigation system as compared to the punch list generated at the time of the walk through for Substantial Completion, construction drawings, details and specifications will be noted.
 - 2) Operational Walk Through: This will consist of walking through the punch list items created at the time of the walk through for Substantial Completion and observing each zone in a fully operable condition. Valves shall be activated from the automatic controller unit (Manual bleeding of individual electric control valves will not be acceptable). Any remaining deficiencies in the operation of each zone in the irrigation system including but not limited to head spacing, row spacing, nozzle sizing, correct radius of throw, correct stationing, and flushing operation of zones as compared to the punch list generated at the time of the walk through for

Substantial Completion construction drawings, details, and specifications.

- 3) Once the Final Walk Through is completed and all items noted on the final punch list have been addressed the maintenance period shall begin. Any additional walk throughs required due to Contractors' inability to address all issues on the punch lists described above will be provided at Contractor's expense.

3.16 MAINTENANCE PERIOD

- A. The Maintenance Period shall be as indicated in the Agreement and shall begin once all items on the final walk through punch list have been satisfactorily addressed by a written statement indicating such from the Landscape Architect and the City of San Diego.
 1. Contractor is responsible for obtaining and following the maintenance manuals created specifically for the project from the City of San Diego at the beginning of the maintenance period.
 2. Demonstrate to Resident Engineer's maintenance personnel operation of equipment, sprinklers, specialties, and accessories. Review maintenance information.
 - a. Provide seven days' advance written notice of demonstration.
 3. At the end of the maintenance period and prior to turning the project over to the City of San Diego, Contractor shall deliver the following to the City of San Diego:
 - a. All necessary maintenance materials.
 - b. Extra stock as specified elsewhere in this Section.
 4. Once Contractor has fulfilled all maintenance agreement obligations and has provided the above items to the City of San Diego, the maintenance period will end.

END OF SECTION

SECTION 32 9000

PLANTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Trees
 - 2. Shrubs
 - 3. Ground covers
 - 4. Plants
 - 5. Lawns
 - 6. Soil Sampling and Testing
 - 7. Soil Percolation Testing
 - 8. Topsoil and soil amendments
 - 9. Fertilizers, Soil Activators and mulches
 - 10. Stakes and guys
 - 11. Erosion Control Fabric
 - 12. Root control barriers
 - 13. Herbicides
 - 14. Tree Trunk Protectors
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Other Division 32 Sections for protection of existing trees and planting, topsoil stripping and stockpiling, and site clearing.
 - 2. Division 31 Section "Grading" for excavation, filling, and rough grading.

3. General Conditions; Article 13 Protections of Persons and Property, Section 13.3 PEST CONTROL

1.03 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product certificates signed by manufacturers certifying that their products comply with specified requirements.
 1. Manufacturer's certified analysis for standard products.
 2. Analysis for soil amendments made by a recognized laboratory according to methods established by the Association of Official Analytical Chemists.
 3. Label data substantiating plants, trees, shrubs, and planting materials comply with specified requirements.
- C. Warranty: Specified warranty
- D. Testing:
 1. After rough grading and at least 60 days prior to start of landscape work, deliver a 1 quart composite sample of site soil taken from various planting areas to an independent soil testing laboratory for agronomic analysis. The soil-testing laboratory shall be selected and paid for by the Contractor. Results of the agronomic analysis are to be used to modify the specified soil amendments, if required.
- E. Samples of each of the following at least 15 days before planting operations begin:
 1. Specimen Tree Samples: Deliver to Project site, one sample of each tree variety and size indicated, 15 gallon size and larger.
 2. Shrub and Tree Samples: Deliver to Project site, three samples of each plant material variety and size indicated, under 15 gallon size.
 3. Acceptable samples shall be maintained as standards of comparison for plant materials furnished.
 4. Acceptable samples may be incorporated into the work, if healthy.

1.04 QUALITY ASSURANCE

- A. Provide quality, size, genus, species, and variety of trees and shrubs indicated, complying with applicable requirements of ANSI Z60.1 "American Standard for Nursery Stock."
- B. Measurements: Measure trees and shrubs according to ANSI Z60.1 with branches and trunks or canes in their normal position. Do not prune to obtain required sizes. Take caliper measurements 6 inches above ground for trees up to 4-inch caliper size,

and 12 inches above ground for larger sizes. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip-to-tip.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery and while stored at site.
- B. Trees and Shrubs: Deliver healthy, trees and shrubs, container-grown by a certified nursery. Do not prune before delivery, except as approved by Landscape Architect. Protect bark, branches, buds, blooms, and root systems from sunscald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy natural shape. Provide protective covering during delivery. Do not drop trees and shrubs during delivery.
- C. Handle container stock by the container and by the root ball. Do not pick up plants by their leaves or branches.
- D. Deliver trees, shrubs, ground covers, and plants after preparations for planting have been completed and install immediately. If planting is delayed more than 6 hours after delivery, set planting materials in shade, protect from weather and mechanical damage, and keep roots moist.
 - 1. Do not remove container-grown stock from containers before time of planting.
 - 2. Water root systems of trees and shrubs stored on site with a fine-mist spray. Water as often as necessary to maintain root systems in a moist condition.

1.06 PROJECT CONDITIONS

- A. Utilities: Determine location of above grade and underground utilities and perform work in a manner which will safely avoid damaging utilities. Hand excavate, as required. Maintain grade stakes until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, putrefying soil, contaminants or obstructions, notify Landscape Architect before planting.

1.07 COORDINATION AND SCHEDULING

- A. Coordinate installation of planting materials during normal planting seasons for each type of plant material required.

1.08 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the City of San Diego of other rights the City of San Diego may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent

with, other warranties made by the Contractor under requirements of the Contract Documents.

- B. Special Warranty: Warrant the following living planting materials for the period specified after date of Substantial Completion, against defects including death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, or abuse by City of San Diego, abnormal weather conditions unusual for warranty period, or incidents that are beyond Contractor's control.
 - 1. Trees: One year
 - 2. Shrubs, vines and ground covers: 180 days
- C. Remove and replace dead plant materials within 14 days unless required to plant in the succeeding planting season.
- D. Replace planting materials that are in an unhealthy condition at end of warranty period.
- E. A limit of one replacement of each plant material will be required, except for losses or replacements due to failure to comply with requirements.

1.09 MAINTENANCE

- A. Maintain lawns, plants, trees and shrubs by mowing, edging, pruning, cultivating, watering, weeding, fertilizing, restoring planting saucers, tightening and repairing stakes and guy supports, and resetting to proper grades or vertical position, as required to establish healthy, viable plantings. Spray as required, maintaining trees and shrubs free of insects and disease. Maintain landscaping for the following period:
 - 1. Maintenance Period: 180 days following completion and acceptance of all landscape work.
- B. The maintenance period shall be extended when, in the opinion of the Landscape Architect, improper maintenance has been provided, or lawn areas are considered un-established. Continue maintenance until landscaping is acceptable to the Landscape Architect.
- C. Trim trees as directed by the Landscape Architect, to develop strong branching structure and balanced form; remove suckers and adjust stakes, ties and guys.
- D. Deep water each tree at the end of the maintenance period using an 18" long 'jet rod' tree probe on three sides of tree. Install three (3) fertilizer tablets in each deep watering hole.
- E. Stake, ties and guys shall remain on all trees at the end of the tree maintenance period.

PART 2 - PRODUCTS

2.01 TREE AND SHRUB MATERIAL

- A. General: Furnish nursery-grown trees and shrubs conforming to ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully-branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Grade: Provide trees and shrubs of container sizes and grades conforming to ANSI Z60.1 for type of trees and shrubs required. Trees and shrubs of a larger size may be used if acceptable to the Landscape Architect, with a proportionate increase in size of rootballs.
- C. Label at least 1 tree and 1 shrub of each variety and container size with a securely attached, waterproof tag bearing legible designation of botanical and common name.

2.02 GROUNDCOVERS AND PLANTS

- A. Provide groundcovers and plants established and well rooted in removable containers or integral peat pots and with not less than the minimum number and length of runners required by ANSI Z60.1 for the pot size indicated.

2.03 TOPSOIL

- A. Container Planting Area Topsoil: Amend existing surface soil in container planting areas only.
 - 1. Container Planting Areas (including slopes less than or equal to 2:1):
 - a. Soil conditioner: 3 cubic yards/1000 sq. ft.
 - b. Agricultural Limestone: 200 lbs./1000 sq. ft.
 - c. Soil activator: 200 lbs./1000 sq. ft. (equal but not limited to 'Gro-power Plus')

2.04 SOIL AMENDMENTS

- A. Soil Conditioner: Proprietary blend of organic fractions to supply several degrees of breakdown rate; a portion of inorganic amendment that resists further breakdown, a long-lasting form of iron with PH of 5.5 to 6.0, salinity of 1.75, organic matter (dry weight basis) more than 90 %; nonionic wetting agent, and total nitrogen content of 0.5 %. Provide one of the following:
 - 1. Loamex
 - 2. Organo Forest Humus
 - 3. Organo-Grow

- B. Agricultural Limestone: Finely pelletized agricultural grade, conforming to the following analyses:

<u>CHEMICAL</u>			<u>COMPOSITION</u>
Calcium	Oxide	(CaO)	28.0%
Magnesium	Oxide	(MgO)	19.0%
Calcium	Carbonate	Equivalent	98.0%
ENV			96

PHYSICAL COMPOSITION (Guaranteed)

<u>U. S. Sieve</u>	<u>Passing</u>
20	98%
60	95%
100	90%

- C. Soil Activator: Shall be an all purpose soil conditioner/fertilizer delivered to the project site in unopened original container or package, each bearing the manufacturer's statement of guaranteed analysis, and shall contain the following minimum available percentage by weight of plant nutrients:

Nitrogen	5%
Phosphoric Acid	3%
Potash	1%
Humus	50%
Humic Acid	15%
Soil strain bacteria	---
Micronutrients	---
Wetting agent	---

Soil Activator shall be equal but not limited to "Gro-Power Plus"

2.05 FERTILIZER

- A. Post-Planting Fertilizer: Organic base, long-lasting, non-burning, slow release, uniform in composition, free-flowing, suitable for application with approved equipment, with trace minerals of 3% iron (expressed metallic) and 5% sulfur (elemental), in the following composition, by weight:

1. Nitrogen:	14 % minimum
2. Phosphoric Acid:	7 % minimum
3. Potash:	3 % minimum

- B. Fertilizer Tablets: Shall be 7 gram planting tablets consisting of the following percentages by weight:

Nitrogen	12%
Phosphoric Acid	8%
Potash	8%
Humus	20%
Humic Acid	4%

Fertilizer Tablets shall be equal but not limited to "Gro-Power Planting Tablets"

2.06 HERBICIDES

- A. No herbicides shall be used.

2.07 MULCHES

- A. Organic Mulch: Proprietary organic mulch derived from 100% above-ground tree trimmings, free from grass or weed seeds, deleterious materials and manufactured as a top dressing of trees and shrubs, consisting of the following:

1. Type: Screened tree trimmings, 3" to 3/8" inch size.

2.08 EROSION CONTROL MATERIALS

- A. Fiber Mesh (Jute Netting): Biodegradable twisted jute or spun-coir mesh, 0.92 lb per sq. yd. minimum, with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

1. Fiber Mesh shall be equal but not limited to "Geojute".

2.09 STAKES AND GUYS

- A. Upright and Guy Stakes: Rough-sawn, sound, new hardwood, redwood, or pressure-preservative-treated softwood, free of knots, holes, cross grain, and other defects, 2 by 2 inches by length indicated, pointed at one end.
- B. Tree Protection Boards: 1 x 3 rough Douglas fir
- C. Tree Ties: Black color; V.I.T., Cinch Tie or equal

2.10 ROOT BARRIERS

- A. Provide sheet-type root barriers according to plan locations. Root barriers shall be 24" high, one piece, void of hinge-type sections and with connections made by solvent-welded couplings. Material shall be a minimum of 0.60" thick with 1/2" vertical ribs at 6" on center and be made of at least 50% post-consumer high-impact

polystyrene with rubberizer and UV inhibitors. Equal but not limited to: Shawtown Root Barrier Material SM-2420.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas to receive landscaping for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Lay out individual tree and shrub locations and areas per plans for multiple plantings. Stake tree locations, outline shrub areas, and secure Landscape Architect's acceptance before the start of planting work. Make adjustments as required by the Landscape Architect.

3.03 CONTAINER PLANTING SOIL PREPARATION (area less than 2:1 in slope)

- A. Before mixing, clean topsoil of construction debris and other extraneous materials. Report areas of sour, saturated, or foul smelling soil to the Landscape Architect prior to applying any amendments.
- B. Rip soil in two alternate directions to a depth of 10-12 inches and thoroughly leach with 1" of water.
- C. Evenly apply soil amendments and fertilizers at rates specified in paragraph 2.4.
- D. Rototill in two directions to a depth of 4-6 inches.
- E. Using overhead irrigation, apply 4 inches of water in 1 inch applications allowing soil surface to dry between each application. Allow soil to dry thoroughly to a 2" depth prior to planting container plants.
- F. For planting backfill, mix planting soil at the following rate for all plants before backfilling:

1.	Native Soil	19 cu. ft./cu. yd.
2.	Soil Conditioner	8 cu. ft./cu. yd.
3.	Soil Activator	16 lbs./cu. yd.
4.	Agricultural Limestone	10 lbs./cu. yd.
5.	Planting Tablets	per schedule on plans

3.04 2:1 SLOPE AREA PREPARATION

- A. Rake planting areas with 2:1 in slope to a minimum depth of 6 inches, removing from the surface stones larger than 3” in any dimension and sticks, roots, rubbish, and other extraneous materials.
- B. Spread specified Container Planting Area soil amendments evenly over slope areas at the specified rates and rake into the top surface of the slope.

3.05 DEEP WATER LEACHING

- A. Perform deep water leaching after completion of irrigation system. All planting areas less than 2:1 in slope shall be deep water leached and compacted and settled by continuous application of irrigation water, until soil has received 4-6 inches of water. Perform leaching before application of post-plant fertilizer.
- B. After leaching is complete, take soil samples and submit to the City of San Diego’s Testing Agency for testing. Tested soil shall comply with the following:
 - 1. Ece – Maximum 3.0
 - 2. PH – Maximum 7.50; minimum of 6.00

If soil does not meet the above requirements, reapply soil amendments and repeat leaching operation.

3.06 EXCAVATION FOR TREES AND SHRUBS

- A. Pits and Trenches: Excavate with vertical sides and with bottom of excavation slightly raised at center to assist drainage. Loosen hard subsoil in bottom and sides of excavation.
- B. Fill excavations with water and allow water to percolate out before positioning trees and shrubs.

3.07 PLANTING TREES AND SHRUBS

- A. Set container-grown stock plumb and in center of pit or trench with top of ball raised 1” above adjacent finish grades as indicated on the detailed drawings.
 - 1. Carefully remove containers so as not to damage root balls or trunks, holding one hand over top of root ball and removing container upward with other hand. **DO NOT PICK UP PLANTS BY THEIR FOLIAGE OR TRUNKS. PICK UP CONTAINER ONLY.**
 - 2. Place stock on setting layer of compacted planting soil as required to attain required planting height.
 - 3. Place backfill around ball in layers, tamping to settle backfill and eliminate voids and air pockets. Insert the specified planting tablets into soil. Form watering basins (except in lawn areas) and water all plants thoroughly

immediately after planting. Remove watering basins before the end of the maintenance period.

4. Cut an 'X' in jute netting to the sized of the tree planting hole, fold back netting and excavate tree pit, plant tree and fold netting back around tree trunk. Do not bury netting.

3.08 TREE AND SHRUB PRUNING

- A. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed by Landscape Architect, do not cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character. Shrub sizes indicated are size after pruning.

3.09 TREE STAKING

- A. Upright Staking and Tying: Stake trees per the detailed drawings. Use stakes of length required to penetrate at least 18 inches below bottom of backfilled excavation and to extend at least 72 inches above grade. Set stakes vertically and space equally in triangular pattern around root ball. Avoid penetrating root ball. Set protection boards horizontally and secure to stakes with (2) 1-1/2" galvanized deck screws.
- B. Support trees with one rubber tree tie extending from each stake, above the protection board to the tree trunk. Allow enough slack to avoid rigid restraint of tree. Nail tree tie to stake with 1-1/2" galvanized roofing nail.

3.10 PLANTING GROUNDCOVER

- A. Space groundcover plants uniformly, as indicated on the detailed drawings.
- B. Dig holes large enough to allow spreading of roots, and backfill with planting soil. Insert plant tablet. Firm soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- C. Planting Groundcover on Slopes: Spread weave of installed jute netting on slopes to allow for groundcover plants to be planted. Do not cut netting for groundcover.

3.11 MULCHING

- A. Mulch backfilled surfaces of pits, trenches, non-lawn planted areas under 2:1 in slope, and other areas indicated on plans.
- B. Organic Mulch: Apply the following average thickness of organic mulch and finish level with adjacent finish grades. Do not place mulch against trunks or stems of plants.
 1. Thickness: 3 inches.

3.12 INSTALLING FIBER MESH (JUTE NETTING):

- A. Jute netting shall be installed on all 2:1 or greater slopes in the following manner:
 - 1. Rake off slope face to smooth irregularities.
 - 2. Backfold netting in 6” deep trench at top of slope and secure with staples driven at 12” on center. Fill trench with soil. Roll netting down.
 - 3. Overlap netting 6” on edges and 30” (of uphill netting) on ends.
 - 4. Install staples at 24” on center both ways across entire face of netting.
 - 5. Install shrub and groundcover plants, cutting netting only for plants 5 gallon size or larger.

3.13 INSTALLING ROOT BARRIERS

- A. Root Barriers shall be installed where shown on plans, in the lengths indicated.
 - 1. Dig trench for root barrier vertically from edge of adjacent paving (irrigation trenches may be utilized but irrigation lines must be installed to their specified depths) and place barrier with ribs facing towards tree.
 - 2. Apply solvent weld cement to root barrier coupling and join sections with coupling.
 - 3. Backfill trench leaving barrier 1” above soil level and flush with face of adjacent paving.

3.14 FIELD QUALITY CONTROL

- A. Observations: Notify Landscape Architect at least 3 days in advance of being ready for observation of the following:
 - 1. Layout of planting areas
 - 2. Incorporation of soil amendments and fertilizer into the soil
 - 3. Upon completion of grading, but before planting
 - 4. Plant material review
 - 5. At completion of all planting
 - 6. At completion of maintenance period

3.15 CLEANUP AND PROTECTION

- A. During landscaping, keep pavements clean and work area in an orderly condition.
- B. Protect landscaping from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.16 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of it off the City of San Diego's property.

END OF SECTION

SECTION 32 9633

SHRUB TRANSPLANTING

PART 1 – GENERAL

1.01 GENERAL CONDITIONS

- A. The General Conditions, and Special Conditions are a part of this section and the Contract for this work and apply to this section as fully as if repeated herein.
- B. The “City of San Diego” as used herein refers to the Resident Engineer (Landscape Architect, Horticulturist, Architectural Coordinator, or other agent of the City of San Diego). The term “contractor” refers to the transplanting contractor for the project.

1.02 RELATED SECTIONS

- A. Coordinate related work specified in other parts of the Project Manual, including but not limited to following:
 - 1. Section 32 90 00 - Planting

1.03 SUMMARY

- A. The work includes all services, labor, materials, transportation and equipment necessary to perform the work as shown and noted on the drawings and/or specified herein.
- B. All utilities (water and electricity) used during the installation of the landscaping and irrigation systems for this project shall be paid for by the City of San Diego.
- C. All transplanted shrubs and trees shall remain the property of the City of San Diego. Under no circumstances shall transplanted shrubs and trees leave Resident Engineer premises without the express written consent of the City of San Diego.

1.04 SUBMITTALS

- A. The Contractor shall submit the following to the Landscape Architect for approval:
 - 1. Anti-desiccant
 - 2. Transplant Hormone

1.05 GUARANTEES AND REPLACEMENTS

- A. The contractor shall be responsible for the initial location and staging of all transplanted materials under their contract.
- B. The rootballs of all transplanted shrubs shall be guaranteed to remain whole and uncracked until the contractor has completed their work.

- C. Any plant damaged during transplanting or staging operations shall be repaired or replaced in kind and size by the contractor at the City of San Diego's discretion. If no plant of a particular species is available, the contractor shall replace the plant with a plant of like size. Replacement plants shall be of a species determined by the City of San Diego.

1.06 SITE OBSERVATION VISITS

- A. Site observation visits herein specified shall be made by the Landscape Architect and/or the City of San Diego. The Contractor shall request the specified site observations two (2) days in advance of the time observation is required.
- B. Site observation will be required for the following parts of the work:
 - a. Verification of plants to be transplanted.
 - b. Staging of transplanted plants.
 - c. Other site inspections will be made by the Landscape Architect without notice.
- C. The Contractor or their authorized representative shall be on the site at the time of each scheduled site observation visit by the Landscape Architect.

1.07 IRRIGATION AND MAINTENANCE

- A. The contractor shall be responsible for the irrigation of each transplanted plant. Watering shall occur as needed to maintain the health and vigor of transplanted plants.

PART 2 – PRODUCTS

2.01 CONTAINERS

- A. Tree boxes shall be constructed of new wood in the sizes shown on the drawing. Plastic recyclable boxes may be used but their purchase price shall be borne by the contractor.

2.02 ANTI-DESSICANT

- A. Shall be a non-toxic, biodegradable, non-polluting, liquid organic soil enhancer composed of a blend of humic acids, plant enzymes, an organic wetting agent and an organic surfactant agent. Sarvon.

2.03 TRANSPLANT HORMONE

- A. Shall be a water-soluble liquid, bio-organic complex of vitamins and hormones. Superthrive.

2.04 HERBICIDES

- A. No herbicides shall be used.

PART 3 – EXECUTION

3.01 TRANSPLANTING OF EXISTING SHRUBS

- A. For those shrubs identified to be transplanted on the plans, the Contractor shall dig, box and transport plants to their designated staging areas. No transplanting operation shall begin until approved by the City of San Diego. Storage location for trees shall be approved by the City of San Diego.
- B. The Contractor shall be responsible for maintaining adequate protection of the planting areas around transplanted trees or for coordinating their removal with the Resident Engineer. Any planting areas damaged without authorization shall be repaired immediately at the Contractor's expense.

3.02 EXCAVATION AND BOXING

- A. If underground utilities are encountered notify the construction manager at once. Do not cut or remove any existing utilities without the consent of the construction manager.
- B. Excavation:
 - 1. Using a narrow shovel with a sharpened blade, cut a perimeter trench around the shrub rootball outside the box size designated on the plans. Stockpile soil from trenches outside of the rootball. **NO SOIL SHALL BE PLACED AGAINST ANY SHRUB.** Center the shrub in the excavated area both ways unless surface roots or obstructions dictate otherwise.
 - 2. Using a clean garden sprayer with the nozzle set to a fine spray, apply anti-dessicant to the cut ends of all roots using the specified anti-dessicant at the rate of 3 ounces per 1 gallon of water.
- C. Boxing:
 - 1. Construct sides of box tapering down to bottom of rootball. Attach box sides with tensioned metal bands. Construct box bottom. Backfill between the rootball and box as required to fill all voids.
 - 2. Apply the specified transplant hormone to the surface of all rootballs at the rate of one ounce per five gallons of water per 48" of box size. Remove shrubs from holes only when ready to transport to staging locations.
- D. Pruning Shrubs:
 - 1. No pruning of shrubs shall be permitted by the contractor. Coordinate with the Resident Engineer for removal of any limbs required for transporting. The Resident Engineer will conduct all pruning operations.

3.03 REMOVAL AND TRANSPORT

- A. Removal of boxed shrubs from their excavated areas shall be sequenced in a manner so as to avoid contact with other shrubs to be transplanted. Use only equipment capable of reaching, supporting, and moving the combined weight of the soil, shrub and box.
- B. Remove shrubs from their excavated holes lifting vertically without jarring rootball against the sides of hole.
 - 1. Place shrubs upright on trailer for transport through to their respective staging areas. Coordinate with the construction manager for all shrub moves.
- C. Offload shrubs in their respective locations. Shim boxes as required to level or balance shrubs.

3.04 MAINTENANCE

- A. Water all boxed shrubs until replanting according to weather conditions and shrub species, checking soil moisture twice weekly using a soil moisture meter. Remove all weeds and debris from boxed shrubs prior to replanting.

3.05 CLEAN UP

- A. As project progresses, the Contractor shall maintain all areas in a neat manner and remove unsightly debris as necessary. After completion of project, Contractor shall remove all debris and containers used in accomplishing work. All sidewalks, asphalt, paving and concrete areas adjacent to plantings shall sweep clean and washed down by the Contractor, and any stains or discolorations shall be removed.

END OF SECTION

SECTION 33 0513

MANHOLES AND STRUCTURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Monolithic concrete manholes with transition to lid frame, covers, anchorage, and accessories.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete.
- B. GREENBOOK and provisions for Manholes and related accessories.

1.03 REFERENCE STANDARDS

- A. ACI 530.1/ASCE 6/TMS 602 - Specification For Masonry Structures; American Concrete Institute International; 2008.
- B. ASTM A 48/A 48M - Standard Specification for Gray Iron Castings; 2003 (Reapproved 2008).
- C. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.
- D. ASTM C 923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals; 2008.
- E. ASTM C 923M - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals [Metric]; 2008b.

1.04 SUBMITTALS

- A. See GREENBOOK and , Section 2-5.3 for Shop Drawings and Submittals.
- B. Shop Drawings: Indicate manhole locations, elevations, piping sizes and elevations of penetrations.
- C. Product Data: Provide manhole covers, component construction, features, configuration, and dimensions.

1.05 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.06 FIELD CONDITIONS

- A. Cold and Hot Weather Requirements: Comply with requirements of ACI 530.1/ASCE 6/TMS 602 or applicable building code, whichever is more stringent.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Concrete: As specified in Section 03 3000.
- B. Concrete Reinforcement: As specified in Section 03 3000.

2.02 COMPONENTS

- A. Lid and Frame: ASTM A 48/A 48M, Class 30B Cast iron construction, machined flat bearing surface, removable lockable lid, closed lid design; live load rating determined by H2O loading requirements; sealing gasket; lid molded with identifying name ;.
- B. Manhole Steps: Formed galvanized steel rungs; 3/4 inch diameter. Formed integral with manhole sections.
- C. Strap Anchors: Bent steel shape, galvanized to ASTM A 123/A 123M, Grade specified for applicable material category.

2.03 CONFIGURATION

- A. Shaft Construction: Concentric with concentric cone top section; lipped male/female dry joints; sleeved to receive pipe sections.
- B. Shape: Cylindrical.
- C. Clear Inside Dimensions: Match existing.
- D. Design Depth: As indicated.
- E. Clear Lid Opening: Match existing.
- F. Pipe Entry: Provide openings as indicated.
- G. Steps: 12 inches wide, 16 inches on center vertically, set into manhole wall.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify items provided by other sections of Work are properly sized and located.
- B. Verify that built-in items are in proper location, and ready for roughing into Work.
- C. Verify excavation for manholes is correct.

3.02 PREPARATION

- A. Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.

3.03 MANHOLES

- A. Place concrete base pad, trowel top surface level.
- B. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.
- C. Form and place manhole cylinder plumb and level, to correct dimensions and elevations. As work progresses, build in fabricated metal items.
- D. Cut and fit for pipe.
- E. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.
- F. Set cover frames and covers level without tipping, to correct elevations. Adjust manhole frame and cover sets to grade per GREENBOOK section 301-1.6.
- G. Coordinate with other sections of work to provide correct size, shape, and location.

END OF SECTION

SECTION 33 1116

SITE WATER UTILITY DISTRIBUTION PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Pipe and fittings for site water lines including domestic water lines and fire water lines.
- B. Valves.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Concrete for thrust restraints.
- B. Section 09 9000 - Painting and Coating.
- C. Section 31 2316 - Excavation: Excavating of trenches.
- D. Section 31 2316.13 - Trenching: Excavating, bedding, and backfilling.
- E. Section 31 2323 - Fill: Bedding and backfilling.
- F. Section 33 0513 - Manholes and Structures.
- G. GREENBOOK and provisions for Pipe, Pipe Joint Types and Materials and Underground Conduit Construction.
- H. City of San Diego Water Department Approved Materials List, November 2009.

1.03 REFERENCES

- A. General:
 - 1. The following documents form part of the Specifications to the extent stated. Bring conflicts between Specifications, Drawings, and the referenced documents to the attention of the Resident Engineer, in writing, for resolution before taking any related action. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
 - 2. If the year of the adoption or latest revision is omitted from the designation, it shall mean the specification, manual or test designation in effect the date the Notice to Proceed with the Work is given.
- B. ASSE - American Society of Sanitary Engineering:
 - 1. ASSE 1003-01 Water Pressure Reducing Valves
 - 2. ASSE 1013-99 Reduced Pressure Principle Backflow Preventers and Reduced Pressure Fire Protection Principle Backflow Preventers

3. ASSE 1015-99 Double Check Backflow Prevention Assemblies and Double Check Fire Protection Backflow Prevention Assemblies
4. ASSE 1020-98 Pressure Vacuum Breaker Assembly (Recommended for Outdoor Usage)
5. ASSE 1047-99 Reduced Pressure Detector Fire Protection Backflow Prevention Assemblies
6. ASSE 1048-99 Double Check Detector Fire Protection Backflow Prevention Assemblies
7. ASSE 1060-96 Outdoor Enclosures for Backflow Prevention Assemblies

C. American Water Works Association:

1. AWWA C105-99 Polyethylene Encasement for Ductile-Iron Pipe Systems
2. AWWA C110-98 Ductile-Iron and Gray-Iron Fittings, 3 In. through 48 In. (76 mm through 1219 mm), for Water and Other Liquids
3. AWWA C111-00 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
4. AWWA C151-02 Ductile-Iron Pipe, Centrifugally Cast, for Water
5. AWWA C153-00 Ductile-Iron Compact Fittings for Water Service
6. AWWA C219-01 Bolted, Sleeve-Type Couplings for Plain-End Pipe
7. AWWA C500-02 Metal-Seated Gate Valves for Water Supply Service
8. AWWA C502-94 Dry-Barrel Fire Hydrants
9. AWWA C503-97 Wet-Barrel Fire Hydrants
10. AWWA C504-00 Rubber-Seated Butterfly Valves
11. AWWA C508-01 Swing-Check Valves for Waterworks Service, 2 In. (50 mm) through 24 In. (600 mm) NPS
12. AWWA C509-01 Resilient-Seated Gate Valves for Water Supply Service
13. AWWA C510-97 Double Check Valve Backflow-Prevention Assembly
14. AWWA C511-97 Reduced-Pressure Principle Backflow-Prevention Assembly
15. AWWA C512-99 Air-Release, Air/Vacuum, and Combination Air Valves for Waterworks Service
16. AWWA C550-01 Protective Interior Coatings for Valves and Hydrants

17. AWWA C600-99 Installation of Ductile-Iron Water Mains and Their Appurtenances
 18. AWWA C606-97 Grooved and Shouldered Joints
 19. AWWA C651-99 Disinfecting Water Mains
 20. AWWA C700-02 Cold-Water Meters - Displacement Type, Bronze Main Case
 21. AWWA C701-02 Cold-Water Meters - Turbine Type, for Customer Service
 22. AWWA C702-01 Cold-Water Meters - Compound Type
 23. AWWA C703-96 Cold-Water Meters - Fire Service Type
 24. AWWA C706-96 (Reaffirmed 2001): Direct-Reading, Remote-Registration Systems for Cold-Water Meters
 25. AWWA C707-82 (Reaffirmed 1992): Encoder-Type Remote-Registration Systems for Cold-Water Meters
 26. AWWA C800-01 Underground Service Line Valves and Fittings
 27. AWWA C906-99 Polyethylene (PE) Pressure Pipe and Fittings, 4 In. through 63 In., for Water Distribution and Transmission
 28. AWWA C950-01 Fiberglass Pressure Pipe
 29. AWWA M6-99 Water Meters - Selection, Installation, Testing, and Maintenance
 30. AWWA M17-89 Installation, Field Testing, and Maintenance of Fire Hydrants
 31. AWWA M23-03 PVC Pipe - Design and Installation
 32. AWWA M41-03 Ductile-Iron Pipe and Fittings
 33. AWWA M44-98 Distribution Valves: Selection, Installation, Field Testing, and Maintenance
 34. AWWA M45-96 Fiberglass Pipe Design
- D. AWS - American Welding Society:
1. AWS A5.8-92 (Reaffirmed 2003): Specification for Filler Metals for Brazing and Braze Welding
- E. ASME International:
1. ASME A112.1.2-91 (Reaffirmed 2002): Air Gaps in Plumbing Systems

2. ASME A112.6.3-01 Floor and Trench Drains
3. ASME B1.20.1-83 (Reaffirmed 2001): Pipe Threads, General Purpose (Inch)
4. ASME B16.1-98 Cast Iron Pipe Flanges and Flanged Fittings
5. ASME B16.5-03 Pipe Flanges and Flanged Fittings NPS 1/2 through NPS 24
6. ASME B16.18-02 Cast Copper Alloy Solder Joint Pressure Fittings
7. ASME B16.22-02 Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
8. ASME B16.24-02 Cast Copper Alloy Pipe Flanges and Flanged Fittings: Classes 150, 300, 400, 600, 900, 1500, and 2500

F. ASTM International:

1. ASTM A 36/A 36M-03a Specification for Carbon Structural Steel
2. ASTM A 47/A 47M-99 Specification for Ferritic Malleable Iron Castings
3. ASTM A 48/A 48M-00 Specification for Gray Iron Castings
4. ASTM A 536-84 (Reapproved 1999): Specification for Ductile Iron Castings
5. ASTM A 674-00 Practice for Polyethylene Encasement for Ductile Iron Pipe for Water or Other Liquids
6. ASTM B 88-03 Specification for Seamless Copper Water Tube
7. ASTM B 88M-03 Specification for Seamless Copper Water Tube [Metric]
8. ASTM C 857-95 (Reapproved 2001): Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
9. ASTM C 858-83 (Reapproved 1997): Specification for Underground Precast Concrete Utility Structures
10. ASTM C 891-90 (Reapproved 2003): Practice for Installation of Underground Precast Concrete Utility Structures
11. ASTM D 1785-99 Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
12. ASTM D 2239-01 Specification for Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter
13. ASTM D 2464-99 Specification for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80

14. ASTM D 2466-02 Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
 15. ASTM D 2467-02 Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
 16. ASTM D 2609-02 Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe
 17. ASTM D 2774-01 Practice for Underground Installation of Thermoplastic Pressure Piping
 18. ASTM D 3139-98 Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals
 19. ASTM D 3350-02a Specification for Polyethylene Plastics Pipe and Fittings Materials
 20. ASTM F 645-02 Guide for Selection, Design, and Installation of Thermoplastic Water Pressure Piping Systems
 21. ASTM F 714-01 Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter
 22. ASTM F 1267-01 Specification for Metal, Expanded, Steel
- G. Copper Development Association Inc.:
1. Copper Tube Handbook. 1996.
- H. FM Global:
1. Approval Guide. 2003.
- I. Manufacturers Standardization Society of The Valve and Fittings Industry, Inc.
1. MSS SP-60-99 Connecting Flange Joint between Tapping Sleeves and Tapping Valves
 2. MSS SP-80-97 Bronze Gate, Globe, Angle and Check Valves
 3. MSS SP-108-96 Resilient-Seated Cast Iron-Eccentric Plug Valves
 4. MSS SP-123-98 Non-Ferrous Threaded and Solder-Joint Unions for Use with Copper Water Tube
- J. NFPA:
1. NFPA 24-02 Installation of Private Fire Service Mains and Their Appurtenances
 2. NFPA 70-02 National Electrical Code

3. NFPA 1963-03 Fire Hose Connections

K. NSF International:

1. NSF 14-03 Plastics Piping System Components and Related Materials
2. NSF 61-02 Drinking Water System Components - Health Effects

L. Underwriters Laboratories Inc.:

1. UL 194-96 Gasketed Joints for Ductile-Iron Pipe and Fittings for Fire Protection Service
2. UL 246-93 Hydrants for Fire-Protection Service
3. UL 262-94 Gate Valves for Fire-Protection Service
4. UL 312-93 Check Valves for Fire-Protection Service
5. UL 405-93 Fire Department Connections
6. UL 753-95 Alarm Accessories for Automatic Water-Supply Control Valves for Fire Protection Service
7. UL 789-93 Indicator Posts for Fire-Protection Service
8. UL 1091-94 Butterfly Valves for Fire-Protection Service
9. UL 1285-01 Pipe and Couplings, Polyvinyl Chloride (PVC) for Underground Fire Service
10. UL 1713-01 Pressure Pipe and Couplings, Glass Fiber Reinforced, for Underground Fire Service
11. Fire Protection Equipment Directory. 2007.

1.04 DEFINITIONS

- A. PVC: Polyvinyl chloride plastic.

1.05 SUBMITTALS

- A. See GREENBOOK and , Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data:
1. For each type of product indicated.

- C. Shop Drawings:
 - 1. Detail precast concrete vault assemblies and indicate dimensions, method of field assembly, and components.
 - 2. Wiring Diagrams: Power, signal, and control wiring for alarms.
- D. Coordination Drawings:
 - 1. For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.
- E. Quality Control Submittals:
 - 1. Field quality-control test reports.
- F. Operation and Maintenance Data:
 - 1. For water valves and specialties to include in emergency, operation, and maintenance manuals.

1.06 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Comply with requirements of utility company supplying water. Include tapping of water mains and backflow prevention.
 - 2. Comply with standards of authorities having jurisdiction for potable-water-service piping, including materials, installation, testing, and disinfection.
 - 3. Comply with standards of authorities having jurisdiction for fire-suppression water-service piping, including materials, hose threads, installation, and testing.
- B. Product Requirements:
 - 1. Piping materials shall bear label, stamp, or other markings of specified testing agency.
 - 2. 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.
 - 3. Comply with ASTM F 645 for selection, design, and installation of thermoplastic water piping.
 - 4. Comply with FMG's "Approval Guide" or UL's "Fire Protection Equipment Directory" for fire-service-main products.

5. NFPA Compliance: Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-service-main piping for fire suppression.
6. NSF Compliance:
 - a. Comply with NSF 14 for plastic potable-water-service piping. Include marking "NSF-pw" on piping.
 - b. Comply with NSF 61 for materials for water-service piping and specialties for domestic water.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Preparation for Transport:

1. Prepare valves, including fire hydrants, according to the following:
 - a. Ensure that valves are dry and internally protected against rust and corrosion.
 - b. Protect valves against damage to threaded ends and flange faces.
 - c. Set valves in best position for handling. Set valves closed to prevent rattling.

B. During Storage:

1. Use precautions for valves, including fire hydrants, according to the following:
 - a. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
 - b. 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:

1. Use sling to handle valves and fire hydrants if size requires handling by crane or lift. Rig valves to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.
2. 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.

- D. Protection:
 - 1. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
 - 2. Protect flanges, fittings, and specialties from moisture and dirt.
 - 3. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.08 COORDINATION

- A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers:
 - 1. Acceptable Manufacturers and Products for City Water Distributions Systems are listed on the City of San Diego Water Department Approved Materials List, most recent published edition.
 - 2. Products of manufacturers not listed may be proposed for substitution, provided they are comparable to the products specified.
 - a. See GREENBOOK and , section 4-1.6 for substitutions.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that building service connection and municipal utility water main size, location, and invert are as indicated.

3.02 PREPARATION

- A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs.
- B. Remove scale and dirt on inside and outside before assembly.
- C. Prepare pipe connections to equipment with flanges or unions.

3.03 TRENCHING

- A. See the sections on excavation and fill for additional requirements.
- B. Hand trim excavation for accurate placement of pipe to elevations indicated.
- C. Form and place concrete for pipe thrust restraints at each change of pipe direction. Place concrete to permit full access to pipe and pipe accessories.

- D. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.04 PIPING APPLICATIONS

A. General:

1. Use pipe, fittings, and joining methods for piping systems according to the following applications.
2. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used, unless otherwise indicated.
3. Do not use flanges or unions for underground piping.
4. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.

B. Underground Water-Service Piping:

1. NPS 3/4 to NPS 3.
2. Provide any of the following:
3. PVC, Schedule 40 pipe; PVC, Schedule 40 socket fittings; and solvent-cemented joints.

C. Underground Water-Service Piping:

1. NPS 4 to NPS 8.
2. Provide the following:
 - a. PVC, Schedule 40 pipe; PVC, Schedule 40 socket fittings; and solvent-cemented joints.

D. Water Meter Box Water-Service Piping:

1. NPS 3/4 to NPS 2.
2. Provide the same as underground water-service piping.

E. Aboveground and Vault Water-Service Piping:

1. NPS 3/4 to NPS 3.
2. Provide the following:
 - a. PVC, Schedule 80 pipe; PVC, Schedule 80 [socket fittings; and solvent-cemented] [threaded fittings; and threaded] joints.

- b. Ductile-iron, grooved-end pipe; ductile-iron, grooved-end appurtenances; and grooved joints.
- F. Underground Fire-Service-Main Piping:
 - 1. NPS 4 to NPS 12
 - 2. Provide the following:
 - a. PVC, AWWA Class 200 pipe listed for fire-protection service; PVC fabricated or molded fittings of same class as pipe; and gasketed joints.
- G. Aboveground and Vault Fire-Service-Main Piping:
 - 1. NPS 4 to NPS 12
 - 2. Provide ductile-iron, grooved-end pipe; ductile-iron-pipe appurtenances; and grooved joints.
- H. Underground Combined Water-Service and Fire-Service-Main Piping:
 - 1. NPS 6 to NPS 12.
 - 2. Provide the following:
 - a. PVC, AWWA Class 200 pipe listed for fire-protection service; PVC fabricated or molded fittings of same class as pipe; and gasketed joints.
- I. Aboveground and Vault Combined Water Service and Fire-Service-Main Piping:
 - 1. NPS 6 to NPS 12.
 - 2. Provide ductile-iron, grooved-end pipe; ductile-iron-pipe appurtenances; and grooved joints.

3.05 VALVE APPLICATIONS

- A. General Application:
 - 1. Use mechanical-joint-end valves for NPS 3 and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FMG, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 and smaller installation.
 - 2. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
 - a. Underground Valves, NPS 3 and Larger: AWWA, cast-iron, nonrising-stem, resilient-seated gate valves with valve box.

- b. Underground Valves, NPS 4 and Larger, for Indicator Posts: UL/FMG, cast-iron, nonrising-stem gate valves with indicator post.
- 3. Use the following for valves in vaults and aboveground:
 - a. Gate Valves, NPS 2 and Smaller: Bronze, nonrising stem.
 - b. Gate Valves, NPS 3 and Larger: AWWA, cast iron, OS&Y rising stem, metal seated.
 - c. Check Valves: AWWA C508, swing type.
- 4. Pressure-Reducing Valves: Use for water-service piping in vaults and aboveground to control water pressure.
- 5. Relief Valves: Use for water-service piping in vaults and aboveground.
 - a. Air-Release Valves: To release accumulated air.
 - b. Air/Vacuum Valves: To release or admit large volume of air during filling of piping.
 - c. Combination Air Valves: To release or admit air.
- 6. Detector Check Valves: Use for water-service piping in vaults and aboveground to detect unauthorized use of water.

3.06 PIPING INSTALLATION

- A. Water-Main Connection:
 - 1. Arrange with utility company for tap of size and in location indicated in water main.
- B. Water-Main Connection:
 - 1. Tap water main according to requirements of water utility company and of size and in location indicated.
 - 2. Make connections larger than NPS 2 with tapping machine according to the following:
 - a. Install tapping sleeve and tapping valve according to MSS SP-60.
 - b. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
 - c. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.

- d. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.
3. Make connections NPS 2 and smaller with drilling machine according to the following:
 - a. Install service-saddle assemblies and corporation valves in size, quantity, and arrangement required by utility company standards.
 - b. Install service-saddle assemblies on water-service pipe to be tapped. Position outlets for corporation valves.
 - c. Use drilling machine compatible with service-saddle assemblies and corporation valves. Drill hole in main. Remove drilling machine and connect water-service piping.
 - d. Install corporation valves into service-saddle assemblies.
 - e. Install manifold for multiple taps in water main.
 - f. Install curb valve in water-service piping with head pointing up and with service box.

C. Fire-Service-Main Piping Materials and Installation.

1. Comply with NFPA 24.
2. Install PE corrosion-protection encasement according to ASTM A 674 or AWWA C105.
3. Install copper tube and fittings according to CDA's "Copper Tube Handbook."

D. Ductile-Iron, Water-Service Piping:

1. Install according to AWWA C600 and AWWA M41.

E. PVC, AWWA Pipe:

1. Install according to ASTM F 645 and AWWA M23.

F. Minimum Depth:

1. Bury piping with depth of cover over top at least 36 inches, and according to the following:
 - a. Under Driveways: With at least 36 inches cover over top.
 - b. In Loose Gravelly Soil and Rock: With at least 12 inches additional cover.

- G. Obstructions:
 - 1. Install piping by tunneling or jacking, or combination of both, under streets and other obstructions that cannot be disturbed.
- H. Connection to Building:
 - 1. 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.
 - 2. Terminate water-service piping at building wall until building-water-piping systems are installed. Terminate piping with caps, plugs, or flanges as required for piping material. Make connections to building-water-piping systems when those systems are installed.
- I. Sleeves:
 - 1. Sleeves are specified in Section 22 0000 Plumbing, General Purpose.
- J. Mechanical sleeve seals:
 - 1. Mechanical sleeve seals are specified in Section 22 0000 Plumbing, General Purpose.
- K. Piping with Gasketed Joints:
 - 1. 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.

3.07 JOINT CONSTRUCTION

- A. General:
 - 1. See Section 22 0000 Plumbing, General Purpose for basic piping joint construction.
 - 2. Make pipe joints according to the following:
 - a. Copper-Tubing, Pressure-Sealed Joints: Use proprietary crimping tool and procedure recommended by copper, pressure-seal-fitting manufacturer.
 - b. Ductile-Iron Piping, Gasketed Joints for Water-Service Piping: AWWA C600 and AWWA M41.
 - c. Ductile-Iron Piping, Gasketed Joints for Fire-Service-Main Piping: UL 194.
 - d. Ductile-Iron Piping, Grooved Joints: Cut-groove pipe. Assemble joints with grooved-end, ductile-iron-piping couplings, gaskets,

lubricant, and bolts according to coupling manufacturer's written instructions.

- e. PE Piping Insert-Fitting Joints: Use plastic insert fittings and fasteners according to fitting manufacturer's written instructions.
- f. 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.
- g. Fiberglass Piping Bonded Joints: Use adhesive and procedure recommended by piping manufacturer.
- h. Dissimilar Materials Piping Joints: Use adapters compatible with both piping materials, with OD, and with system working pressure. Refer to Section 22 0000 Plumbing, General Purpose for joining piping of dissimilar metals.

3.08 ANCHORAGE INSTALLATION

A. Anchorage, General:

- 1. Install water-distribution piping with restrained joints. Anchorages and restrained-joint types that may be used include the following:
 - a. Concrete thrust blocks.
 - b. Locking mechanical joints.
 - c. Set-screw mechanical retainer glands.
 - d. Bolted flanged joints.
 - e. Heat-fused joints.
 - f. Pipe clamps and tie rods.
- 2. Install anchorages for tees, plugs and caps, bends, crosses, valves, and hydrant branches. Include anchorages for the following piping systems:
 - a. Gasketed-Joint, Ductile-Iron, Water-Service Piping: According to AWWA C600.
 - b. Gasketed-Joint, PVC Water-Service Piping: According to AWWA M23.
 - c. Fire-Service-Main Piping: According to NFPA 24.
- 3. Apply full coat of asphalt or other acceptable corrosion-resistant material to surfaces of installed ferrous anchorage devices.

3.09 VALVE INSTALLATION

A. AWWA Gate Valves:

1. Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.

B. AWWA Valves Other Than Gate Valves:

1. Comply with AWWA C600 and AWWA M44.

C. UL/FMG, Gate Valves:

1. Comply with NFPA 24. Install each underground valve and valves in vaults with stem pointing up and with vertical cast-iron indicator post.

D. UL/FMG, Valves Other Than Gate Valves:

1. Comply with NFPA 24.

E. MSS Valves:

1. Install as component of connected piping system.

F. Corporation Valves and Curb Valves:

1. Install each underground curb valve with head pointed up and with service box.

G. Pressure-Reducing Valves:

1. Install in vault or aboveground between shutoff valves.
2. Comply with AWWA C512. Install aboveground with shutoff valve on inlet.

3.10 DETECTOR CHECK VALVE INSTALLATION

A. Install in vault or aboveground.

1. Install for proper direction of flow. Install bypass with water meter, gate valves on each side of meter, and check valve downstream from meter.
2. Support detector check valves, meters, shutoff valves, and piping on brick or concrete piers.

3.11 ROUGHH. Relief Valves:

A. General:

1. Rough-in piping and specialties for water meter installation according to utility company's written instructions.

3.12 BACKFLOW PREVENTER INSTALLATION

A. General:

1. Install backflow preventers of type, size, and capacity indicated. Include valves and test cocks. Install according to requirements of plumbing and health department and authorities having jurisdiction.
 - a. Do not install backflow preventers that have relief drain in vault or in other spaces subject to flooding.
 - b. Do not install bypass piping around backflow preventers.
2. Support NPS 2-1/2 and larger backflow preventers, valves, and piping near floor and on brick or concrete piers.

3.13 WATER METER BOX INSTALLATION

A. General:

1. Install water meter boxes in paved areas flush with surface.
2. Install water meter boxes in grass or earth areas with top 2 inches above surface.

3.14 CONCRETE VAULT INSTALLATION

A. General:

1. Install precast concrete vaults according to ASTM C 891.

3.15 PROTECTIVE ENCLOSURE INSTALLATION

A. General:

1. Install concrete base level and with top approximately 2 inches above grade.
2. Install protective enclosure over valves and equipment.
3. Anchor protective enclosure to concrete base.

3.16 FIRE HYDRANT INSTALLATION

A. General:

1. Install each fire hydrant with separate gate valve in supply pipe, anchor with restrained joints or thrust blocks, and support in upright position.
2. Wet-Barrel Fire Hydrants: Install with valve below frost line. Provide for drainage.
3. AWWA Fire Hydrants: Comply with AWWA M17.

4. UL/FMG Fire Hydrants: Comply with NFPA 24.

3.17 FIRE DEPARTMENT CONNECTION INSTALLATION

A. General:

1. Install ball drip valves at each check valve for fire department connection to mains.
2. Install protective pipe bollards on three sides of each fire department connection.

3.18 CONNECTIONS

A. General:

1. Piping installation requirements are specified in Section 22 0000 Plumbing, General Purpose. Drawings indicate general arrangement of piping, fittings, and specialties.
2. Connect water-distribution piping to utility water main. Use tapping sleeve and tapping valve.
3. Connect water-distribution piping to interior domestic water and fire-suppression piping.
4. Connect waste piping from concrete vault drains to sanitary sewerage system. See 33 3111 Site Sanitary Utility Sewerage Piping for connection to sanitary-sewer piping.
5. Coordinate equipment grounding and wiring with electrical work.

3.19 FIELD QUALITY CONTROL

A. Piping Tests:

1. Conduct piping tests before joints are covered and after concrete thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water. Prepare reports of testing activities.

B. Hydrostatic Tests:

1. Test at not less than one-and-one-half times working pressure for two hours.
2. Increase pressure in 50-psig increments and inspect each joint between increments. Hold at test pressure for 1 hour; decrease to 0 psig. Slowly increase again to test pressure and hold for 1 more hour. Maximum allowable leakage is 2 quarts per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.

3.20 IDENTIFICATION

A. General:

1. Install continuous underground warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping.
2. Permanently attach equipment nameplate or marker indicating plastic water-service piping, on main electrical meter panel.

3.21 CLEANING

A. General:

1. Clean and disinfect water-distribution per Section 33 1300 Disinfecting Of Water Utility Distribution.

END OF SECTION

SECTION 33 1300

DISINFECTING OF WATER UTILITY DISTRIBUTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Disinfection of site domestic water lines and site fire water lines specified in Section 33 1116.
- B. Disinfection of building domestic water piping specified in Section 22 1005.
- C. Testing and reporting results.

1.02 RELATED REQUIREMENTS

- A. Section 33 1116 - Site Water Utility Distribution Piping.
- B. section 306-1.4.7 Disinfection.

1.03 REFERENCE STANDARDS

- A. AWWA B300 - Hypochlorites; American Water Works Association; 2010 (ANSI/AWWA B300).
- B. AWWA B301 - Liquid Chlorine; American Water Works Association; 2004 (ANSI/AWWA B301).
- C. AWWA B302 - Ammonium Sulfate; American Water Works Association; 2005 (ANSI/AWWA B302).
- D. AWWA B303 - Sodium Chlorite; American Water Works Association; 2005.
- E. AWWA C651 - Disinfecting Water Mains; American Water Works Association; 2005 (ANSI/AWWA C651).

1.04 SUBMITTALS

- A. See GREENBOOK and , Section 2-5.3 for Shop Drawings and Submittals.
- B. Test Reports: Indicate results comparative to specified requirements.
- C. Certificate: From authority having jurisdiction indicating approval of water system.
- D. Certificate: Certify that cleanliness of water distribution system meets or exceeds specified requirements.
- E. Disinfection report:
 - 1. Type and form of disinfectant used.

2. Date and time of disinfectant injection start and time of completion.
 3. Test locations.
 4. Initial and 24 hour disinfectant residuals (quantity in treated water) in ppm for each outlet tested.
 5. Date and time of flushing start and completion.
 6. Disinfectant residual after flushing in ppm for each outlet tested.
- F. Bacteriological report:
1. Date issued, project name, and testing laboratory name, address, and telephone number.
 2. Time and date of water sample collection.
 3. Name of person collecting samples.
 4. Test locations.
 5. Initial and 24 hour disinfectant residuals in ppm for each outlet tested.
 6. Coliform bacteria test results for each outlet tested.
 7. Certification that water conforms, or fails to conform, to bacterial standards of local and federal government standards.

1.05 QUALITY ASSURANCE

- A. Water Treatment Firm: Company specializing in disinfecting potable water systems specified in this Section with minimum three years documented experience.
- B. Testing Firm: Company specializing in testing potable water systems, certified by governing authorities of California.
- C. Submit bacteriologist's signature and authority associated with testing.

PART 2 - PRODUCTS

2.01 DISINFECTION CHEMICALS

- A. Chemicals: AWWA B300, Hypochlorite, AWWA B301, Liquid Chlorine, AWWA B302, Ammonium Sulfate, and AWWA B303, Sodium Chlorite.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that piping system has been cleaned, inspected, and pressure tested.

- B. Schedule disinfecting activity to coordinate with start-up, testing, adjusting and balancing, demonstration procedures, including related systems.

3.02 DISINFECTION

- A. Use method prescribed by the applicable state or local codes, or health authority or water purveyor having jurisdiction, or in the absence of any of these follow AWWA C651.
- B. Provide and attach equipment required to perform the work.
- C. Inject treatment disinfectant into piping system.
- D. Maintain disinfectant in system for 24 hours.
- E. Flush, circulate, and clean until required cleanliness is achieved; use municipal domestic water.
- F. Replace permanent system devices removed for disinfection.
- G. Pressure test system. Repair leaks and re-test.

3.03 FIELD QUALITY CONTROL

- A. Test samples in accordance with AWWA C651.

END OF SECTION

SECTION 33 3111

SITE SANITARY UTILITY SEWERAGE PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Sanitary sewerage drainage piping, fittings, and accessories.
- B. Connection of building sanitary drainage system to municipal sewers.
- C. Cleanout Access.

1.02 RELATED REQUIREMENTS

- A. Section 31 2316 - Excavation: Excavating of trenches.
- B. Section 31 2316.13 - Trenching: Excavating, bedding, and backfilling.
- C. Section 31 2323 - Fill: Bedding and backfilling.
- D. Section 33 0513 - Manholes and Structures.
- E. Section 03 3000 - Cast-in-Place Concrete: Concrete for cleanout base pad construction.
- F. GREENBOOK and provisions for Pipe, Pipe Joint Types and Materials and Underground Conduit Construction.

1.03 DEFINITIONS

- A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.04 REFERENCE STANDARDS

- A. ASTM D 1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2006.
- B. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications; 2009.

1.05 SUBMITTALS

- A. See GREENBOOK and , Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data indicating pipe, pipe accessories.
- C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.

- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Project Record Documents:
 - 1. Record location of pipe runs, connections, catch basins, cleanouts, and invert elevations.
 - 2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

PART 2 - PRODUCTS

2.01 SEWER PIPE MATERIALS

- A. Provide products that comply with applicable code(s).
- B. Plastic Pipe: ASTM D 1785, Schedule 40, Poly(Vinyl Chloride) (PVC) material; bell and spigot style solvent sealed joint end.
- C. Joint Seals: Mechanical clamp ring type, stainless steel expanding and contracting sleeve, neoprene ribbed gasket for positive seal.
- D. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.

2.02 PIPE ACCESSORIES

- A. Trace Wire: Magnetic detectable conductor, clear plastic covering, imprinted with "Sewer Service " in large letters.

2.03 CLEANOUT MANHOLE

- A. Lid and Frame: Cast iron construction, hinged lid. :
 - 1. Lid Design: Open checkerboard grill.
 - 2. Nominal Lid and Frame Size: 26 inches.
- B. Shaft Construction and Concentric Cone Top Section: Reinforced precast Concrete pipe sections, lipped male/female dry joints, cast steel ladder rungs into shaft sections at 12 inches; nominal shaft diameter of 36 inches.
- C. Base Pad: Cast-in-place concrete of type specified in Section 03 3000, levelled top surface to receive concrete shaft sections, sleeved to receive sanitary sewer pipe sections.

2.04 BEDDING AND COVER MATERIALS

- A. Pipe Bedding Material: As specified in Section 31 2316.13.

- B. Pipe Cover Material: As specified in Section 31 2316.13.

PART 3 - EXECUTION

3.01 GENERAL

- A. Perform work in accordance with applicable code(s).

3.02 TRENCHING

- A. See Section 31 2316.13 for additional requirements.
- B. Hand trim excavation for accurate placement of pipe to elevations indicated.
- C. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.03 INSTALLATION - PIPE

- A. Verify that trench cut is ready to receive work and excavations, dimensions, and elevations are as indicated on layout drawings.
- B. Install pipe, fittings, and accessories in accordance with manufacturer's instructions. Seal watertight.
 - 1. Plastic Pipe: Also comply with ASTM D 2321.
- C. Lay pipe to slope gradients noted on layout drawings; with maximum variation from true slope of 1/8 inch in 10 feet.
- D. Connect to building sanitary sewer outlet and municipal sewer system, through installed sleeves.
- E. Install trace wire 6 inches above top of pipe; coordinate with Section 31 2316.13.

3.04 INSTALLATION - CLEANOUTS

- A. Form bottom of excavation clean and smooth to correct elevation.
- B. Form and place cast-in-place concrete base pad, with provision for sanitary sewer pipe end sections.
- C. Establish elevations and pipe inverts for inlets and outlets as indicated.
- D. Mount lid and frame level in grout, secured to top cone section to elevation indicated.

3.05 FIELD QUALITY CONTROL

- A. If tests indicate Work does not meet specified requirements, remove Work, replace and retest at no cost to Owner.

B. PVC Sewer Pipe and Fittings:

1. Pipe and Fittings: Shall conform to ASTM D 3033 or ASTM D 3034, shall be SDR 35, with ends suitable for elastomeric gasket joints. Pipe shall meet requirements of UNI B 10 88.
2. Joints and Jointing Material: Utilize an integral bell and spigot with a solid cross section rubber gasket. Joints shall conform to ASTM D 3212. Gaskets shall conform to ASTM F 477.
3. Pipe Stiffness: Minimum pipe stiffness (@ 5% deflect) shall be 46 for all sizes when tested in accordance with ASTM D 2412.
4. Flattening: There shall be no evidence of splitting, cracking, or breaking when the pipe is tested as follows:
 - a. Flatten specimen of pipe, six inches long between parallel plates in a suitable press until the distance between the plates is forty percent of the outside diameter of the pipe. The rate of loading shall be uniform and such that the compression is completed within two to five minutes.
 - b. Products: Ringtite greenbell PVC sewer pipe, Johns Manville, Denver, Colorado; Fluidtite PVC sewer pipe, Certainteed Corporation, Anaheim, California; or equal.

END OF SECTION

SECTION 33 4111

SITE STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Storm drainage piping, fittings, and accessories.
- B. Connection of drainage system to municipal sewers.
- C. Catch basins, Plant area drains, Paved area drainage, and Site surface drainage.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Concrete for cleanout base pad construction.
- B. Section 31 2316 - Excavation: Excavating of trenches.
- C. Section 31 2316.13 - Trenching: Excavating, bedding, and backfilling.
- D. Section 31 2323 - Fill: Bedding and backfilling.
- E. Section 33 0513 - Manholes and Structures.
- F. GREENBOOK and provisions for Pipe, Pipe Joint Types and Materials and Underground Conduit Construction

1.03 DEFINITIONS

- A. Bedding: Fill placed under, beside and directly over pipe, prior to subsequent backfill operations.

1.04 REFERENCE STANDARDS

- A. ASTM D 1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2006.
- B. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications; 2009.

1.05 SUBMITTALS

- A. See GREENBOOK and , Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data indicating pipe, pipe accessories.

- C. Shop Drawings:
 - 1. Manholes: Include plans, elevations, sections, details, frames, and covers.
 - 2. Catch basins. Include plans, elevations, sections, details, frames, covers, and grates.
- D. Coordination Drawings: Show pipe sizes, locations, and elevations. Show other piping in same trench and clearances from storm drainage system piping. Indicate interface and spatial relationship between manholes, piping, and proximate structures.
- E. Profile Drawings: Show system piping in elevation. Draw profiles at horizontal scale of not less than 1 inch equals 50 feet and vertical scale of not less than 1 inch equals 5 feet. Indicate manholes and piping. Show types, sizes, materials, and elevations of other utilities crossing system piping.
- F. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
- G. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- H. Field quality-control reports.
- I. Project Record Documents:
 - 1. Record location of pipe runs, connections, catch basins, cleanouts, and invert elevations.
 - 2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable code for materials and installation of the Work of this section.

1.07 PROJECT CONDITIONS

- A. Interruption of Existing Storm Drainage 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 Architect no fewer than seven days in advance of proposed interruption of service.
 - 2. Do not proceed with interruption of service without Architect's written permission.

PART 2 - PRODUCTS

2.01 HUB AND SPIGOT, CAST IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings: ASTM A 74, Service class.
- B. Gaskets: ASTM C 564, rubber.
- C. Calking Materials: ASTM B 29, pure lead and oakum or hemp fiber.

2.02 HUBLESS CAST IRON SOIL PIPE AND FITTINGS

- A. Pipe and Fittings: ASTM A 888 or CISPI 301.
- B. Heavy-Duty, Shielded Couplings:
 - 1. Description: ASTM C 1277 and ASTM C 1540, with stainless-steel shield; stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.

2.03 DUCTILE IRON, CULVERT PIPE AND FITTINGS

- A. Pipe: ASTM A 716, for push-on joints.
- B. Standard Fittings: AWWA C110, ductile or gray iron, for push-on joints.
- C. Compact Fittings: AWWA C153, for push-on joints.
- D. Gaskets: AWWA C111, rubber.

2.04 PIPE AND FITTINGS

- A. Corrugated PE Drainage Pipe and Fittings NPS 3 to NPS 10: AASHTO M 252M, Type S, with smooth waterway for coupling joints.
 - 1. Silttight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with tube and fittings.
 - 2. Soiltight Couplings: AASHTO M 252M, corrugated, matching tube and fittings.
- B. Corrugated PE Pipe and Fittings NPS 12 to NPS 60: AASHTO M 294M, Type S, with smooth waterway for coupling joints.
 - 1. Silttight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings.
 - 2. Soiltight Couplings: AASHTO M 294M, corrugated, matching pipe and fittings.

2.05 PVC PIPE AND FITTINGS

- A. PVC Corrugated Sewer Piping:
 - 1. Pipe: ASTM F 949, PVC, corrugated pipe with bell-and-spigot ends for gasketed joints.
 - 2. Fittings: ASTM F 949, PVC molded or fabricated, socket type.
 - 3. Gaskets: ASTM F 477, elastomeric seals.

2.06 CONCRETE PIPE AND FITTINGS

- A. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C 76.
 - 1. Class III, Wall B.

2.07 NONPRESSURE TRANSITION 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, 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. Unshielded, Flexible Couplings:
 - 1. Description: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.
- D. Shielded, Flexible Couplings:
 - 1. Description: 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.
- E. Ring-Type, Flexible Couplings:
 - 1. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.08 CLEANOUTS

A. Cast-Iron Cleanouts:

1. Description: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.
2. Top-Loading Classification(s): Medium Duty Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

B. Plastic Cleanouts:

1. Description: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.

2.09 CONCRETE

A. General: Cast-in-place concrete according to ACI 318, ACI 350/350R, 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 minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

C. Manhole Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio. Include channels and benches in manholes.

1. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.
 - a. Invert Slope: 2 percent through manhole.
2. Benches: Concrete, sloped to drain into channel.
 - a. Slope: 4 percent.

- D. Ballast and Pipe Supports: Portland cement design mix, 3000 psi minimum, with 0.58 maximum water/cementitious materials ratio.
 - 1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.
 - 2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

2.10 CATCH BASINS

- A. Standard Precast Concrete Catch Basins:
 - 1. Description: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for sealant joints.
 - 2. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and separate base slab or base section with integral floor.
 - 3. Riser Sections: 4-inch minimum thickness, 48-inch diameter, and lengths to provide depth indicated.
 - 4. Joint Sealant: ASTM C 990, bitumen or butyl rubber.
 - 5. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and shape matching catch basin frame and grate. Include sealant recommended by ring manufacturer.
 - 6. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch- diameter frame and grate.
 - 7. Pipe Connectors: ASTM C 923, resilient, of size required, for each pipe connecting to base section.
- B. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for A-16, structural loading. Include flat grate with small square or short-slotted drainage openings.
 - 1. Size: 12 by 12 inches minimum unless otherwise indicated.
 - 2. Grate Free Area: Approximately 50 percent unless otherwise indicated.
- C. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for A-16, structural loading. Include 24-inch ID by 7- to 9-inch riser with 4-inch minimum width flange, and 26-inch- diameter flat grate with small square or short-slotted drainage openings.
 - 1. Grate Free Area: Approximately 50 percent unless otherwise indicated.

PART 3 - EXECUTION

3.01 TRENCHING

- A. See Section 31 2316.13 for additional requirements.
- B. Hand trim excavation for accurate placement of pipe to elevations indicated.
- C. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.02 INSTALLATION - PIPE

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. 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. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. 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.
- E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.
- F. Install gravity-flow, nonpressure drainage piping according to the following:
 - 1. Install piping pitched down in direction of flow.
 - 2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
 - 3. Install piping with 36-inch (minimum cover) or as shown on plans.
 - 4. Install hub-and-spigot, cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook."
 - 5. Install hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook."

6. Install ductile-iron piping and special fittings according to AWWA C600 or AWWA M41.
 7. Install PE corrugated sewer piping according to ASTM D 2321.
 8. Install PVC sewer piping according to ASTM D 2321 and ASTM F 1668.
 9. Install nonreinforced-concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."
 10. Install reinforced-concrete sewer piping according to ASTM C 1479 and ACPA's "Concrete Pipe Installation Manual."
- G. Install corrosion-protection piping encasement over the following underground metal piping according to ASTM A 674 or AWWA C105:
1. Hub-and-spigot, cast-iron soil pipe and fittings.
 2. Hubless cast-iron soil pipe and fittings.
 3. Ductile-iron pipe and fittings.
 4. Expansion joints.

3.03 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure drainage piping according to the following:
1. Join hub-and-spigot, cast-iron soil piping with gasketed joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints.
 2. Join hub-and-spigot, cast-iron soil piping with calked joints according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.
 3. Join hubless cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-coupling joints.
 4. Join ductile-iron culvert piping according to AWWA C600 for push-on joints.
 5. Join ductile-iron piping and special fittings according to AWWA C600 or AWWA M41.
 6. Join corrugated PE piping according to ASTM D 3212 for push-on joints.
 7. Join PVC corrugated sewer piping according to ASTM D 2321 for elastomeric-seal joints.
 8. Join nonreinforced-concrete sewer piping according to ASTM C 14 and ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.

9. Join reinforced-concrete sewer piping according to ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
10. Join dissimilar pipe materials with nonpressure-type flexible couplings.

3.04 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 Light-Duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.
 2. Use Medium-Duty, top-loading classification cleanouts in paved foot-traffic areas.
 3. Use Heavy-Duty, top-loading classification cleanouts in vehicle-traffic service areas.
 4. Use Extra-Heavy-Duty, top-loading classification cleanouts in roads Insert area.
- B. Set cleanout frames and covers in earth in cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding earth grade.
- C. Set cleanout frames and covers in concrete pavement and roads with tops flush with pavement surface.

3.05 CATCH BASIN INSTALLATION

- A. Set frames and grates to elevations indicated.

3.06 CONCRETE PLACEMENT

- A. Place cast-in-place concrete according to ACI 318.

3.07 CONNECTIONS

- A. Connect nonpressure, gravity-flow drainage piping in building's storm 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 overlap, with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
 2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.

3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes and structures by cutting into existing unit and creating an opening large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe, manhole, or structure wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.
 - a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.
 - b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.
 4. Protect existing piping, manholes, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.
- C. Connect to sediment interceptors.
- D. Pipe couplings and expansion joints 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. Shielded flexible couplings for same or minor difference OD pipes.
 - b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.
 - c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

3.08 IDENTIFICATION

- A. Materials and their installation are specified in Section 31 2200 – Grading and Section 31 2323 – Fill. Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.
1. Use detectable warning tape over ferrous piping.
 2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.09 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate reports 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. Damage: 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.
 - 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 - 4. Submit separate report for each test.
 - 5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
 - a. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.
 - b. Option: Test plastic piping according to ASTM F 1417.
 - c. Option: Test concrete piping according to ASTM C 924.

- 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.

END OF SECTION

APPENDIX A

Notice of Exemption

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 92101-2422

FROM: CITY OF SAN DIEGO
DEVELOPMENT SERVICES DEPARTMENT
1222 FIRST AVENUE, MS 501
SAN DIEGO, CA 92101

OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET, ROOM 121
SACRAMENTO, CA 95814

PROJECT NO.: 235889

PROJECT TITLE: Palisades Park Comfort Station

PROJECT LOCATION-SPECIFIC: The project is located west of the intersection of Ocean Boulevard and Law Street within Palisades Park. The project site is within the Ocean Beach Community Plan area.

PROJECT LOCATION-CITY/COUNTY: San Diego/San Diego

DESCRIPTION OF NATURE AND PURPOSE OF THE PROJECT: The project would replace an existing 180 square-foot comfort station and construct a new 290 square-foot comfort station in the general existing footprint. The new building would include one unisex accessible restroom, three unisex restrooms stalls, and a maintenance room. Other proposed work includes construction of a four foot wide ADA accessible ramp which would provide access from Law Street.

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 600 B St, Ste 800 MS 908A, San Diego CA, 92101. 619-533-4615

EXEMPT STATUS: (CHECK ONE)

- () 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 EXEMPTIONS: 15301 (EXISTING FACILITIES) AND REPLACEMENT: 15302
() STATUTORY EXEMPTION:

REASONS WHY PROJECT IS EXEMPT: The City of San Diego conducted an Initial Study which determined that the project would qualify to be categorically exempt from CEQA pursuant to Sections 15301 (Existing Facilities) and 15302 (Replacement). The project would construct a comfort station in the general location as the existing structure, serving the same purpose as the original. No sensitive biological or historical resources would be impacted and furthermore no environmental impacts would occur as a result of the project. Therefore the project qualifies to be categorically exempt from CEQA and the exceptions listed in CEQA Section 15300.2 would not apply.

LEAD AGENCY CONTACT PERSON: JEFF SZYMANSKI

TELEPHONE: (619) 446-5324

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

Signature of Jeff Szymanski, Associate Planner

January 11, 2012

DATE

CHECK ONE:

(X) SIGNED BY LEAD AGENCY

DATE RECEIVED FOR FILING WITH COUNTY CLERK OR OPR:

() SIGNED BY APPLICANT

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.)

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- 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.

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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.

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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.

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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

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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

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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

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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.

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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. These 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.

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- 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).

**Larry Gardner
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)

(For Office Use Only)

NS REQ	FAC#
DATE	BY

METER SHOP (619) 527-7449

Meter Information

Application Date	Requested Install Date:
------------------	-------------------------

Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) <u>Zip:</u>	<u>T.B.</u>	<u>G.B. (CITY USE)</u>
Specific Use of Water:		
Any Return to Sewer or Storm Drain, If so, explain:		
Estimated Duration of Meter Use: <input type="text"/>	<input type="checkbox"/>	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: <small>(PERSON IN ACCOUNTS PAYABLE)</small>			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: ()

<input type="checkbox"/>	City Meter	<input type="checkbox"/>	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

Sample City Invoice

City of San Diego, Field Engineering Div., 9485 Aero Drive, SD CA 92123						Contractor's Name:					
Project Name:						Contractor's Address:					
SAP No. (WBS/IO/CC):											
City Purchase Order No. :						Contractor's Phone #:			Invoice No.		
Resident Engineer (RE):						Contractor's Fax #:			Invoice Date:		
RE Phone#:			RE Fax#:			Contact Name:			Billing Period:		
Item #	Item Description	Contract Authorization				Previous Estimate		This Estimate		Totals to Date	
		Unit	Qty	Price	Extension	%/QTY	Amount	% / QTY	Amount	% / QTY	Amount
1	2 Parallel 4" PVC C900	LF	1,380	\$34.00	\$46,920.00						
2	48" Primary Steel Casing	LF	500	\$1,000.00	\$500,000.00						
3	2 Parallel 12" Secondary Steel	LF	1,120	\$53.00	\$59,360.00						
4	Construction and Rehab of PS 49	LS	1	\$150,000.00	\$150,000.00						
5	Demo	LS	1	\$14,000.00	\$14,000.00						
6	Install 6' High Chain Link Fence	LS	1	\$5,600.00	\$5,600.00						
7	General Site Restoration	LS	1	\$3,700.00	\$3,700.00						
8	10" Gravity Sewer	LF	10	\$292.00	\$2,920.00						
9	4" Blow Off Valves	EA	2	\$9,800.00	\$19,600.00						
10	Bonds	LS	1	\$16,000.00	\$16,000.00						
11	Field Orders	AL	1	80,000	\$80,000.00						
11.1	Field Order 1	LS	5,500	\$1.00	\$5,500.00						
11.2	Field Order 2	LS	7,500	\$1.00	\$7,500.00						
11.3	Field Order 3	LS	10,000	\$1.00	\$10,000.00						
11.4	Field Order 4	LS	6,500	\$1.00	\$6,500.00						
12	Certified Payroll	LS	1	\$1,400.00	\$1,400.00						
CHANGE ORDERS											
Change Order 1			4,890								
Items 1-4					\$11,250.00						
Item 5-Deduct Bid Item 3		LF	120	-\$53.00	(\$6,360.00)						
Change Order 2			160,480								
Items 1-3					\$95,000.00						
Item 4 Deduct Bid Item 1		LF	380	-\$340.00	(\$12,920.00)						
Item 5-Encrease bid Item 9		LF	8	\$9,800.00	\$78,400.00						
Change Order 3 (Close Out)			-121,500								
Item 1 Deduct Bid Item 3			53	-500.00	(\$26,500.00)						
Item 2 Deduct Bid Item 4		LS	-1	45,000.00	(\$45,000.00)						
Items 3-9			1	-50,500.00	(\$50,500.00)						
SUMMARY								Total This	\$ -	Total Billed	\$0.00
A. Original Contract Amount						Retention and/or Escrow Payment Schedule					
B. Approved Change Order 1 Thru 3						Total Retention Required as of this billing					
C. Total Authorized Amount (A+B)						Previous Retention Withheld in PO or in Escrow					
D. Total Billed to Date						Add'l Amt to Withhold in PO/Transfer in Escrow:					
E. Less Total Retention (5% of D)						Amt to Release to Contractor from PO/Escrow:					
F. Less Total Previous Payments											
G. Payment Due Less Retention						Contractor Signature and Date:					
H. Remaining Authorized Amount											

APPENDIX D

Hydrostatic Discharge Form

APPENDIX

Hydrostatic Discharge Requirements Certification (Discharge Events < 500,000 gpd)

All discharge activities related to this project comply with the Regional Water Quality Control Board (RWQCB) Order No. 2002-0020, General Permit for Discharges of Hydrostatic Test Water and Potable Water to Surface Water and Storm Drains as referenced by (http://www.swrcb.ca.gov/rwqcb9/board_decisions/adopted_orders/2002/2002_0020.shtml), and as follows:

Discharged water has been dechlorinated to below 0.1 (mg/l) level; and effluent has been maintained between 6 and 9 (PH) based on:							<i>is discharge within acceptable limits?</i>		<i>Comment</i>
Event #	Discharge Date & Amount (GAL)	Discharge Time	Meter Readings (at source)	Test Results (Chlorine / PH)	Name of Personnel Conducting Tests (print)	*signature of personnel	yes	no	
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						
	Date	Start:	Start:						
	Amt:	End:	End:						

**By signing, I certify that all of the statements and conditions for hydrostatic discharge events are correct.*

Project Name: _____

Work Order No.(s): _____

Have any thresholds have been exceeded? Per Order No. 2002-0020, would this be a reportable discharge and must be reported **within 24 hours** of the event? [Reportable discharge would include violation of maximum gallons per day, any upset which exceeds any effluent limit]

APPENDIX E

Coastal and Site Development Permits

RECORDING REQUESTED BY
CITY OF SAN DIEGO
DEVELOPMENT SERVICES
PERMIT INTAKE, MAIL STATION 501

PROJECT MANAGEMENT
PERMIT CLERK
MAIL STATION 501

THE ORIGINAL OF THIS DOCUMENT
WAS RECORDED ON MAY 23, 2012
DOCUMENT NUMBER 2012-0302656
Ernest J. Dronenburg, Jr., COUNTY RECORDER
SAN DIEGO COUNTY RECORDER'S OFFICE
TIME: 12:33 PM

WBS NUMBER: S-10026.02.06

SPACE ABOVE THIS LINE FOR RECORDER'S USE

COASTAL DEVELOPMENT PERMIT NO. 951673
SITE DEVELOPMENT PERMIT NO. 852120
PALISADES PARK COMFORT STATION PROJECT NO. 235889
Hearing Officer

This Coastal Development Permit No. 951673 and Site Development Permit No. 852120 is granted by the Hearing Officer of the City of San Diego to the City of San Diego, Park and Recreation Department Owner, and City of San Diego Engineering and Capital Projects Department, Permittee, pursuant to San Diego Municipal Code [SDMC] section 126.0702 and 126.0502. The 3.34 acre site is located at Palisades Park northwest of the corner of Ocean Boulevard and Law Street in the RM-1-1 Zone within the Pacific Beach Community Plan area. The project site is also within the Coastal Overlay (Appealable), Sensitive Coastal Overlay (SCOZ-CB), Coastal Height Limitation (Prop D-CHLOZ), the Parking Impact Overlay Zones (PIOZ), and within the First Public Roadway.

Subject to the terms and conditions set forth in this Permit, permission is granted to City of San Diego, Park and Recreation Department, Owner and the City of San Diego Engineering and Capital Projects, Permittee the demolition of an existing 180 square foot comfort station and to construct a new 290 square foot comfort station in the general existing footprint. The new building would include one unisex accessible restroom, three unisex restroom stalls and a maintenance room. Other work includes the construction of a four foot wide ADA accessible ramp which would provide access from Ocean Boulevard described and identified by size, dimension, quantity, type, and location on the approved exhibits [Exhibit "A"] dated February 29, 2012 on file in the Development Services Department.

The project shall include:

- a. Demolition of an existing 180 square foot comfort station;
- b. Construction of a new approximately 290 square foot comfort station in the general existing footprint;

- b. Landscaping (planting, irrigation and landscape related improvements);
- c. A four foot wide ADA accessible ramp from Ocean Boulevard; and
- d. Public and private accessory improvements determined by the Development Services Department to be consistent with the land use and development standards for this site in accordance with the adopted community plan, the California Environmental Quality Act [CEQA] and the CEQA Guidelines, the City Engineer's requirements, zoning regulations, conditions of this Permit, and any other applicable regulations of the SDMC.

STANDARD REQUIREMENTS:

1. This permit must be utilized within thirty-six (36) months after the date on which all rights of appeal have expired. If this permit is not utilized in accordance with Chapter 12, Article 6, Division 1 of the SDMC within the 36 month period, this permit shall be void unless an Extension of Time has been granted. Any such Extension of Time must meet all SDMC requirements and applicable guidelines in effect at the time the extension is considered by the appropriate decision maker. This permit must be utilized by March 14, 2015.
2. This Coastal Development Permit shall become effective on the eleventh working day following receipt by the California Coastal Commission of the Notice of Final Action, or following all appeals.
3. No permit for the construction, occupancy, or operation of any facility or improvement described herein shall be granted, nor shall any activity authorized by this Permit be conducted on the premises until:
 - a. The Owner/Permittee signs and returns the Permit to the Development Services Department; and
 - b. The Permit is recorded in the Office of the San Diego County Recorder.
4. While this Permit is in effect, the subject property shall be used only for the purposes and under the terms and conditions set forth in this Permit unless otherwise authorized by the appropriate City decision maker.
5. This Permit is a covenant running with the subject property and all of the requirements and conditions of this Permit and related documents shall be binding upon the Owner/Permittee and any successor(s) in interest.
6. The continued use of this Permit shall be subject to the regulations of this and any other applicable governmental agency.

7. Issuance of this Permit by the City of San Diego does not authorize the Owner/Permittee for this Permit to violate any Federal, State or City laws, ordinances, regulations or policies including, but not limited to, the Endangered Species Act of 1973 [ESA] and any amendments thereto (16 U.S.C. § 1531 et seq.).

8. The Owner/Permittee shall secure all necessary building permits. The Owner/Permittee is informed that to secure these permits, substantial building modifications and site improvements may be required to comply with applicable building, fire, mechanical, and plumbing codes, and State and Federal disability access laws.

9. Construction plans shall be in substantial conformity to Exhibit "A." Changes, modifications, or alterations to the construction plans are prohibited unless appropriate application(s) or amendment(s) to this Permit have been granted.

10. All of the conditions contained in this Permit have been considered and were determined-necessary to make the findings required for approval of this Permit. The Permit holder is required to comply with each and every condition in order to maintain the entitlements that are granted by this Permit.

If any condition of this Permit, on a legal challenge by the Owner/Permittee of this Permit, is found or held by a court of competent jurisdiction to be invalid, unenforceable, or unreasonable, this Permit shall be void. However, in such an event, the Owner/Permittee shall have the right, by paying applicable processing fees, to bring a request for a new permit without the "invalid" condition(s) back to the discretionary body which approved the Permit for a determination by that body as to whether all of the findings necessary for the issuance of the proposed permit can still be made in the absence of the "invalid" condition(s). Such hearing shall be a hearing de novo, and the discretionary body shall have the absolute right to approve, disapprove, or modify the proposed permit and the condition(s) contained therein.

11. The Owner/Permittee shall defend, indemnify, and hold harmless the City, its agents, officers, and employees from any and all claims, actions, proceedings, damages, judgments, or costs, including attorney's fees, against the City or its agents, officers, or employees, relating to the issuance of this permit including, but not limited to, any action to attack, set aside, void, challenge, or annul this development approval and any environmental document or decision. The City will promptly notify Owner/Permittee of any claim, action, or proceeding and, if the City should fail to cooperate fully in the defense, the Owner/Permittee shall not thereafter be responsible to defend, indemnify, and hold harmless the City or its agents, officers, and employees. The City may elect to conduct its own defense, participate in its own defense, or obtain independent legal counsel in defense of any claim related to this indemnification. In the event of such election, Owner/Permittee shall pay all of the costs related thereto, including without limitation reasonable attorney's fees and costs. In the event of a disagreement between the City and Owner/Permittee regarding litigation issues, the City shall have the authority to control the litigation and make litigation related decisions, including, but not limited to, settlement or other disposition of the matter. However, the Owner/Permittee shall not be required to pay or perform any settlement unless such settlement is approved by Owner/Permittee.

CALIFORNIA COASTAL COMMISSION

12. No construction for the project shall take place within the parameters of the beach area between Memorial Day weekend and Labor Day of any year. Construction equipment and staging areas shall not encroach onto or obstruct public beach areas adjacent to the subject property.

ENGINEERING REQUIREMENTS:

13. Prior to the issuance of a building permit, the Permittee shall obtain a bonded grading permit for the grading proposed for this project. All grading shall conform to requirements in accordance with the City of San Diego Municipal Code in a manner satisfactory to the City Engineer.

14. Prior to the issuance of any construction permits, the Owner/Permittee shall incorporate any construction Best Management Practices necessary to comply with Chapter 14, Article 2, Division 1 (Grading Regulations) of the San Diego Municipal Code, into the construction plans or specifications, satisfactory to the City Engineer.

15. Prior to the issuance of any construction permits, the Owner/Permittee shall submit a Water Pollution Control Plan (WPCP). The WPCP shall be prepared in accordance with the guidelines in Appendix E of the City's Storm Water Standards, satisfactory to the City Engineer.

LANDSCAPING REQUIREMENTS:

16. All landscape and irrigation shall conform to the standards of the City-Wide Landscape Regulations and the City of San Diego Land Development Manual Landscape Standards and all other landscape related City and Regional Standards.

PLANNING/DESIGN REQUIREMENTS:

17. A topographical survey conforming to the provisions of the SDMC may be required if it is determined, during construction, that there may be a conflict between the building(s) under construction and a condition of this Permit or a regulation of the underlying zone. The cost of any such survey shall be borne by the Owner/Permittee.

INFORMATION ONLY:

- The issuance of this discretionary use permit alone does not allow the immediate commencement or continued operation of the proposed use on site. The operation allowed by this discretionary use permit may only begin or recommence after all conditions listed on this permit are fully completed and all required ministerial permits have been issued and received final inspection.


- Any party on whom fees, dedications, reservations, or other exactions have been imposed as conditions of approval of this Permit, may protest the imposition within ninety days of the approval of this development permit by filing a written protest with the City Clerk pursuant to California Government Code-section 66020.
- This development may be subject to impact fees at the time of construction permit issuance.

APPROVED by the Hearing Officer of the City of San Diego on February 29, 2012 and Resolution No. HO- 6496.

ORIGINAL

Coastal Development Permit No. 951673
Site Development Permit No. 852120
Date of Approval: February 29, 2012

AUTHENTICATED BY THE CITY OF SAN DIEGO DEVELOPMENT SERVICES
DEPARTMENT



Helene Deisher
Development Project Manager


**NOTE: Notary acknowledgment
must be attached per Civil Code
section 1189 et seq.**

The undersigned Owner/Permittee, by execution hereof, agrees to each and every condition of this Permit and promises to perform each and every obligation of Owner/Permittee hereunder.

City of San Diego, Park and Recreation
Owner

By _____
NAME
TITLE

City of San Diego, Engineering and Capital Project
Permittee

By 
NAME: JOSEPH DIAB
TITLE: Project Manager, ECP

**NOTE: Notary acknowledgments
must be attached per Civil Code
section 1189 et seq.**

ORIGINAL

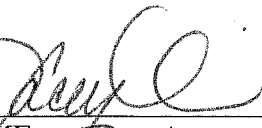
AUTHENTICATED BY THE CITY OF SAN DIEGO DEVELOPMENT SERVICES
DEPARTMENT

Helene Deisher
Development Project Manager

**NOTE: Notary acknowledgment
must be attached per Civil Code
section 1189 et seq.**

**The undersigned Owner/Permittee, by execution hereof, agrees to each and every condition of
this Permit and promises to perform each and every obligation of Owner/Permittee hereunder.**

City of San Diego, Park and Recreation
Owner

By 
NAME Park and Recreation
TITLE Director

City of San Diego, Engineering and Capital Project
Permittee

By _____
NAME
TITLE

**NOTE: Notary acknowledgments
must be attached per Civil Code
section 1189 et seq.**

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

State of California

County of San Diego }

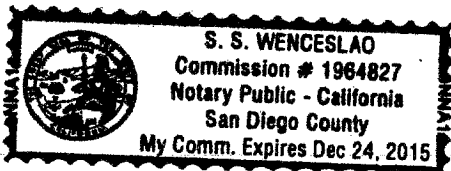
On May 23, 2012 before me, S. S. Wenceslao, Notary Public

Date

Here Insert Name and Title of the Officer

personally appeared Helene Deisher

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.

Signature: [Handwritten Signature]
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Palisades Park Comfort Station - PTS #235889

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): _____

Individual Individual

Partner — Limited General Partner — Limited General

Attorney in Fact Attorney in Fact

Trustee Trustee

Guardian or Conservator Guardian or Conservator

Other: _____ Other: _____

Signer Is Representing: _____ Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

ORIGINAL

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

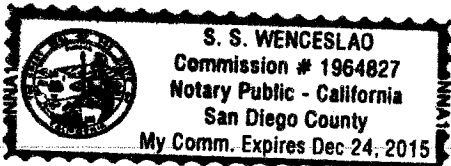
State of California

County of San Diego

On May 22, 2012 before me, S. S. Wenceslao, Notary Public
Date Here Insert Name and Title of the Officer

personally appeared JOSEPH TAWFIC DAB
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.

Signature: [Handwritten Signature]
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

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Capacity(ies) Claimed by Signer(s)

Signer's Name: _____ Signer's Name: _____

Corporate Officer — Title(s): _____ Corporate Officer — Title(s): _____

Individual Individual

Partner — Limited General Partner — Limited General

Attorney in Fact Attorney in Fact

Trustee Trustee

Guardian or Conservator Guardian or Conservator

Other: _____ Other: _____

Signer Is Representing: _____ Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

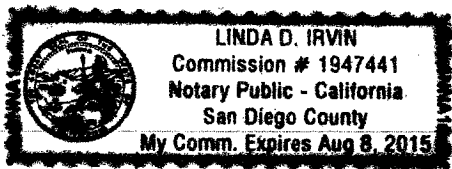
State of California

County of San Diego }

On 05-01-12 before me, Linda D. Irvin
Date Here Insert Name and Title of the Officer Notary

personally appeared Stacey Dee LoMedico
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.

Signature: Linda D. Irvin
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

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): _____

Individual

Individual

Partner -- Limited General

Partner -- Limited General

Attorney in Fact

Attorney in Fact

Trustee

Trustee

Guardian or Conservator

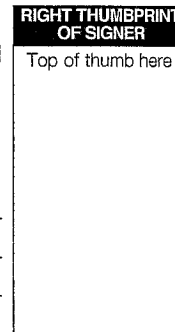
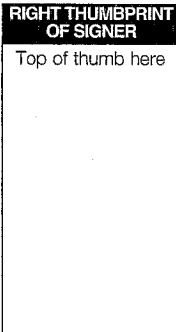
Guardian or Conservator

Other: _____

Other: _____

Signer Is Representing: _____

Signer Is Representing: _____



HEARING OFFICER RESOLUTION NO. HO-6496
COASTAL DEVELOPMENT PERMIT NO. 951673
SITE DEVELOPMENT PERMIT NO. 852120
PALISADES PARK COMFORT STATION PROJECT NO. - 235889

WHEREAS, CITY OF SAN DIEGO, PARK AND RECREATION DEPARTMENT, Owner and the CITY OF SAN DIEGO ENGINEERING AND CAPITAL PROJECTS, Permittee, filed an application with the City of San Diego for a permit for the demolition of an existing 180 square foot comfort station and to construct a new 290 square foot comfort station in the general existing footprint. The new building would include one unisex accessible restroom, three unisex restroom stalls and a maintenance room. Other work includes the construction of a four foot wide ADA accessible ramp which would provide access from Ocean Boulevard (as described in and by reference to the approved Exhibits "A" and corresponding conditions of approval for the associated Coastal Development Permit No. 951673 and Site Development Permit No. 852120;

WHEREAS, the project site is located at Palisades Park northwest of the corner of Ocean Boulevard and Law Street in the RM-1-1 Zone within the Pacific Beach Community Plan area. The project site is also within the Coastal Overlay (Appealable), Sensitive Coastal Overlay (SCOZ-CB), Coastal Height Limitation (Prop D-CHLOZ), the Parking Impact Overlay Zones (PIOZ), and within the First Public Roadway;

WHEREAS, on February 29, 2012, the Hearing Officer of the City of San Diego considered Coastal Development Permit No. 951673 and Site Development Permit No. 852120 pursuant to the Land Development Code of the City of San Diego;

WHEREAS, on January 11, 2012, the City of San Diego, as Lead Agency, through the Development Services Department, made and issued an Environmental Determination that the project is exempt from the California Environmental Quality Act (CEQA) (Public Resources Code section 21000 et. seq.) under CEQA Guideline Section 15301 (Existing Facilities) and 15302 (Replacement) and there was no appeal of the Environmental Determination filed within the time period provided by San Diego Municipal Code Section 112.0520; NOW, THEREFORE,

BE IT RESOLVED by the Hearing Officer of the City of San Diego as follows:

That the Hearing Officer adopts the following written Findings, dated February 29, 2012:

FINDINGS:

(a) Finding for all Coastal Development Permits

1. The proposed coastal development will not encroach upon any existing physical accessway that is legally used by the public or any proposed public accessway identified in a Local Coastal Program land use plan; and the proposed coastal development will enhance and protect public views to and along the ocean and other scenic coastal areas as specified in the Local Coastal Program land use plan. The project is proposing the demolition of an existing 180 square foot comfort station located within an existing public coastal park (Palisades Park) 51 feet from a coastal bluff edge and to construct a new 290 square foot comfort station in the same general existing footprint.

The new building would include one unisex accessible restroom, three unisex restroom stalls and a maintenance room. This project will provide facilities for the disabled community by constructing a new facility that meets the Americans with Disabilities Act (ADA) accessibility requirements for public restrooms. Additional features include the construction of a four foot wide ADA accessible ramp which would provide access from Ocean Boulevard to the new comfort station. All existing access from the park to the beach will be maintained. The new facilities will enhance access for a wider variety of park and beach users. While there are no public view corridors identified in the Pacific Beach Community Plan , the structure will observe and protect existing public views by retaining a low profile and setting the building into the slope the same location as the existing structure was located.

2. The proposed coastal development will not adversely affect environmentally sensitive lands. The project is for the demolition of an existing 180 square foot comfort station located within an existing developed public coastal park (Palisades Park) and to construct a new 290 square foot comfort station in the general footprint of the existing building. The new building will be set into the manufactured slope leading down to the beach. Since all work would occur within the developed portions of the site, this will limit the amount of disturbance and grading required for construction. All improvements were designed to minimize disturbance to the adjacent park and the beach area below the project. Additionally, the site is outside of any Special Flood Hazard Area and will not disturb any native vegetation or impact the sensitive coastal bluff.

Environmentally Sensitive Lands (ESL) occurs in the form of a sensitive coastal bluff adjacent to the site and the beach below the project. The project is approximately 51 feet away from the bluff edge and is separated from the beach by more than 100 feet horizontally and 30 feet of vertically. The project complies with the ESL regulations for sensitive coastal bluffs by minimizing grading and will reduce potential for future erosion with construction improvements such as a new catch basin and storm drain outlet, drought tolerant landscaping improvements, and a new roof that will direct storm water runoff to the existing paved beach access road rather than onto the slope as currently occurs. Therefore, the coastal development will not adversely affect environmentally sensitive lands.

3. The proposed coastal development is in conformity with the certified Local Coastal Program land use plan and complies with all regulations of the certified Implementation Program. The project site is located within the Pacific Beach Community Plan area (PBCP) and Local Coastal Program (LCP). The PBCP/LCP recognizes the importance of shoreline parks for residents and visitors to Pacific Beach community. The Parks and Open Space section of the PBCP identifies Palisades Park as a vertical access point, but does not include specific recommendations for the park. However, the proposed improvements are consistent with the goals of the PBCP/LCP with respect to maintaining and improving public shoreline parks and providing public access to these facilities. The new facility meets the Americans with Disabilities Act (ADA) accessibility requirements for public restrooms and the Park and Recreation Design Guidelines for comfort station facilities. Among the improvements, the new building would include a unisex accessible restroom and an accessible ramp providing access to the facilities for the disabled community. This project has also been designed to comply with the development standards for coastal bluffs contained in Appendix H of the PBCP. The project will preserve and enhance public vistas through building siting and design of the flat roofline for the new comfort station. The building will also reduce the potential for future erosion with design improvements such as a new catch basin and storm drain outlet, drought tolerant landscaping improvements, and a new roof designed to direct storm water runoff to the existing paved beach access road and away from the bluff. Therefore the project is in conformity with the PBCP and the LCP.

4 For every Coastal Development Permit issued for any coastal development between the nearest public road and the sea or the shoreline of any body of water located within the Coastal Overlay Zone the coastal development is in conformity with the public access and public recreation policies of Chapter 3 of the California Coastal Act. The proposed project is located within an existing developed park site. The existing comfort station does not meet ADA accessibility laws and must be upgraded to provide safe access to all users. This project will provide facilities for the disabled community by constructing a new facility that meets the ADA accessibility requirements for public restrooms. The project will also construct a new ADA accessible pathway between the sidewalk and the new comfort station. All existing access from this park to the beach will be maintained and enhanced by the proposed improvements. The new facilities will serve park and beach users as well as residents and visitors. The improvements support the public access and recreation policies of Chapter 3 of the California Coastal Act.

(a) Findings for all Site Development Permits

1 The proposed development will not adversely affect the applicable land use plan. The project site is located within a City of San Diego owned park zoned RM-1-1 (low-density, multi-family residential) northwest of the Ocean Boulevard and Law Street intersection within the Pacific Beach Community Plan (PBCP) area and Local Coastal Program (LCP). Palisades Park is an existing park identified in the PBCP. The project proposes the demolition of an existing 180 square foot comfort station located within an existing public coastal park 51 feet from a coastal bluff edge and to construct a new 290 square foot comfort station in the general existing footprint. The new facility meets the Americans with Disabilities Act (ADA) accessibility requirements for public restrooms. Among the improvements, the new building would include a unisex accessible restroom and an accessible ramp providing access to the facilities for the disabled community. The PBCP/LCP recognizes the importance of shoreline parks for residents and visitors to Pacific Beach community. The Parks and Open Space section of the PBCP identifies Palisades Park as a vertical access point, but does not include specific recommendations for the park. However, the proposed improvements are consistent with the goals of the PBCP/LCP with respect to maintaining and improving public shoreline parks and providing public access to these facilities. This project has also been designed to comply with the development standards for coastal bluffs contained in Appendix H of the PBCP. The project will preserve and enhance public vistas through building siting and design of the flat roofline for the new comfort station. The building will also reduce the potential for future erosion with design improvements such as a new catch basin and storm drain outlet, drought tolerant landscaping improvements, and a new roof designed to direct storm water runoff to the existing paved beach access road and away from the bluff. Therefore, the project would not adversely affect the land use plan.

2 The proposed development will not be detrimental to the public health, safety, and welfare. The project proposes the demolition of an existing 180 square foot comfort station located within an existing public coastal park 51 feet from a coastal bluff edge and to construct a new 290 square foot comfort station in the general existing footprint. The existing comfort station does not meet current ADA accessibility requirements and must be upgraded to provide safe access and functionally to all users. The proposed new facility will meet ADA accessibility requirements for public restrooms. The new building would include one unisex accessible restroom, three unisex restroom stalls, a maintenance room and hand railings along the walkway. An accessible ramp providing clear path of travel from the street to the facilities for the disabled community and accessible high low drinking fountains are also included in the new facility design.

The new facility will also meet the new building, electrical, and plumbing codes. The new facility is not detrimental to the public, health and safety and welfare. The new facility will improve safety and meet current codes addressing public health and welfare.

3 The proposed development will comply with the applicable regulations of the Land

Development Code. The project is located on a developed park site which is zoned RM-1-1. The project site is bound by beach to the west and by single family residential development zoned RM-1-1 (low-density, multi-family residential) on all other sides. This project proposes the demolition of an existing 180 square foot comfort station and to construct a new 290 square foot comfort station in the general existing footprint. The increase in size is needed to accommodate the new ADA accessible restrooms for the park. The new building would provide one unisex accessible restroom, three unisex restroom stalls and a maintenance room. Other work includes the construction of a four foot wide ADA accessible ramp providing clear path of travel from the street to the facilities and accessible high low drinking fountains.

The project will comply with the ESL regulations contained in the Land Development Code. The project requires a Coastal Development Permit due to the scope of work and the location within the Coastal zone and a Site Development Permit due to the projects adjacency to two resources, beach and coastal bluffs. The new facility has been designed to remain within developed portions of the park and not extend beyond the development footprint of the existing facilities to the greatest extent possible. The building has been set into the slope where the existing comfort station is located to limit the amount of grading required and also preserve views from the street above. In order to accommodate the new ADA restrooms and pathway, the new structure will add approximately 110 square feet and extend a few feet west of the existing building. The project will meet the ESL requirements for sensitive coastal bluffs by maintaining a 51 foot setback from the bluff edge where a 40 foot setback is required and by using drought tolerant landscaping and provide additional drainage improvements to direct runoff water away from the bluffs to limit erosion. All landscaping proposed will be in compliance with the City's Landscape Technical Manual. The project will require only ten cubic yards of cut during grading for construction of the new facility. Five cubic yards of soil will be reused as fill on-site and five cubic yards will be exported from the site. Appropriate Best Management Practices (BMP's) will be implemented during the construction to protect water quality and erosion. Therefore the project will comply with all the applicable regulations of the Land Development Code.

(b) Supplemental Findings--Environmentally Sensitive Lands

1 The site is physically suitable for the design and siting of the proposed development and the development will result in minimum disturbance to environmentally sensitive lands. The project proposes the demolition of an existing 180 square foot comfort station located within an existing public coastal park 51 feet from a coastal bluff edge and to construct a new 290 square foot comfort station in the same existing general footprint. The location proposed will limit the amount of disturbance and grading required for construction of this project. The building will be set into the manufactured slope leading down to the beach on an existing developed portion of the park site.

Environmentally Sensitive Land (ESL) occurs in the form of a sensitive coastal bluff adjacent to the site and the beach below the project. The project is approximately 51 feet away from the bluff edge and is separated from the beach by more than 100 feet and 30 feet of vertical separation. The project complies with the ESL regulations for sensitive coastal bluffs by minimizing grading and will reduce potential for future erosion with building construction improvements such as a new catch basin and storm drain outlet, drought tolerant landscaping improvements, and a new roof that will direct storm water runoff to the

existing paved beach access road rather than onto the slope as currently occurs. Only ten cubic yards of cut will be required during grading for the construction of the new facility. Five cubic yards of soil will be reused as fill on-site and five cubic yards will be exported from the site. Appropriate Best Management Practices (BMP's) will be implemented during the construction to protect water quality and erosion. All improvements have been designed to minimize disturbance to the adjacent park, bluff and beach area below the project. The proposed design is a significant improvement to the existing structure as stated above. This site is the most physically suitable for the new comfort station since it will be replacing an existing comfort station and utilizes the same location and general footprint. The improved design and siting also results in minimal disturbance to ESL.

2 The proposed development will minimize the alteration of natural land forms and will not result in undue risk from geologic and erosional forces, flood hazards, or fire hazards. The project proposes the demolition of an existing 180 square foot comfort station located within an existing public coastal park 51 feet from a coastal bluff edge and to construct a new 290 square foot comfort station. The masonry block building will be set into the manufactured slope leading down to the beach on an existing developed portion of the park site. Impacts to this slope will be minor and have been minimized to the greatest extent possible through siting of the building and maintaining the same general footprint of the existing structure. Only ten cubic yards of cut will be required during grading for the construction of the new facility. Five cubic yards of soil will be reused as fill on-site and five cubic yards will be exported from the site. New concrete retaining walls will be built to protect the stability of the slope where grading is needed to construct the new ADA accessible pathways. All improvements designed to minimize disturbance to the adjacent park, coastal bluff and beach area below the project. Additionally, the site is outside of any Special Flood Hazard Area and is not proposing to disturb any native vegetation. The project does not propose grading into the coastal bluff, it redirects drainage to the appropriate location, and proposes only masonry and concrete structures which do not create or increase fire hazards.

3 The proposed development will be sited and designed to prevent adverse impacts on any adjacent environmentally sensitive lands. The project proposes the demolition of an existing 180 square foot comfort station located within an existing public coastal park 51 feet from a coastal bluff edge and to construct a new 290 square foot comfort station in the same existing general footprint. The location proposed will limit the amount of disturbance and grading required for construction of this project. The building will be set into the manufactured slope leading down to the beach on an existing developed portion of the park site.

Environmentally Sensitive Land (ESL) occurs in the form of a sensitive coastal bluff adjacent to the site and the beach below the project. The project is approximately 51 feet away from the bluff edge and is separated from the beach by more than 100 feet and 30 feet of vertical separation. The project complies with the ESL regulations for sensitive coastal bluffs by minimizing grading and will reduce potential for future erosion with construction improvements such as a new catch basin and storm drain outlet, drought tolerant landscaping improvements, and a new roof that will direct storm water runoff to the existing paved beach access road rather than onto the slope as currently occurs. Only ten cubic yards of cut will be required during grading for the construction of the new facility. Five cubic yards of soil will be reused as fill on-site and five cubic yards will be exported from the site. Appropriate Best Management Practices (BMP's) will be implemented during the construction to protect water quality and ground erosion. All improvements have been designed to minimize disturbance to the adjacent park, bluff or beach area below the project. The proposed design is a significant improvement to the existing structure and utilizes the same general footprint and, therefore, the design and siting will prevent any adverse impacts to any adjacent ESL .

4. The proposed development will be consistent with the City of San Diego's Multiple Species Conservation Program (MSCP) Subarea Plan. The project site is not located within or adjacent to the Multiple Habitat Planning Areas of the City's Multiple Species Conservation Program's. The project will not involve any impacts to sensitive species or vegetation as all work will be contained within the existing park site and will not require the removal of any sensitive habitat areas.

5. The proposed development will not contribute to the erosion of public beaches or adversely impact local shoreline sand supply. The proposed project has been designed to reduce erosion occurring on site and to protect the adjacent public beach from disturbance. The nearest improvements for this project are located about 50 feet from the beach and construction BMP's will be implemented to ensure that no adverse effects to local beaches will occur during construction of this project. The project has been designed to prevent erosion by minimizing grading and will reduce potential for future erosion with construction of the new proposed improvements such as a new catch basin and storm drain outlet, drought tolerant landscaping improvements and a new roof that will direct storm water runoff to the existing paved beach access road rather than onto the slope as currently occurs.

6. The nature and extent of mitigation required as a condition of the permit is reasonably related to, and calculated to alleviate, negative impacts created by the proposed development. The project is for the demolition and replacement of an existing comfort station with a new comfort station in the same relative location and of similar size. The new station will be approximately 110 square feet larger than the existing comfort station to accommodate space for ADA accessibility improvements. This project will be constructed within the developed portions of an existing park and will not have any impact of coastal beaches or sensitive coastal bluffs. No sensitive vegetation will be removed during construction of this project and no sensitive habitat exists within the project vicinity. The project is exempt from the California Environmental Quality Act and no mitigation will be required for this project which is appropriate.

BE IT FURTHER RESOLVED that, based on the findings hereinbefore adopted by the Hearing Officer Coastal Development Permit No. 951673 and Site Development Permit No. 852120 are hereby GRANTED by the Hearing Officer to the referenced Owner/Permittee, in the form, exhibits, terms and conditions as set forth in Coastal Development Permit No. 951673 and Site Development Permit No. 852120 a copy of which is attached hereto and made a part hereof.



Helene Deisher
Development Project Manager
Development Services

Adopted on: February 29, 2012

WBS No. S-10026.02.06

ORIGINAL

APPENDIX F

Work Request for Asbestos & Lead Management Program

WORK REQUEST FOR ASBESTOS & LEAD MANAGEMENT PROGRAM

Department: Engineering & Capital Projects Dept#: 2112 Division: AEP
Work Requested By: Joe Diab MS#: 908A Phone/Fax: 619 533 4615 / 533 5176
Facility Name/Address: 4860 Ocean Blvd. Ocean Blvd/Law St.

Facility #: 000540 Age of Facility: 1960? Plans Attached? X YES NO Target Start: July 2012

Description of Proposed Work (explain detail of work as well as where in facility):
This project will replace the existing non-accessible comfort station with an accessible facility. The project will also provide an accessible path of travel to the facility from the park and the adjacent public way. The facility includes (1) Unisex accessible restroom stall, (3) restroom stalls, a maintenance room, exterior lavatories, an accessible drinking fountain.

Have internal order opened to ALMP for labor cost for cost center 2115111111; fund 100000; revenue acct 79275. The following accounting #s are for laboratory, abatement, and/or other NPE. Request estimate if needed.

Table with 5 columns: Accounting Numbers, Cost Center, Fund, G/L #, Internal Order. Values: 1714121323, 400117, 502001, S-10026

I have the authority to authorize ALMP to bill hourly inspection labor and laboratory expenses to the accounting numbers above for work related to this project.

Signature [Signature] Title Project Manager Date 6/20/12
Print Name Joseph Diab Div. Analyst Name Leita Ross

Send completed form to: ASBESTOS & LEAD MANAGEMENT PROGRAM - 9601 Ridgeway Court, Suite 310, San Diego, CA 92123 or MS 1103-A or Fax (858)492-5089

FOR OFFICE USE ONLY
Date Received 6/29/12 Inspector BRAD BLOWPET
Records/Inspection Information

No Previous Records

Impact on Project ALMP can provide a quote for the stabilization, demolition, and waste disposal of lead-based paint identified at this facility. Please see attached reports included with Memo 2012/1529 and please include ALMP in the pre-construction meetings regarding this project.

William B Blonder 7-24-12 ASBESTOS & LEAD PROGRAM INSPECTOR
[Signature] 7/24/12 ASBESTOS & LEAD PROGRAM MANAGER



THE CITY OF SAN DIEGO

MEMORANDUM

DATE: July 24, 2012

TO: Joseph Diab, Associate Civil Engineer, Engineering and Capital Projects Department, AE&P Division

FROM: Wm. Brad Blondet, Asbestos & Lead Program Inspector
 via Alan J. Johanns, Asbestos & Lead Program Manager, Environmental Services Department, Energy, Sustainability, and Environmental Protection Division

SUBJECT: **Palisades Park Comfort Station Demolition**

Per your request, the Asbestos and Lead Management Program (ALMP) performed an asbestos and lead inspection for the upcoming demolition of the existing comfort station at Palisades Park (Facility 540) located at 4860 Ocean Blvd., San Diego, CA on June 29th, 2012.

Please see the following tables for asbestos and lead sample results:

Asbestos results

Sample #	Material	Asbestos
6778-01	Multi-Layered Roofing	None Detected

Lead results

Please see the following tables for lead sample results above the action level of 1.0 mg/cm²:

Sample #	Material	Lead
6	Exterior Concrete West Wall Tan Paint	2.8 mg/cm ²
7	Exterior Concrete North Wall Tan Paint	5.5 mg/cm ²
8	Exterior Concrete East Wall Tan Paint	3.8 mg/cm ²
9	Exterior Wood Fascia Green Paint	4.8 mg/cm ²
10	Exterior Metal Vent Green Paint	1.5 mg/cm ²

Page 2
Joseph Diab
July 24, 2012

Recommendations

The condition of the “lead-based” paints listed above is poor. The identified lead-based painted materials as listed in this report must be properly stabilized prior to the demolition and then the debris must be properly disposed of by a qualified abatement contractor. We can use our “as needed” abatement contractor for the stabilization and demolition work, and I will get an estimate for you. ALMP will perform lead monitoring of the site to ensure the contractor performs the work safely, and we will also help to coordinate the removal of all lead contaminated hazardous waste from the site. Please include ALMP in all construction meetings regarding this project and notify us if the scope of work changes.

If you have any questions regarding these results, please contact me at 858-492-5086 or WBlondet@sandiego.gov

Sincerely,



Wm. Brad Blondet
ALMP Inspector

Attachments: Asbestos Results
Lead Results

memo2012\1529



City of San Diego/Asbestos and Lead Management Program

Palisades Park Comfort Station (Facility 540), La Jolla CA

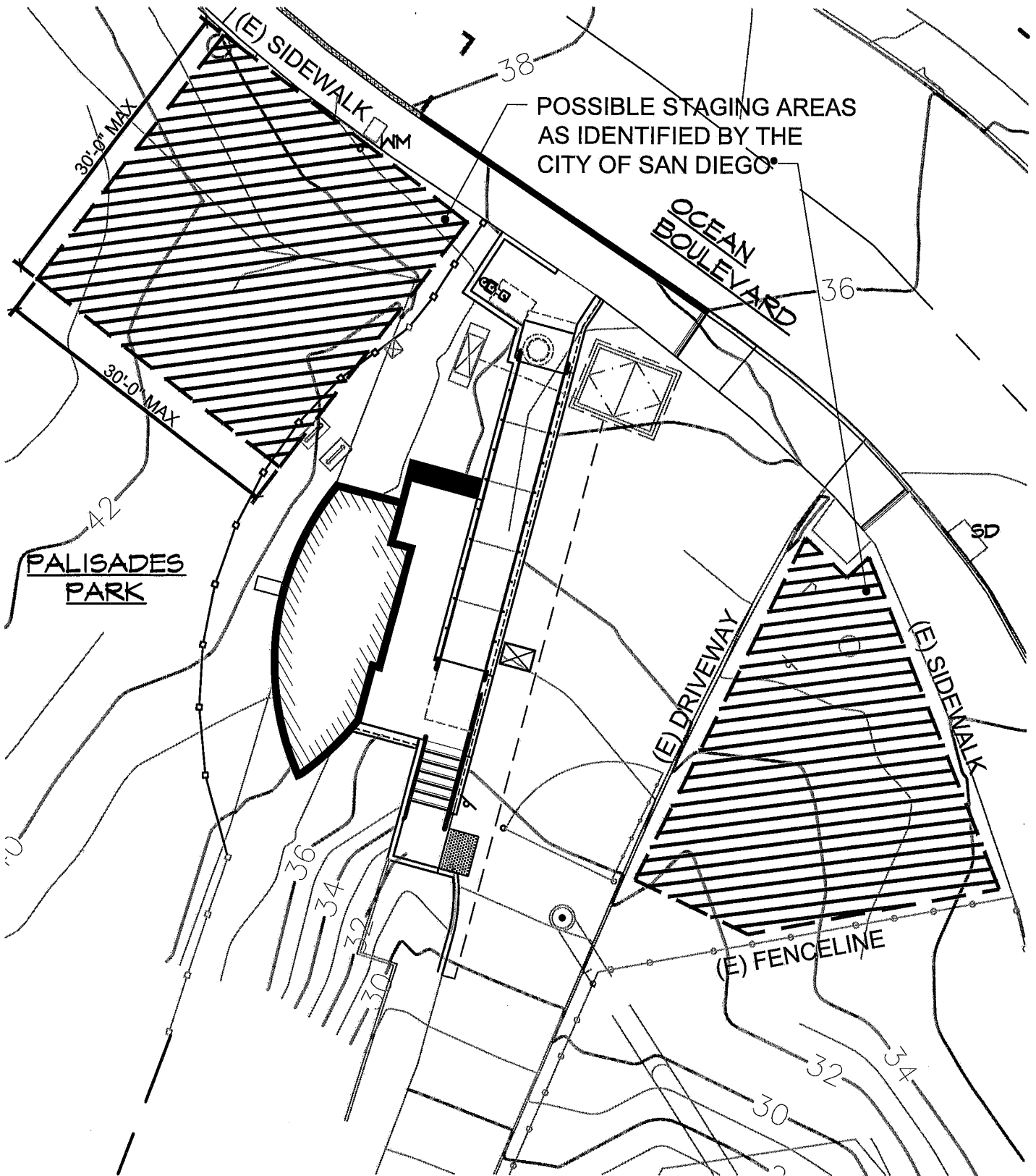


XRF Assay Results

Reading No	Time	Type	Duration	MODE	LOCAT.	ROOM	SIDE	COMPONENT	COND.	SUBST.	COLOR	Results	PbC	Units
1	6/29/12 12:25	SHUTTER CAL	212.58										2.16	cps
2	6/29/12 12:28	PAINT	20	K & L				CALIB. CHECK			RED	Positive	1	mg / cm ^2
3	6/29/12 12:29	PAINT	20	K & L				CALIB. CHECK			RED	Positive	1	mg / cm ^2
4	6/29/12 12:30	PAINT	19.19	K & L				CALIB. CHECK			RED	Negative	0.9	mg / cm ^2
5	6/29/12 12:33	PAINT	5.51	Std.	FACILITY 540	EXTERIOR	A	WALL	POOR	CONCRETE	TAN	Negative	0.01	mg / cm ^2
6	6/29/12 12:34	PAINT	3.17	Std.	FACILITY 540	EXTERIOR	B	WALL	POOR	CONCRETE	TAN	Positive	2.8	mg / cm ^2
7	6/29/12 12:35	PAINT	1.07	Std.	FACILITY 540	EXTERIOR	C	WALL	POOR	CONCRETE	TAN	Positive	5.5	mg / cm ^2
8	6/29/12 12:35	PAINT	1.7	Std.	FACILITY 540	EXTERIOR	D	WALL	POOR	CONCRETE	TAN	Positive	3.8	mg / cm ^2
9	6/29/12 12:36	PAINT	1.07	Std.	FACILITY 540	EXTERIOR	D	FASCIA	POOR	WOOD	GREEN	Positive	4.8	mg / cm ^2
10	6/29/12 12:38	PAINT	13.38	Std.	FACILITY 540	EXTERIOR	A	VENT	POOR	METAL	GREEN	Positive	1.5	mg / cm ^2
11	6/29/12 12:45	PAINT	11.85	Std.	FACILITY 540	INTERIOR	A	WALL	INTACT	CONCRETE	WHITE	Negative	0	mg / cm ^2
12	6/29/12 12:47	PAINT	20	K & L				CALIB. CHECK			RED	Positive	1	mg / cm ^2
13	6/29/12 12:48	PAINT	20	K & L				CALIB. CHECK			RED	Positive	1	mg / cm ^2
14	6/29/12 12:49	PAINT	20	K & L				CALIB. CHECK			RED	Positive	1	mg / cm ^2

APPENDIX G

Staging Plan



POSSIBLE STAGING AREAS
AS IDENTIFIED BY THE
CITY OF SAN DIEGO

PALISADES
PARK

OCEAN
BOULEVARD

(E) DRIVEWAY

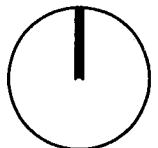
(E) SIDEWALK

(E) FENCELINE

NOTE: CONTRACTOR TO RESTORE ALL
SURFACE FINISHES AND/OR VEGETATION
AFFECTED BY CONSTRUCTION ACTIVITIES
TO EXISTING CONDITION OR BETTER. IF
VEGETATION IS DAMAGED OR REMOVED,
CONTRACTOR IS TO REPLACE IN KIND TO
SATISFACTION OF RESIDENT ENGINEER.

STAGING PLAN

NOT TO SCALE



north

APPENDIX H

Waste Management Form for Construction & Demolition (C&D) Debris



Waste Management Form for Construction & Demolition (C&D) Debris

Required for projects described in Municipal Code §66.0601-66.0610. Please see Information Bulletin 119 for more information.

PART I Complete this section before obtaining a building or demolition permit. Submit this form and your recycling deposit to the Development Services Department when paying permit fees.

Approval No. _____ Project Title (if applicable) _____

Project Address _____ Zip Code _____

Property Owner _____ Contact Name _____ Title _____

Signature _____ Date _____

Phone _____ Fax _____ Email _____

Contact Mailing Address (if different than project address) _____

City _____ State _____ Zip Code _____

Project Type (check all that apply): New Construction Addition/Alteration Demolition
 Commercial Residential Single Family Multi-Family

Estimated Square Feet _____

Estimated Start Date ____/____/____

Estimated Completion Date ____/____/____

TO BE FILLED OUT BY DSD STAFF
 Recycling Deposit Paid \$ _____
 By _____

Fill out the following table with estimated waste tonnage that will be generated by your project.
Goal : Reduce quantity of materials disposed at landfills by percentage noted in Municipal Code §66.0601-66.0610

Indicate quantities in tons for each material listed. Note: A = B + C (Please use the City Construction and Demolition Debris Conversion Rate Tables if converting from volume to tonnage.)

Material Type	A Estimated Waste Quantity	B Estimated Salvage Reuse OR Recycled	C Estimated Disposal	D Hauler	E Facility Destination(s)
Asphalt & Concrete					
Brick / Masonry / Tile					
Dirt					
Mixed Inerts					
Mixed C&D Debris					
Cabinets, Doors, Fixtures, Windows (circle all that apply)					
Carpet					
Carpet Padding / Foam					
Cardboard					
Ceiling Tile (acoustic)					
Drywall (Used, new, unpainted sheets or scrap)					
Landscape Debris					
Unpainted Wood & Pallets					
Roofing Materials					
Scrap Metal					
Stucco					
Garbage / Trash					
Other (please describe)					
Other (please describe)					
TOTAL					

PART I Continued

Refer to the table on the previous page and fill in the blanks below to determine your estimated diversion rate.

(Total Column B / Total Column A : _____) x 100 = _____ %

For Multi-Family, Commercial and Industrial Projects ONLY (Single family projects do not need to answer this question):

My project complies with Municipal Code §142.0805 which requires certain space allocation for trash and recyclable material storage.

PART II Complete this section after final inspection. Submit with a copy of all diversion and disposal receipts, written statements or photographs documenting on-site reuse or other reuse or donation, and a copy of PART I of this form to apply for your refund.

Send completed form and all documentation to:

**City of San Diego
Environmental Services Department
Attn: C&D Diversion Coordinator
9601 Ridgehaven Court, Suite 320
San Diego, CA 92123**

Applicants must submit refund requests within 180 days following project final inspection. Requests submitted after 180 days will not be eligible for a refund. Refunds will not be issued if all requested information and documentation is not provided. Refunds will be mailed within 45 days following receipt of all proper forms and documentation.

Applicant is advised of San Diego Municipal Code section 11.0401(b) which states: “No person willfully shall make a false statement or fail to report any material fact in any application for City license, permit, certificate, employment or other City action under the provisions of the San Diego Municipal Code.”

Section A

I certify under penalty of perjury under the laws of the State of California that the information provided in and with this form pertains to construction and demolition debris generated only from the project listed in PART I, that I have reviewed the accuracy of the information, and that the information is true and correct to the best of my knowledge and belief.

Name _____ Title _____

Signature _____ Date _____

Final Inspection Date _____

Section B

Please fill in this part only if the refund check is to be sent to a different person and address than that listed in PART I. By signing my name, I hereby direct the C&D refund for this project to be sent to the person listed in Section C below

Name _____ Signature _____

Section C

Please send refund to:

Name _____ Address _____

City _____ State _____ Zip Code _____

For more information please call City of San Diego Environmental Services Department (858) 694-7000 or visit www.sandiego.gov/environmental-services/recycling/cdrecycling.shtml

APPENDIX I

Addendum to Geotechnical Design Services

July 28, 2011
Project No. 106886001

Mr. Manuel Oncina
Manuel Oncina Architects
514 Pennsylvania Avenue
San Diego, California 92103

Subject: Addendum to Geotechnical Design Services
Palisades Park Comfort Station Replacement
San Diego, California

Dear Mr. Oncina:

At your request, we are issuing this addendum to the referenced geotechnical design services report. Since the time of the issuance of the referenced report the 2007 California Building Code (CBC) has been superceded by the 2010 CBC. This addendum provides geotechnical recommendations including seismic design criteria based on the 2010 CBC. The values presented in our report remain valid. References in our report to the 2007 CBC should be replaced with the 2010 CBC. The peak horizontal ground accelerations and seismic design parameters for the site are presented below.

Strong Ground Motion

The 2010 CBC recommends that the design of structures be based on the peak horizontal ground acceleration (PGA) having a 2 percent probability of exceedance in 50 years, which is defined as the Maximum Considered Earthquake (MCE). The statistical return period for PGA_{MCE} is approximately 2,475 years. The probabilistic PGA_{MCE} for the site was calculated as 0.62g using the United States Geological Survey (USGS) web-based ground motion calculator (USGS, 2011). The design PGA was calculated to be 0.42g using the USGS ground motion calculator. These estimates of ground motion do not include near-source factors that may be applicable to the design of structures on site.

SEISMIC DESIGN PARAMETERS

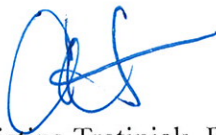
Design of the proposed improvements should be designed in accordance with the requirements of governing jurisdictions and applicable building codes. The table below presents the seismic design parameters for the site in accordance with CBC (2010) guidelines and mapped spectral acceleration parameters (USGS, 2011).

Table 1 – Seismic Design Factors

Factors	Values
Site Class	C
Site Coefficient, F_a	1.000
Site Coefficient, F_v	1.300
Mapped Short Period Spectral Acceleration, S_s	1.556g
Mapped One-Second Period Spectral Acceleration, S_1	0.604g
Period Spectral Acceleration Adjusted For Site Class, S_{MS}	1.556g
One-Second Period Spectral Acceleration Adjusted For Site Class, S_{M1}	0.785g
Design Short Period Spectral Acceleration, S_{DS}	1.037g
Design One-Second Period Spectral Acceleration, S_{D1}	0.523g

We appreciate the opportunity to be of service on this project.

Respectfully submitted,
NINYO & MOORE



Christina Tretinjak, PG
 Project Geologist




Tracy Green, PE
 Project Engineer



CAT/TMG/JG/kh

Attachment: References

Distribution: (1) Addressee

REFERENCES

- California Building Standards Commission, 2010, California Building Code, Title 24, Part 2, Volumes 1 and 2: dated June.
- Ninyo & Moore, 2010, Proposal for Geotechnical Design Services, Palisades Park Comfort Station Replacement, San Diego, California: dated May 24.
- Ninyo & Moore, 2010, Geotechnical Design Services, Palisades park Comfort Station Replacement, San Diego, California: dated September 23.
- United States Geological Survey, 2011, Ground Motion Parameter Calculator v. 5.0.9a, World Wide Web, <http://earthquake.usgs.gov/research/hazmaps/design/>.

**GEOTECHNICAL DESIGN SERVICES
PALISADES PARK COMFORT
STATION REPLACEMENT
SAN DIEGO, CALIFORNIA**

PREPARED FOR:

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September 23, 2010
Project No. 106886001

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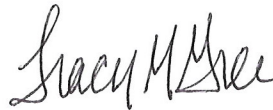
Subject: Geotechnical Design Services
Palisades Park Comfort Station Replacement
San Diego, California

Dear Mr. Oncina:

In accordance with your request and authorization, we have performed geotechnical design services for the proposed replacement of the Palisades Park Comfort Station in San Diego, California. This report presents our geotechnical findings, conclusions, and recommendations regarding the proposed project. Our report was prepared in accordance with our proposal dated May 24, 2010.

We appreciate the opportunity to be of service on this project.

Sincerely,
NINYO & MOORE



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1. INTRODUCTION

In accordance with your request and our proposal dated May 24, 2010, we have performed geotechnical design services for the proposed replacement of the Palisades Park Comfort Station in San Diego, California. This report presents the results of our field exploration and laboratory testing, our conclusions regarding the geotechnical conditions at the site, and our recommendations for the design and earthwork construction of this project.

2. SCOPE OF SERVICES

The scope of services for this study included the following:

- Review of readily available published and in-house geotechnical literature, topographic maps, geologic maps, fault maps, and stereoscopic aerial photographs.
- Performance of a field reconnaissance to observe site conditions and to mark out the locations of our borings.
- Notification of Underground Service Alert (USA) to locate underground utilities near our borings.
- Performance of a subsurface exploration consisting of the excavating, logging, and sampling of two exploratory borings. Bulk and in-place soil samples were obtained at selected intervals from within the borings and returned to our offices for geotechnical laboratory analysis.
- Performance of geotechnical laboratory testing on selected soil samples to evaluate design parameters.
- Preparation of this report presenting our findings, conclusions, and recommendations regarding the geotechnical design and construction of the project.

3. SITE DESCRIPTION

The existing Palisades Park Comfort Station is located west of Ocean Boulevard and north of Law Street in the Pacific Beach neighborhood in San Diego, California (Figure 1). The comfort station is bounded by Palisades Park to the north and a paved beach access road to the south. The comfort station is located on a coastal bluff approximately 80 feet east of the beach. The elevation of Palisades Park behind the comfort station is approximately 40 feet above mean sea level (MSL), approximately 7 feet higher than the surface grade at the front side of the comfort station. To accommodate this ele-

vation differential, the rear and side walls of the comfort station retain between approximately 4 and 7 feet of soil on these sides.

The existing comfort station was built some time in the 1940's and documentation regarding the construction were not available for our review. We anticipate that the existing structure is founded on conventional footing bearing on compacted fill or formational materials.

4. PROJECT DESCRIPTION

Detailed plans regarding future development were not made available for our review, however, we anticipate that the proposed construction will include a new American Disability Association (ADA) compliant comfort station which will generally be within the same footprint as the existing comfort station. We anticipate that the proposed building will be a lightly loaded, one-story structure, constructed of concrete masonry unit (CMU) block or poured in place concrete founded on conventional spread and perimeter foundations with a slab-on-grade floor. Ancillary construction will include new concrete ramps and pavements, as well as underground utilities.

5. SUBSURFACE EXPLORATION AND LABORATORY TESTING

Our subsurface exploration was conducted on September 1, 2010, and consisted of drilling, logging, and sampling of two exploratory borings (B-1 and B-2). The borings were drilled manually to depths of up to approximately 5½ feet. Bulk and in-place soil samples were obtained from the borings and were transported to our in-house geotechnical laboratory for testing. The approximate locations of the borings are shown on Figure 2 and logs of the borings are included in Appendix A.

Laboratory testing of representative soil samples included an evaluation of in-situ dry density and moisture content, gradation (sieve) analysis, shear strength, and soil corrosivity. The results of the in-situ dry density and moisture content tests are presented on the boring logs in Appendix A. The results of the other laboratory tests are presented in Appendix B.

6. GEOLOGY AND SUBSURFACE CONDITIONS

Our findings regarding regional and site geology, including excavation characteristics and groundwater conditions, and geologic hazards including faulting and seismicity, liquefaction, and landslides at the site are provided in the following sections.

6.1. Regional Geologic Setting

The project area is situated in the coastal foothill section of the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin south to the southern tip of Baja California (Norris and Webb, 1990; Harden, 1998). The province varies in width from approximately 30 to 100 miles. In general, the province consists of rugged mountains underlain by Jurassic metavolcanic and metasedimentary rocks, and Cretaceous igneous rocks of the southern California batholith.

The Peninsular Ranges Province is traversed by a group of sub-parallel faults and fault zones trending approximately northwest. Several of these faults, shown on Figure 3, are considered active faults. The Rose Canyon, Elsinore, San Jacinto, and San Andreas faults are active fault systems located east and northeast of the project area, and the Coronado Bank, San Diego Trough, and San Clemente faults are active faults located west of the project area. The Rose Canyon Fault Zone, the nearest active fault system, has been mapped approximately 2 miles east of the project site. Major tectonic activity associated with these and other faults within this regional tectonic framework consists primarily of right-lateral, strike-slip movement. Further discussion of faulting relative to the site is provided in the Faulting and Seismicity section of this report.

6.2. Site Geology

Geologic units encountered during our subsurface exploration included fill and materials of the Mount Soledad Formation (Kennedy and Tan, 2008). Additional descriptions of the earth units encountered during our subsurface exploration are provided in the subsequent sections. More detailed descriptions of the subsurface units are provided on the boring logs in Appendix A.

6.2.1. Fill

Fill materials were encountered in both of our borings from the ground surface and extending to depths of approximately 1½ feet in boring B-1 and extending to the total depth explored (5½ feet) in boring B-2. As encountered, these materials generally consisted of various shades of brown, dry to wet, loose, silty and clayey sand. Scattered gravel and cobbles were encountered in the fill materials.

6.2.2. Mount Soledad Formation

Materials of the middle Eocene-aged Mount Soledad Formation were encountered in our exploratory boring B-1 underlying the fill to the total depth explored. As encountered, these materials generally consisted of olive and brown, moist, weakly cemented, silty sandstone.

6.3. Excavation Characteristics

Based on our subsurface exploration of the site, excavation of the materials underlying the site should be generally feasible with heavy-duty excavation equipment in good working condition. Due to the age of the existing comfort station and the unknown nature of the existing construction, underground utilities or other structures should be anticipated to be encountered in excavations at the site. Also, difficulty in performing excavations is anticipated due to the presence of cobbles and cemented zones within the Mount Soledad Formation.

6.4. Groundwater

Groundwater was not encountered during our subsurface exploration. Based on the coastal location of the site and proximity to the Pacific Ocean, groundwater should be anticipated near the sea level. Fluctuations in the groundwater level and perched conditions may occur due to variations in ground surface topography, subsurface geologic conditions and structure, rainfall, irrigation, tidal fluctuations, and other factors.

6.5. Faulting and Seismicity

Like much of southern California, the subject site is considered to be in a seismically active area. Based on our review of readily available published geological maps and literature, as well as our geologic field mapping, the subject site is not underlain by known active or potentially active faults (i.e., faults that exhibit evidence of ground displacement in the last 11,000 years and 2,000,000 years, respectively).

The closest known active fault is the Rose Canyon Fault, which is capable of generating an earthquake magnitude of 7.2 (Cao, et al, 2003). As noted, the Rose Canyon Fault is located approximately 2 miles east of the site (Kennedy and Tan, 2008).

6.5.1. Strong Ground Motion

The 2007 California Building Code (CBC) recommends that the design of structures be based on the peak horizontal ground acceleration (PGA) having a 2 percent probability of exceedance in 50 years which is defined as the Maximum Considered Earthquake (MCE). The statistical return period for PGA_{MCE} is approximately 2,475 years. The probabilistic PGA_{MCE} for the site was calculated as 0.62g using the United States Geological Survey (USGS) web-based ground motion calculator (USGS, 2009). The design PGA was calculated to be 0.42g using the USGS ground motion calculator. These estimates of ground motion do not include near-source factors that may be applicable to the design of structures on site.

6.5.2. Ground Surface Rupture

Ground surface rupture due to active faulting is not a design consideration due to the absence of any known active faults underlying the site. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

6.5.3. Liquefaction

Liquefaction of cohesionless soils can be caused by strong vibratory motion due to earthquakes. Based on the dense, cemented, and cohesive nature of the subsurface mate-

rials and the lack of high groundwater conditions, it is our opinion that the potential for liquefaction at the site is not a design consideration.

6.6. Landsliding

Based on our review of referenced geologic maps, literature, topographic maps, and stereoscopic aerial photographs, no landslides or indications of deep-seated landsliding were noted underlying the project site. As such, the potential for significant large-scale slope instability at the site is not a design consideration.

6.7. Tsunamis

Tsunamis are long wavelength seismic sea waves (long compared to the ocean depth) generated by sudden movements of the ocean bottom during submarine earthquakes, landslides, or volcanic activity. According to the California Emergency Management Tsunami Inundation Map for Emergency Planning (2009), the site is near the tsunami inundation line. However, based on the elevation of the site, the potential for damage due to tsunami is not a design consideration.

7. CONCLUSIONS

Based on our review of the referenced background data, subsurface exploration, and laboratory testing, it is our opinion that construction of the proposed project is feasible from a geotechnical standpoint provided the recommendations presented in this report are incorporated into the design and construction of the project. In general, the following conclusions were made:

- The project site is underlain by fill and materials of the Mount Soledad Formation. The existing fill is undocumented and not considered suitable for structural support in its current condition. Recommendations for the remedial grading of this material are presented in the following sections.
- Groundwater was not encountered during our subsurface exploration.
- On-site soils possess cobbles, gravel, and construction debris. The contractor should anticipate additional processing (i.e., screening) of on-site soils prior to reuse as engineered fill.

- Based on our subsurface exploration, excavation of the subsurface materials should generally be feasible with heavy-duty excavation equipment in good working condition. However, due to the presence of cobbles and cemented materials, difficulty in performing excavations should be anticipated.
- The project site is located approximately 2 miles west of the active Rose Canyon Fault. Accordingly, the potential for relatively strong seismic ground motions should be considered in the project design.
- Based on the results of our limited soil corrosivity tests during this study the site would be classified as corrosive.

8. RECOMMENDATIONS

Based on our understanding of the project, the following general recommendations are provided for the design and construction of the proposed project. These recommendations may change once specific plans have been produced. The proposed site improvements should be constructed in accordance with the requirements of the applicable governing agencies. In general, earthwork should be performed in accordance with the recommendations presented in this report. Ninyo & Moore should be contacted for questions regarding the recommendations or guidelines presented herein.

8.1. Site Preparation

We understand that the existing comfort station will be demolished as part of this project. Site preparation should begin with the removal of the existing structure, as well as vegetation, utility lines, asphalt, concrete, and other deleterious debris from areas to be graded. Tree stumps and roots should be removed to such a depth that organic material is generally not present. Clearing and grubbing should extend to the outside of the proposed excavation and fill areas. The debris and unsuitable material generated during clearing and grubbing should be removed from areas to be graded and disposed of at a legal dumpsite away from the project area. Underground utilities or other structures located within the proposed limits of the construction should be removed or abandoned, capped off or relocated so as not to interfere with earthwork operations.

8.2. Remedial Grading

Prior to building or improvement construction, we recommend that the existing fill soils within the limits of the building pads limits be removed to competent formational materials. Existing fill soils underlying pavements or flatwork should be removed to competent formational materials and replaced as compacted fill. The removed materials may be processed and replaced as compacted fill. Deeper removals may be needed based on the exposed conditions of the excavation bottoms during grading. The depth and extent of the removals should be further evaluated in the field by Ninyo & Moore.

For the purpose of this report, the limits of the building pad envelope are defined as the area underlying the structure and extending beyond the limits of the structure a horizontal distance of 5 feet or the depth of removal, whichever is greater. The extent and depths of removals should be evaluated by Ninyo & Moore's representative in the field based on the materials exposed. The resultant excavation subgrades should be scarified to a depth of 8 inches, moisture conditioned to a moisture content near the laboratory optimum and recompacted to 90 percent as evaluated by the American Society for Testing and Materials (ASTM) Test Method D 1557.

8.3. Materials for Fill

On-site soils with an organic content of less than approximately 3 percent by volume (or 1 percent by weight) and a gradation in accordance with the following are suitable for reuse as engineered fill. In general, fill material should not contain rocks or lumps over approximately 4 inches in diameter, and not more than approximately 30 percent larger than $\frac{3}{4}$ inch. Oversize materials should be separated from material to be used for fill and removed from the site. Fill placed within the upper 5 feet of the building pad area and within the upper 2 feet of concrete flatwork should be low expansion (i.e., an Expansion Index of 50 or less) materials.

Utility trench backfill material should not contain rocks or lumps over approximately 3 inches in general. Soils classified as silts or clays should not be used for backfill in the pipe zone. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or disposed of off site.

Imported fill material, if needed for the project, should generally be granular soils with a low expansion potential (i.e., an Expansion Index of 50 or less). Import material should also be non-corrosive in accordance with the Caltrans (2003) corrosion guidelines. Materials for use as fill should be evaluated by Ninyo & Moore's representative prior to filling or importing.

8.4. Compacted Fill

Prior to placement of compacted fill, the contractor should request an evaluation of the exposed ground surface by Ninyo & Moore. Unless otherwise recommended, the exposed ground surface should then be scarified to a depth of approximately 8 inches and watered or dried, as needed, to achieve moisture contents generally above the optimum moisture content. The scarified materials should then be compacted to 90 percent as evaluated by ASTM D 1557. The evaluation of compaction by the Ninyo & Moore should not be considered to preclude any requirements for observation or approval by governing agencies. It is the contractor's responsibility to notify this office and the appropriate governing agency when project areas are ready for observation, and to provide reasonable time for that review.

Fill materials should be moisture conditioned to generally above the laboratory optimum moisture content prior to placement. The optimum moisture content will vary with material type and other factors. Moisture conditioning of fill soils should be generally consistent within the soil mass.

Prior to placement of additional compacted fill material following a delay in the grading operations, the exposed surface of previously compacted fill should be prepared to receive fill. Preparation may include scarification, moisture conditioning, and recompaction.

Compacted fill should be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift should be watered or dried as needed to achieve a moisture content generally above the laboratory optimum, mixed, and then compacted by mechanical methods to 90 percent as evaluated by ASTM D 1557. Successive lifts should be treated in a like manner until the desired finished grades are achieved.

8.5. Temporary Excavations

For temporary excavations, we recommend that the following Occupational Safety and Health Administration (OSHA) soil classifications be used:

<i>Fill</i>	<i>Type C</i>
<i>Mount Soledad Formation</i>	<i>Type B</i>

Upon making the excavations, the soil classifications and excavation performance should be evaluated in the field by the contractor in accordance with the OSHA regulations. Temporary excavations should be constructed in accordance with OSHA recommendations. For trench or other excavations, OSHA requirements regarding personnel safety should be met using appropriate shoring (including trench boxes) or by laying back the slopes to a slope ratio no steeper than 1.5:1 (horizontal to vertical) in fill and 1:1 in formational materials. Temporary excavations that encounter seepage may be shored or stabilized by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis. On-site safety of personnel is the responsibility of the contractor.

8.6. Drainage

Roof, pad, and slope drainage should be directed such that runoff water is diverted away from slopes and structures to suitable discharge areas by nonerodible devices (e.g., gutters, downspouts, concrete swales, etc.). Positive drainage adjacent to structures should be established and maintained. Positive drainage may be accomplished by providing drainage away from the foundations of the structure at a gradient of 2 percent or steeper for a distance of 5 feet or more outside the building perimeter, and further maintained by a graded swale leading to an appropriate outlet, in accordance with the recommendations of the project civil engineer and/or landscape architect.

Surface drainage on the site should be provided so that water is not permitted to pond. A gradient of 2 percent or steeper should be maintained over the pad area and drainage patterns should be established to divert and remove water from the site to appropriate outlets.

Care should be taken by the contractor during final grading to preserve any berms, drainage terraces, interceptor swales or other drainage devices of a permanent nature on or adjacent to the property. Drainage patterns established at the time of final grading should be maintained for the life of the project. The property owner and the maintenance personnel should be made aware that altering drainage patterns might be detrimental to slope stability and foundation performance.

8.7. Seismic Design Parameters

The proposed improvements should be designed in accordance with the requirements of governing jurisdictions and applicable building codes. Table 1 presents the seismic design parameters for the site, according to the 2007 CBC and mapped spectral acceleration parameters (USGS, 2009).

Table 1 – Seismic Design Parameters

Factors	Values
Site Class	C
Site Coefficient, F_a	1.000
Site Coefficient, F_v	1.300
Mapped Short Period Spectral Acceleration, S_S	1.556g
Mapped One-Second Period Spectral Acceleration, S_1	0.604g
Short Period Spectral Acceleration Adjusted For Site Class, S_{MS}	1.556g
One-Second Period Spectral Acceleration Adjusted For Site Class, S_{M1}	0.785g
Design Short Period Spectral Acceleration, S_{DS}	1.037g
Design One-Second Period Spectral Acceleration, S_{D1}	0.523g

8.8. Foundations

Proposed lightly loaded structures may be supported on shallow, spread footings bearing on compacted fill or in competent formational materials in accordance with the recommendations presented in this report. Foundations should be designed in accordance with structural considerations and the following recommendations. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

8.8.1. Shallow Footings

For anticipated structures, conventional spread footings should be 18 inches or more deep and bear on either compacted fill or competent formational materials, not a combination of the two. Continuous and isolated pad footings should be 12 inches or more wide, as detailed by the project structural engineer. Continuous footings should be reinforced with four No. 4 steel reinforcing bars, two placed near the top and two placed near the bottom of the footings, and further detailed in accordance with the recommendations of the structural engineer.

Shallow, spread or continuous footings as described above, may be designed using a net allowable bearing capacity of 2,500 pounds per square foot (psf). The allowable bearing capacities may be increased by one-third when considering loads of short duration such as wind or seismic forces.

8.8.2. Lateral Resistance

For resistance of footings to lateral loads, we recommend an allowable passive pressure of 300 psf of depth be used up to a value of 3,000 psf. These values assume that the ground is horizontal for a distance of 10 feet, or three times the height generating the passive pressure, whichever is greater. We recommend that the upper 1 foot of soil not protected by pavement or a concrete slab be neglected when calculating passive resistance.

For frictional resistance to lateral loads, we recommend a coefficient of friction of 0.40 be used between soil and concrete. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed one-half of the total allowable resistance. The passive resistance values may be increased by one-third when considering loads of short duration such as wind or seismic forces.

8.8.3. Static Settlement

We estimate that the anticipated structures, designed and constructed as recommended herein, will undergo total settlement on the order of 1 inch. Differential settlement on the order of ½ inch over a horizontal span of 40 feet should be expected.

8.9. Slabs-on-Grade

We recommend that conventional, slab-on-grade floors, underlain by compacted fill materials of generally low expansion potential, be 5 inches in thickness and be reinforced with No. 3 reinforcing bars spaced 18 inches on center each way. The reinforcing bars should be placed near the middle of the slab. As a means to help reduce shrinkage cracks, we recommend that the slabs be provided with expansion joints. The slab reinforcement and expansion joint spacing should be designed by the project structural engineer.

If moisture sensitive floor coverings are to be used, we recommend that slabs be underlain by a vapor retarder and capillary break system consisting of a 10-mil polyethylene (or equivalent) membrane placed over 4 inches of medium to coarse, clean sand or pea gravel and overlain by an additional 2 inches of sand to help protect the membrane from puncture during placement and to aid in concrete curing. The exposed subgrade should be moistened just prior to the placement of concrete.

8.10. Retaining Walls

Retaining walls are anticipated at the subject site in the construction of the comfort station, and in the construction of the ADA ramps. Recommendations for lateral earth pressures to be used in the design of yielding retaining walls are provided on Figure 4. Restrained walls (non-yielding) may be designed for at-rest earth pressures represented by an equivalent fluid weight. These pressures are presented on Figure 5. These pressures assume low-expansive, granular backfill with free-draining conditions. A drain should be provided behind the wall as shown on Figure 6. The drain should be connected to an appropriate outlet.

Retaining walls may be supported on a continuous footing founded in compacted fill or competent formational materials. Recommendations regarding bearing capacity and lateral resistance in the Foundations section also apply to retaining walls.

8.11. Concrete Flatwork

Exterior concrete flatwork should be 4 inches in thickness and should be reinforced with No. 3 reinforcing bars placed at 24 inches on-center both ways. No vapor retarder is needed for exterior flatwork. To reduce the potential manifestation of distress to exterior concrete flatwork due to movement of the underlying soil, we recommend that such flatwork be installed with crack-control joints at appropriate spacing as designed by the structural engineer. Exterior slabs should be underlain by 4 inches of clean sand. The subgrade soils should be scarified to a depth of 12 inches, moisture conditioned to generally above the laboratory optimum moisture content, and compacted to a relative compaction of 90 percent as evaluated by ASTM D 1557. Positive drainage should be established and maintained adjacent to flatwork.

8.12. Corrosion

Laboratory testing was performed on a representative sample of the on-site earth materials to evaluate pH and electrical resistivity, as well as chloride and sulfate contents. The pH and electrical resistivity tests were performed in accordance with the California Test (CT) 643 and the sulfate and chloride content tests were performed in accordance with CT 417 and CT 422, respectively. These laboratory test results are presented in Appendix B.

The results of the corrosivity testing indicated an electrical resistivity of 370 ohm-cm, a soil pH of 6.7, a chloride content of 840 parts per million (ppm) and a sulfate content of 0.150 percent (i.e., 1,500 ppm). Based on the Caltrans corrosion (2003) criteria, the on-site soils would be classified as corrosive, which is defined as soils with more than 500 ppm chlorides, more than 0.2 percent sulfates, a pH less than 5.5, or an electrical resistivity of 1,000 ohm-cm or less. If corrosion susceptible improvements are planned on site, we recommend that a corrosion engineer be consulted for further evaluation and recommendations.

8.13. Concrete

Concrete in contact with soil or water that contains high concentrations of water-soluble sulfates can be subject to premature chemical and/or physical deterioration. As stated above, the soil samples tested in this evaluation indicated a water-soluble sulfate content of 0.150 percent by weight (i.e., about 1,500 ppm). According to the American Concrete Institute (ACI) 318-05 building code, the potential for sulfate attack is moderate for water-soluble sulfate contents ranging between 0.10 and 0.20 percent by weight in soils. We recommend that type V cement be used for concrete construction.

8.14. Pre-Construction Conference

We recommend that a pre-construction meeting be held prior to commencement of grading. The owner or his representative, the agency representatives, the architect, the civil engineer, Ninyo & Moore, and the contractor should attend to discuss the plans, the project, and the proposed construction schedule.

8.15. Plan Review and Construction Observation

The conclusions and recommendations presented in this report are based on analysis of observed conditions in widely spaced exploratory excavations. If conditions are found to vary from those described in this report, Ninyo & Moore should be notified, and additional recommendations will be provided upon request. Ninyo & Moore should review the final project drawings and specifications prior to the commencement of construction. Ninyo & Moore should perform the needed observation and testing services during construction operations.

The recommendations provided in this report are based on the assumption that Ninyo & Moore will provide geotechnical observation and testing services during construction. In the event that it is decided not to utilize the services of Ninyo & Moore during construction, we request that the selected consultant provide the client with a letter (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's recommendations, and that they are in full agreement with the design parameters and recommendations contained in this

report. Construction of proposed improvements should be performed by qualified subcontractors utilizing appropriate techniques and construction materials.

9. LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon

request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

10. REFERENCES

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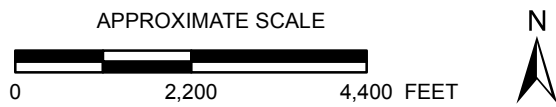
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AERIAL PHOTOGRAPHS				
Source	Date	Flight	Numbers	Scale
USDA	April 11, 1953	AXN-8M	92 and 93	1:24,000



SOURCE: 2008 Thomas Guide for San Diego County, Street Guide and Directory; Map © Rand McNally, R.L.07-S-129



NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

		SITE LOCATION PALISADES PARK COMFORT STATION REPLACEMENT SAN DIEGO, CALIFORNIA	FIGURE 1

fig_1_106886001_sl.mxd



LEGEND	
	B-2 BORING TD=5.5' TD=TOTAL DEPTH IN FEET

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

SOURCE: GOOGLE EARTH, 2010.

		BORING LOCATIONS	FIGURE 2
PROJECT NO.	DATE		
106886001	9/10		

fig2 106886001 sl.cdr

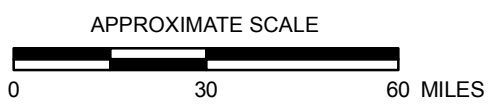


LEGEND

CALIFORNIA FAULT ACTIVITY

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY (POTENTIALLY ACTIVE)
- QUATERNARY (POTENTIALLY ACTIVE)
- - - STATE/COUNTY BOUNDARY

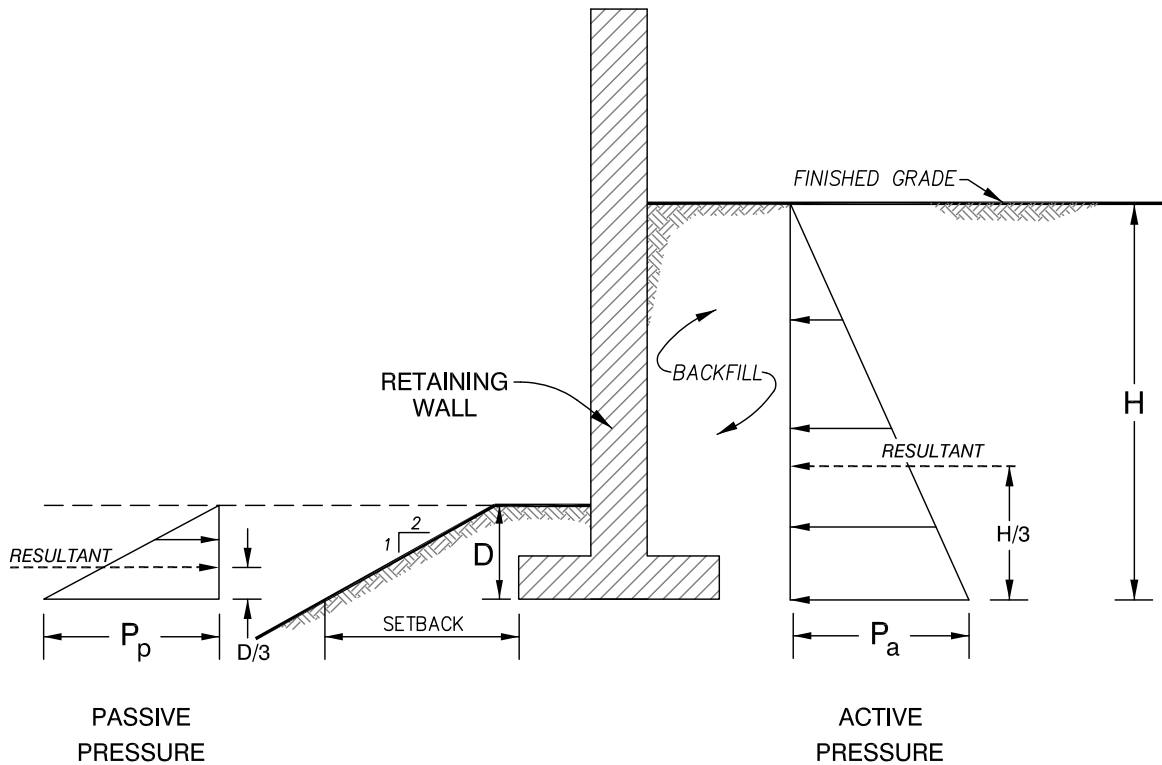
SOURCE: Fault Activity Map of California, 2010, Jennings, C.W., and Bryant, W.A., California Geological Survey.



NOTES: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		FAULT LOCATIONS	FIGURE
PROJECT NO.	DATE	PALISADES PARK COMFORT STATION REPLACEMENT SAN DIEGO, CALIFORNIA	3
106886001	9/10		

fig3_106886001_fault



NOTES:

1. ASSUMES NO HYDROSTATIC PRESSURE BUILD-UP BEHIND THE RETAINING WALL
2. GRANULAR BACKFILL MATERIALS SHOULD BE USED FOR RETAINING WALL BACKFILL
3. DRAINS AS RECOMMENDED IN THE RETAINING WALL DRAINAGE DETAIL SHOULD BE INSTALLED BEHIND THE RETAINING WALL
4. SURCHARGE PRESSURES CAUSED BY VEHICLES OR NEARBY STRUCTURES ARE NOT INCLUDED
5. H AND D ARE IN FEET (H IS LESS THAN 12 FEET)
6. SETBACK SHOULD BE IN ACCORDANCE WITH FIGURE 18-I-1 OF THE CBC (2007)

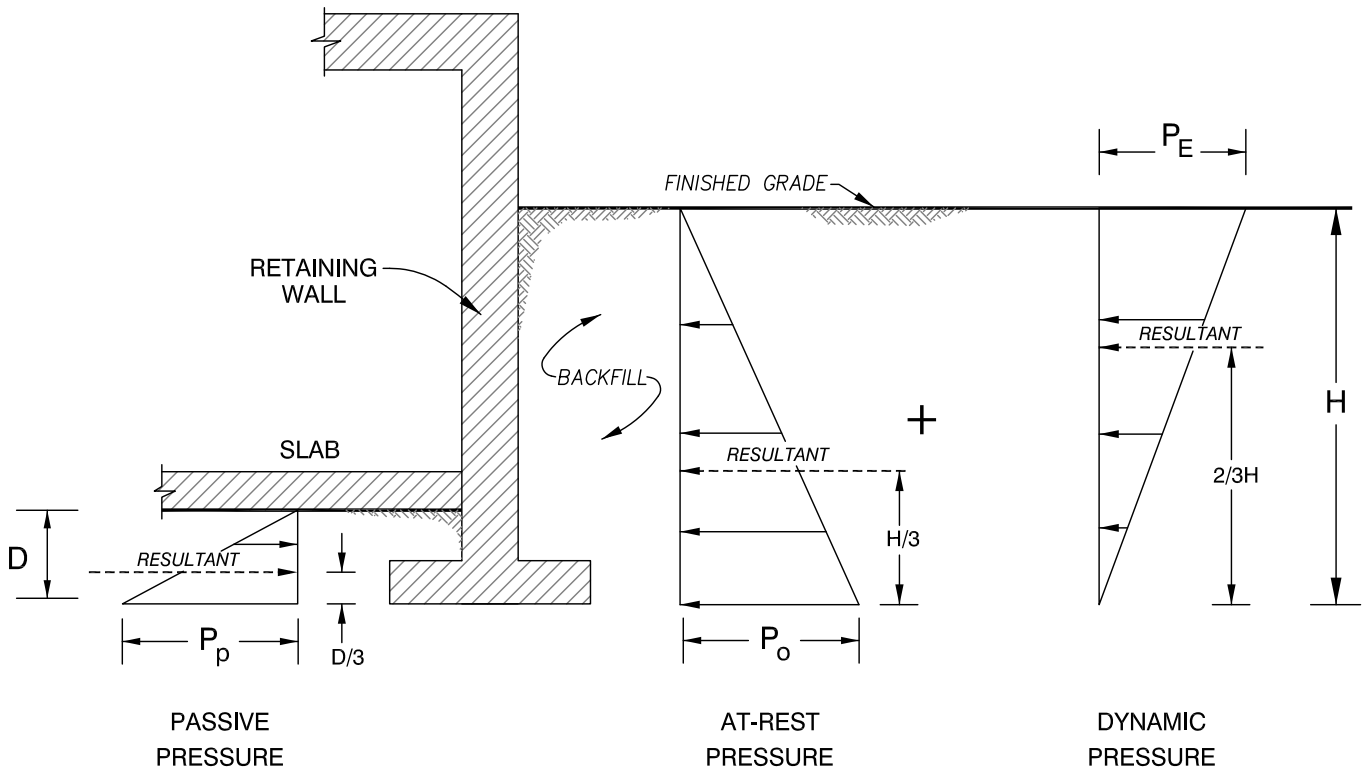
RECOMMENDED GEOTECHNICAL DESIGN PARAMETERS

Lateral Earth Pressure	Equivalent Fluid Pressure (lb/ft ² /ft) ⁽¹⁾	
	Level Backfill with Granular Soils ⁽²⁾	2H:1V Sloping Backfill with Granular Soils ⁽²⁾
P_a	50 H	95 H
P_p	Level Ground	2H:1V Descending Ground
	300 D	105 D

NOT TO SCALE

fig4 106886001 yield.dwg

		<p>LATERAL EARTH PRESSURES FOR YIELDING RETAINING WALLS</p> <p>PALISADES PARK COMFORT STATION REPLACEMENT SAN DIEGO, CALIFORNIA</p>	FIGURE
			4
PROJECT NO.	DATE		
106886001	9/10		



NOTES:

1. ASSUMES NO HYDROSTATIC PRESSURE BUILD-UP BEHIND THE RETAINING WALL
2. GRANULAR BACKFILL MATERIALS SHOULD BE USED FOR RETAINING WALL BACKFILL
3. DRAINS AS RECOMMENDED IN THE RETAINING WALL DRAINAGE DETAIL SHOULD BE INSTALLED BEHIND THE RETAINING WALL
4. DYNAMIC LATERAL EARTH PRESSURE IS BASED ON A PEAK GROUND ACCELERATION OF 0.42g
5. SURCHARGE PRESSURES CAUSED BY VEHICLES OR NEARBY STRUCTURES ARE NOT INCLUDED
6. H AND D ARE IN FEET

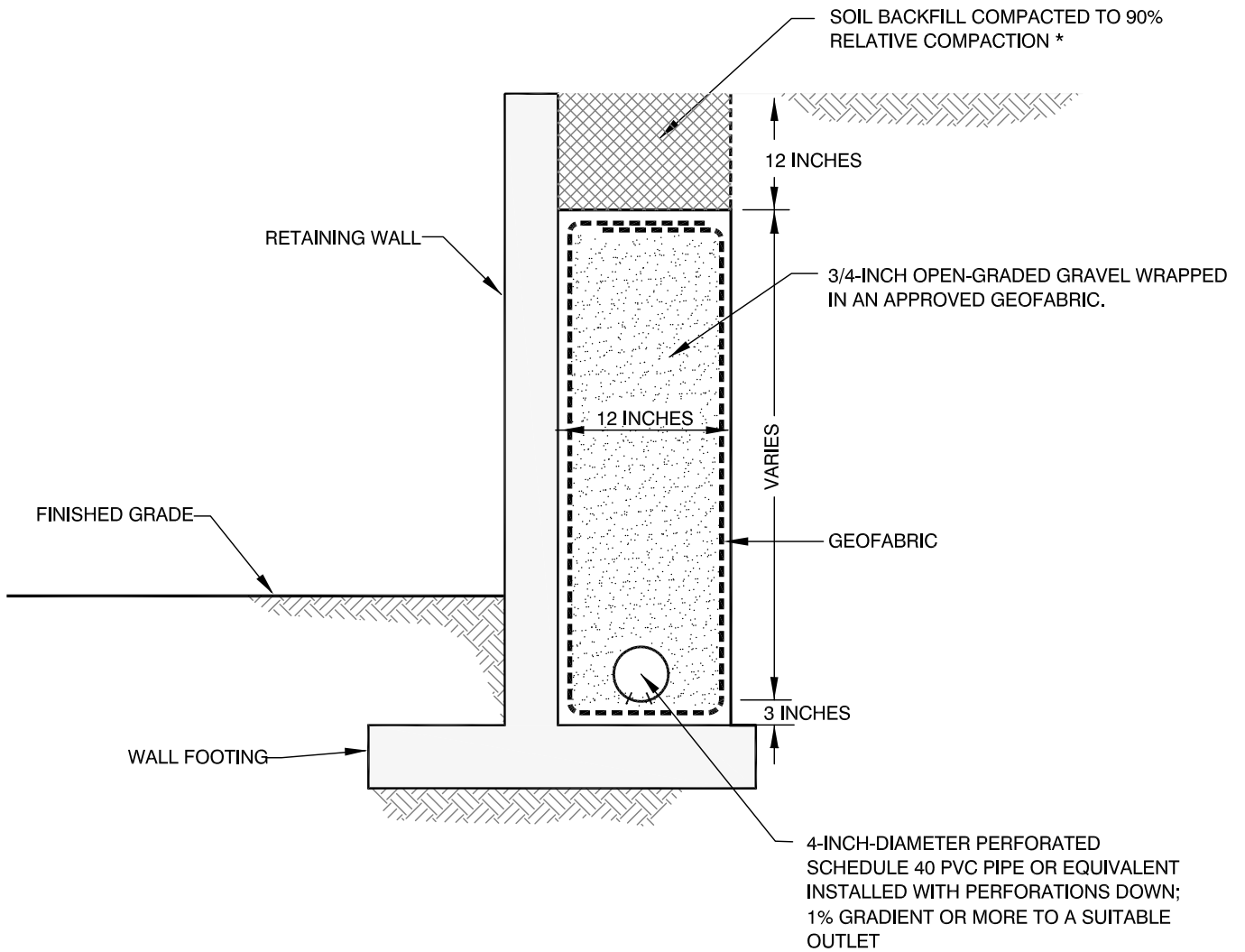
RECOMMENDED GEOTECHNICAL DESIGN PARAMETERS

Lateral Earth Pressure	Equivalent Fluid Pressure (lb/ft ² /ft) ⁽¹⁾	
P _O	Level Backfill with Granular Soils ⁽²⁾	
	70 H	
P _E	20 H	
P _P	Level Ground	2H:1V Descending Ground
	300 D	105 D

NOT TO SCALE

fig5_106886001_restrained.dwg

Ninyo & Moore		LATERAL EARTH PRESSURES FOR RESTRAINED RETAINING WALLS	FIGURE
PROJECT NO.	DATE	PALISADES PARK COMFORT STATION REPLACEMENT SAN DIEGO, CALIFORNIA	5
106886001	9/10		



*BASED ON ASTM D1557

NOT TO SCALE

NOTE: AS AN ALTERNATIVE, AN APPROVED GEOCOMPOSITE DRAIN SYSTEM MAY BE USED.

fig6 106886001 wall.dwg

Ninyo & Moore		RETAINING WALL DRAINAGE DETAIL	FIGURE
PROJECT NO.	DATE	PALISADES PARK COMFORT STATION REPLACEMENT SAN DIEGO, CALIFORNIA	6
106886001	9/10		

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following methods.

Bulk Samples

Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.




Field Procedure for the Collection of Relatively Undisturbed Samples

Relatively undisturbed soil samples were obtained in the field using the following methods.

The Split-Barrel Knocker Bar Sampler

The sampler, with an external diameter of 3.0 inches, was lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sampler was manually driven into the ground with a hammer weighing approximately 35 pounds. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

BORING LOG EXPLANATION SHEET

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	
	Bulk	Driven						
0	■							Bulk sample. Modified split-barrel drive sampler. No recovery with modified split-barrel drive sampler. Sample retained by others. Standard Penetration Test (SPT). No recovery with a SPT. Shelby tube sample. Distance pushed in inches/length of sample recovered in inches. No recovery with Shelby tube sampler. Continuous Push Sample. Seepage. Groundwater encountered during drilling. Groundwater measured after drilling.
5		XX/XX						
10				 				
15							SM	ALLUVIUM: Solid line denotes unit change. Dashed line denotes material change. Attitudes: Strike/Dip b: Bedding c: Contact j: Joint f: Fracture F: Fault cs: Clay Seam s: Shear bss: Basal Slide Surface sf: Shear Fracture sz: Shear Zone sbs: Sheared Bedding Surface
20								The total depth line is a solid line that is drawn at the bottom of the boring.



BORING LOG















EXPLANATION OF BORING LOG SYMBOLS

PROJECT NO.

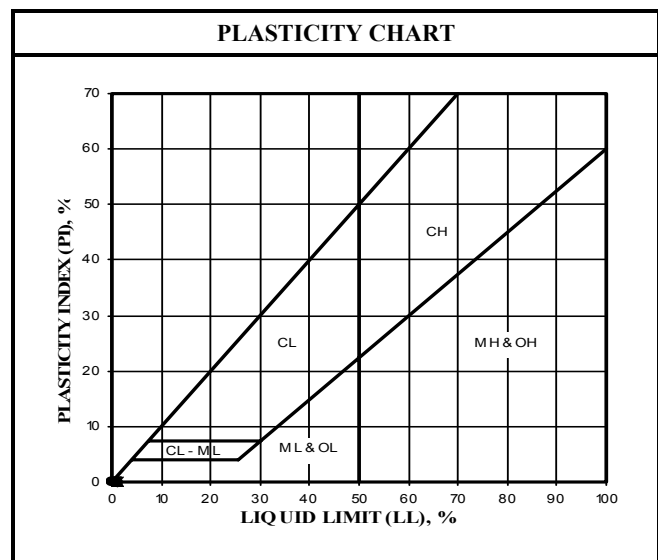
DATE
Rev. 01/03

FIGURE

U.S.C.S. METHOD OF SOIL CLASSIFICATION

MAJOR DIVISIONS	SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (More than 1/2 of soil >No. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > No. 4 sieve size)	 GW Well graded gravels or gravel-sand mixtures, little or no fines
		 GP Poorly graded gravels or gravel-sand mixtures, little or no fines
		 GM Silty gravels, gravel-sand-silt mixtures
		 GC Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction <No. 4 sieve size)	 SW Well graded sands or gravelly sands, little or no fines
		 SP Poorly graded sands or gravelly sands, little or no fines
		 SM Silty sands, sand-silt mixtures
		 SC Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (More than 1/2 of soil <No. 200 sieve size)	SILTS & CLAYS Liquid Limit <50	 ML Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with
		 CL Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean
		 OL Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit >50	 MH Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		 CH Inorganic clays of high plasticity, fat clays
		 OH Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt Peat and other highly organic soils

GRAIN SIZE CHART		
CLASSIFICATION	RANGE OF GRAIN SIZE	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL Coarse Fine	3" to No. 4	76.2 to 4.76
	3" to 3/4"	76.2 to 19.1
	3/4" to No. 4	19.1 to 4.76
SAND Coarse Medium Fine	No. 4 to No. 200	4.76 to 0.075
	No. 4 to No. 10	4.76 to 2.00
	No. 10 to No. 40	2.00 to 0.420
	No. 40 to No. 200	0.420 to 0.075
SILT & CLAY	Below No. 200	Below 0.075



Ninyo & Moore

U.S.C.S. METHOD OF SOIL CLASSIFICATION

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						9/1/10	B-1				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	Manual	1	1		
								DRIVE WEIGHT	N/A	DROP	N/A		
								SAMPLED BY	MJB	LOGGED BY	MJB	REVIEWED BY	RI
								DESCRIPTION/INTERPRETATION					
0							SM	FILL: Medium brown, dry to damp, loose, silty fine SAND; few coarse sand and fine to coarse gravel; scattered cobbles; scattered debris. Medium brown to dark brown, damp to moist, loose, clayey fine SAND.					
						SC							
				14.3	88.3			MOUNT SOLEDAD FORMATION: Olive, moist, weakly cemented, very silty fine-grained SANDSTONE; some iron oxide staining; scattered calcium carbonate nodules; micaceous. Reddish brown; less silt. Yellow brown; trace silt.					
5													
								Total Depth = 5.3 feet. Groundwater not encountered during drilling. Backfilled shortly after drilling on 9/1/10. <u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.					
10													
15													
20													

BORING LOG

PALISADES PARK COMFORT STATION REPLACEMENT
 SAN DIEGO, CALIFORNIA

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.				
	Bulk	Driven						9/1/10	B-2				
								GROUND ELEVATION	SHEET	OF			
								METHOD OF DRILLING	Manual				
								DRIVE WEIGHT	N/A	DROP	N/A		
								SAMPLED BY	MJB	LOGGED BY	MJB	REVIEWED BY	RI
								DESCRIPTION/INTERPRETATION					
0				13.4	105.3		SC	FILL: Very dark brown, moist, loose, clayey fine SAND; scattered fine to coarse gravel; micaceous.					
							SM	Medium brown, moist, loose, silty fine SAND; few clay. Small fragments of red brick or old clay pipe.					
5								Moist to wet. Small fragment of red brick or old clay pipe.					
								Total Depth = 5.5 feet. Groundwater not encountered during drilling. Backfilled shortly after drilling on 9/1/10.					
								<u>Note:</u> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.					
10													
15													
20													



Appendix 1 – Addendum to Geotechnical Design Services

BORING LOG

PALISADES PARK COMFORT STATION REPLACEMENT
SAN DIEGO, CALIFORNIA

PROJECT NO.
106886001

DATE
9/10

484 | Page
FIGURE
A-2

APPENDIX B

LABORATORY TESTING

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-Place Moisture and Density Tests

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the exploratory borings in Appendix A.

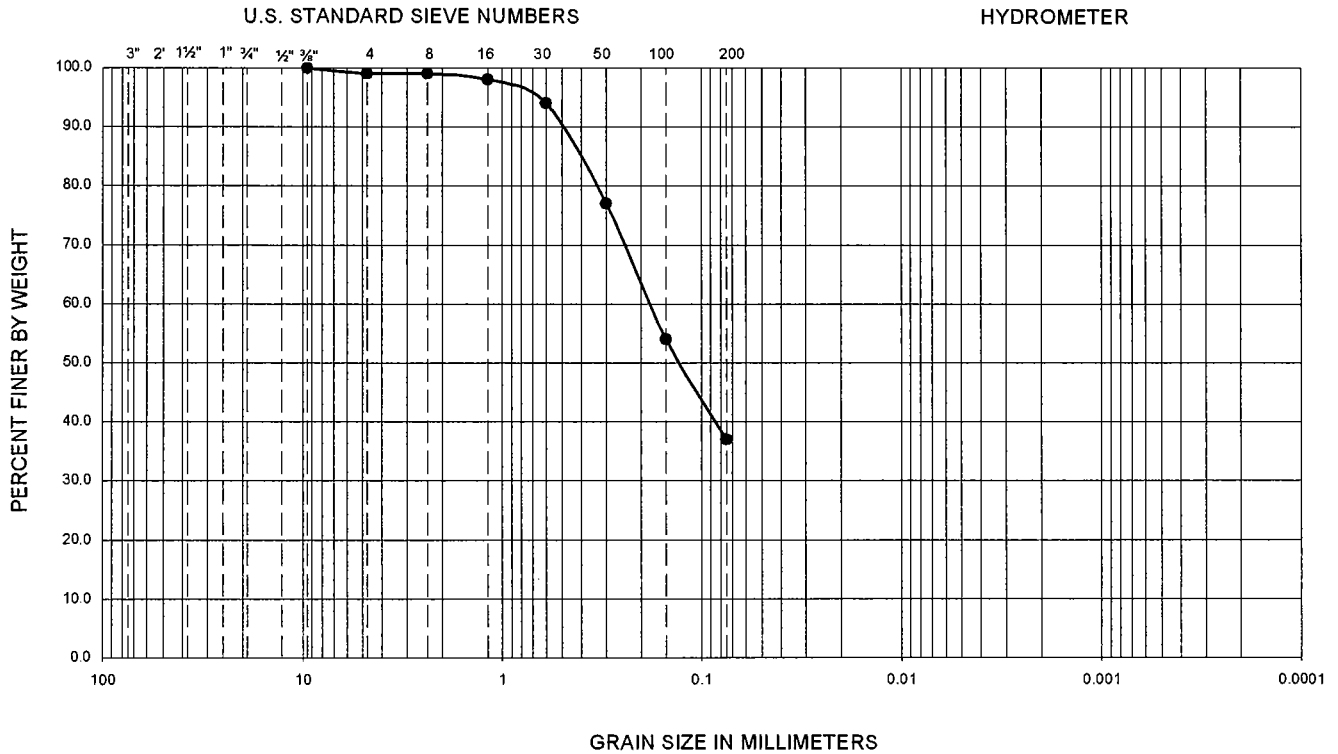
Direct Shear Test

A direct shear test was performed on a relatively undisturbed sample in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected material. The sample was inundated during shearing to represent adverse field conditions. The results are shown on Figure B-2.

Soil Corrosivity Tests

Soil pH, and minimum resistivity tests were performed on a representative sample in general accordance with California Test (CT) 643. The sulfate and chloride content of the selected sample were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure B-3.

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY

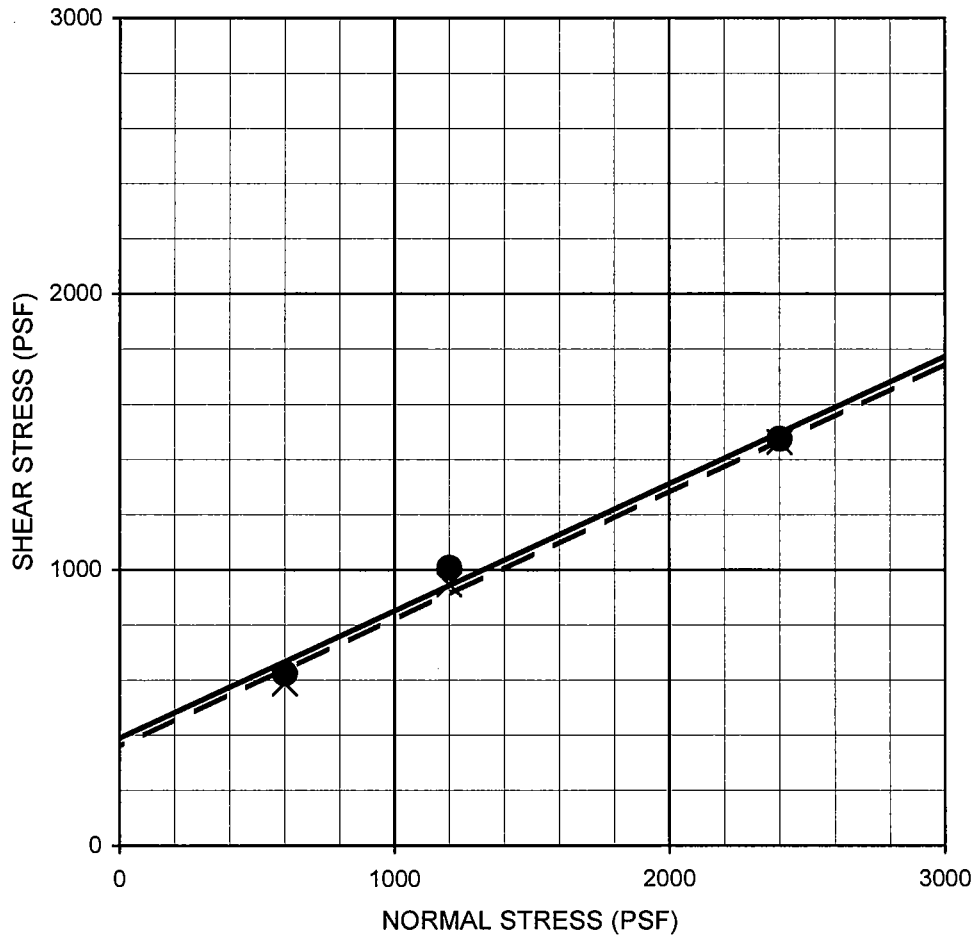


Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D ₁₀	D ₃₀	D ₆₀	C _u	C _c	Passing No. 200 (%)	USCS
●	B-2	3.5-5.5	--	--	--	--	--	--	--	--	37	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore		GRADATION TEST RESULTS		FIGURE B-1
PROJECT NO.	DATE	PALISADES PARK COMFORT STATION REPLACEMENT		
106886001	9/10	SAN DIEGO, CALIFORNIA		

106886001 SIEVE B-2 @ 3.5-5.5.xls



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Silty SAND	—●—	B-2	2.5-3.5	Peak	390	25	SM
Silty SAND	- - X - -	B-2	2.5-3.5	Ultimate	360	25	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE B-2
PROJECT NO. 106886001	DATE 9/10		

SAMPLE LOCATION	SAMPLE DEPTH (FT)	pH ¹	RESISTIVITY ¹ (Ohm-cm)	SULFATE CONTENT ²		CHLORIDE CONTENT ³ (ppm)
				(ppm)	(%)	
B-1	0.5-1.5	6.7	370	1500	0.150	840

¹ PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

² PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

³ PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

<i>Ninyo & Moore</i>		CORROSIVITY TEST RESULTS	FIGURE
PROJECT NO.	DATE		
106886001	9/10	PALISADES PARK COMFORT STATION REPLACEMENT SAN DIEGO, CALIFORNIA	B-3

City of San Diego

CONTRACTOR'S NAME: Atlas Development
ADDRESS: 991C Lomas Santa Fe Dr # 115 Solana Beach 92075
TELEPHONE NO.: 619-200-0902 FAX NO.: 858-350-9337
CITY CONTACT: ELEIDA FELIX-YACKEL - Contract Specialist, Email: efelixyackel@sandiego.gov
Ph No. (619) 533-3449 - Fax No. (619) 533-3633
J DIAB / NB / LS

CONTRACT DOCUMENTS

FOR

PALISADES PARK COMFORT STATION

VOLUME 2 OF 2

BID NO.:	<u>L-14-5562-DBB-2</u>
SAP NO. (WBS/IO/CC):	<u>S-10026</u>
CLIENT DEPARTMENT:	<u>2113</u>
COUNCIL DISTRICT:	<u>2</u>
PROJECT TYPE:	<u>GF</u>

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- COMPETITION RESTRICTED TO: **SLBE-ELBE FIRMS ONLY.**
- PREVAILING WAGE RATES APPLY: STATE FEDERAL

THIS BIDDING DOCUMENT TO BE SUBMITTED IN ITS ENTIRETY
REFER TO VOLUME 1 COVER PAGE FOR TIME, DATE, AND LOCATION



TABLE OF CONTENTS

Volume 2 - Bidding Documents

The following forms must be completed in their entirety and submitted with the Bid. Failure to include any of the forms may cause the Bid to be deemed non-responsive.

<u>DESCRIPTION</u>	<u>PAGE NUMBER</u>
Bid/Proposal	3
Bid Bond.....	7
Non-Collusion Affidavit to be executed by Bidder and Submitted with Bid under 23 USC 112 and PCC 7106	8
Contractors Certification of Pending Actions	9
Equal Benefits Ordinance Certification of Compliance	10
Proposal (Bid).....	11
Form AA35 List of Subcontractors	14
Form AA40 Named Equipment/Material Supplier List	15

BIDDING DOCUMENTS

PROPOSAL

Bidder's General Information

To the City of San Diego:

Pursuant to "Notice Inviting Bids", 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 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.

The undersigned bidder(s) further warrants that bidder(s) has thoroughly examined and understands the entire Contract Documents (plans and specifications) and the Bidding Documents therefore, and that by submitting said Bidding Documents as its bid proposal, bidder(s) acknowledges and is bound by the entire Contract Documents, including any addenda issued thereto, as such Contract Documents incorporated by reference in the Bidding 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. _____

IF A PARTNERSHIP, SIGN HERE:

- (1) Name under which business is conducted _____

BIDDING DOCUMENTS

(2) Name of each member of partnership, indicate character of each partner, general or special (limited):

(3) Signature (Note: Signature must be made by a general partner)

Full Name and Character of partner

(4) Place of Business (Street & Number) _____

(5) City and State _____ Zip Code _____

(6) Telephone No. _____ Facsimile No. _____

IF A CORPORATION, SIGN HERE:

(1) Name under which business is conducted Atlas Development

(2) Signature, with official title of officer authorized to sign for the corporation:

M. Atefi
(Signature)

Mark Atefi
(Printed Name)

President
(Title of Officer)

(Impress Corporate Seal Here)

(3) Incorporated under the laws of the State of California

(4) Place of Business (Street & Number) 9910 Lomas Santa Fe Dr #115

(5) City and State Solana Beach Zip Code 92075

(6) Telephone No. 619-200-0902 Facsimile No. 858-350-9337

BIDDING DOCUMENTS

THE FOLLOWING SECTIONS MUST BE FILLED IN BY ALL PROPOSERS:

In accordance with the "NOTICE INVITING BIDS", the bidder 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. 858038 EXPIRES 4-30-15

This license classification must also be shown on the front of the bid envelope. Failure to show license classification on the bid envelope may cause return of the bid unopened.

TAX IDENTIFICATION NUMBER (TIN): ██████████

E-Mail Address: mark.atefi@atlas-corp.net

BIDDING DOCUMENTS

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 M. Ahn Title President

SUBSCRIBED AND SWORN TO BEFORE ME, THIS 19th DAY OF October, 2013.

Notary Public in and for the County of San Diego, State of California

[Signature]
(NOTARIAL SEAL)



BIDDING DOCUMENTS

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That Atlas Development Corporation as Principal, and
Great American Insurance Company as Surety, are
held and firmly bound unto The City of San Diego hereinafter called "OWNER," in the sum of **10% OF THE TOTAL BID AMOUNT** for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the bidding schedule(s) of the OWNER's Contract Documents entitled

Bid No. L-14-5562-DBB-2; Palisades Park Comfort Station

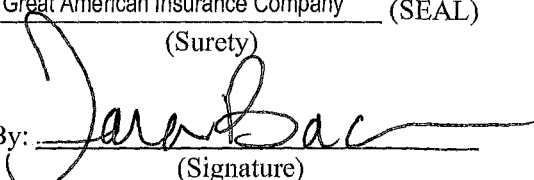
NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Notice Inviting Bids" enters into a written Agreement on the form of agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this 22nd day of October, 2013

Atlas Development Corporation (SEAL)
(Principal)

Great American Insurance Company (SEAL)
(Surety)

By: 
(Signature)

By: 
(Signature)
Tara Bacon, Attorney-in-Fact

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

BIDDING DOCUMENTS

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) ss.

Mark Atefi, being first duly sworn, deposes and says that he or she is President of 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.

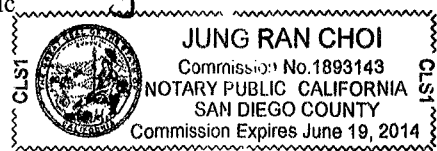
Signed: M Atefi

Title: President

Subscribed and sworn to before me this 19th day of October, 2013

Jung Ran Choi
Notary Public

(SEAL)



BIDDING DOCUMENTS

CONTRACTORS 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

Contractor Name: Atlas Development

Certified By Mark Atefi Title President
Name

M Atefi Date 10-22-13
Signature

USE ADDITIONAL FORMS AS NECESSARY

BIDDING DOCUMENTS

**EQUAL BENEFITS ORDINANCE
CERTIFICATION OF COMPLIANCE**



For additional information, contact:
CITY OF SAN DIEGO
EQUAL BENEFITS PROGRAM
 202 C Street, MS 9A, San Diego, CA 92101
 Phone (619) 533-3948 Fax (619) 533-3220

COMPANY INFORMATION

Company Name: <u>Atlas Development</u>	Contact Name: <u>Mark Atefi</u>
Company Address: <u>991C Lomas Santa Fe Dr #115</u>	Contact Phone: <u>619-200-0902</u>
<u>Solana Beach CA 92075</u>	Contact Email: <u>mark.atefi@atlas-ar.com</u>

CONTRACT INFORMATION

Contract Title: <u>Palisades Park Comfort Station</u>	Start Date:
Contract Number (if no number, state location): <u>L-14-5562-DBB-2</u>	End Date:

SUMMARY OF EQUAL BENEFITS ORDINANCE REQUIREMENTS

The Equal Benefits Ordinance [EBO] requires the City to enter into contracts only with contractors who certify they will provide and maintain equal benefits as defined in SDMC §22.4302 for the duration of the contract. To comply:

- Contractor shall offer equal benefits to employees with spouses and employees with domestic partners.
 - Benefits include health, dental, vision insurance; pension/401(k) plans; bereavement, family, parental leave; discounts, child care; travel/relocation expenses; employee assistance programs; credit union membership; or any other benefit.
 - Any benefit not offer an employee with a spouse, is not required to be offered to an employee with a domestic partner.
- Contractor shall post notice of firm's equal benefits policy in the workplace and notify employees at time of hire and during open enrollment periods.
- Contractor shall allow City access to records, when requested, to confirm compliance with EBO requirements.
- Contractor shall submit *EBO Certification of Compliance*, signed under penalty of perjury, prior to award of contract.

NOTE: This summary is provided for convenience. Full text of the EBO and Rules Implementing the EBO are available at www.sandiego.gov/administration.

CONTRACTOR EQUAL BENEFITS ORDINANCE CERTIFICATION

Please indicate your firm's compliance status with the EBO. The City may request supporting documentation.

- I affirm **compliance** with the EBO because my firm (*contractor must select one reason*):
- Provides equal benefits to spouses and domestic partners.
 - Provides no benefits to spouses or domestic partners.
 - Has no employees.
 - Has collective bargaining agreement(s) in place prior to January 1, 2011, that has not been renewed or expired.
- I request the City's approval to pay affected employees a cash equivalent in lieu of equal benefits and verify my firm made a reasonable effort but is not able to provide equal benefits upon contract award. I agree to notify employees of the availability of a cash equivalent for benefits available to spouses but not domestic partners and to continue to make every reasonable effort to extend all available benefits to domestic partners.

It is unlawful for any contractor to knowingly submit any false information to the City regarding equal benefits or cash equivalent associated with the execution, award, amendment, or administration of any contract. [San Diego Municipal Code §22.4307(a)]

Under penalty of perjury under laws of the State of California, I certify the above information is true and correct. I further certify that my firm understands the requirements of the Equal Benefits Ordinance and will provide and maintain equal benefits for the duration of the contract or pay a cash equivalent if authorized by the City.

<u>Mark Atefi / Pres.</u>	<u>M Atefi</u>	
Name/Title of Signatory	Signature	Date

FOR OFFICIAL CITY USE ONLY

Receipt Date:	EBO Analyst:	<input type="checkbox"/> Approved	<input type="checkbox"/> Not Approved – Reason:
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(Rev 02/15/2011)

BIDDING DOCUMENTS

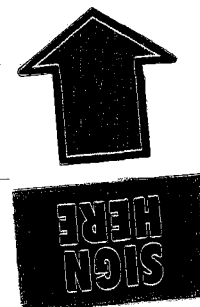
PROPOSAL (BID)

The Bidder agrees to the construction of **PALISADES PARK COMFORT STATION** for the City of San Diego, in accordance with these contract documents for the prices listed below. The Bidder guarantees the Contract Price for a period of 120 days (90 days for Contracts valued at \$500,000 or less) from the date of Bid opening to Award of the Contract. The duration of the Contract Price guarantee shall be extended by the number of days required for the City to obtain all items necessary to fulfill all conditions precedent e.g., bond and insurance.

Item	Quantity	Unit	Payment Reference	NAICS	Description	Unit Price	Extension
BASE BID							
1	1	LS	2-4.1	524126	Bonds (Payment and Performance)	 	\$ 5,000.00
2	1	AL	7-5.3	236220	Building and Demolition Permits-Type I Allowance	 	\$6,000.00
3	1	LS	9-3.1	236220	Construction of Palisades Park Comfort Station Building	 	\$ 359,500.00
4	1	AL	9-3.5	236220	Field Orders - Type II Allowance	 	\$23,500.00
5	1	LS	701-13.9.5	541330	Water Pollution Control Program Development	 	\$ 600.00
6	1	LS	701-13.9.5	237990	Water Pollution Control Program Implementation	 	\$ 600.00
7	1	LS	7-10.2.6	237310	Traffic Control	 	\$ 1,000.00
8	1	LS	2-9.2	561730	Survey Services	 	\$ 1,000.00
ESTIMATED TOTAL BASE BID							\$ 397,200.00

TOTAL BID PRICE FOR BID (Items 1 through 8, inclusive) amount written in words:

three hundred ninety seven thousand two hundred dollars



BIDDING DOCUMENTS

LIST OF SUBCONTRACTORS

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 Bidder 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 Contractor's total Bid. The Bidder shall also list below the portion of the work which will be done 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 shall 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 2-3 Subcontracts, 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 that Bidders 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	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB	WHERE CERTIFIED	CHECK IF JOINT VENTURE PARTNERSHIP
Name: <u>Stumbough & Associates Inc</u> Address: <u>2920 Kenamar Dr # 212</u> City: <u>San Diego</u> State: <u>CA</u> Zip: <u>92121</u> Phone: <u>858-444-1683</u>	Subcontractor	toilet accessories	\$ 3,264.00			
Name: <u>LBA Larry Ballard & Associates</u> Address: <u>1532 Roble Grande Lane</u> City: <u>Alpino</u> State: <u>CA</u> Zip: <u>91901</u> Phone: <u>619-464-3510</u>	Subcontractor	Signage	\$ 1,196.00			
Name: <u>GPS Plumbing</u> Address: <u>PO Box 1431</u> City: <u>Spring Valley</u> State: <u>CA</u> Zip: <u>91979</u> Phone: <u>619-312-0585</u>	Subcontractor	Plumbing	\$ 48,000.00			

① As appropriate, Bidder 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, Bidder 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 Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

BIDDING DOCUMENTS

LIST OF SUBCONTRACTORS

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 Bidder 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 Contractor's total Bid. The Bidder shall also list below the portion of the work which will be done 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 shall 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 2-3 Subcontracts, 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 that Bidders 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	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB	WHERE CERTIFIED	CHECK IF JOINT VENTURE PARTNERSHIP
Name: <u>Perry Electric</u> Address: <u>P.O. Box 71030</u> City: <u>San Jose</u> State: <u>CA</u> Zip: <u>92075</u> Phone: <u>619-449-0045</u>	Subcontractor	Electric	\$20,858.00			
Name: <u>Universal Precast Concrete Inc.</u> Address: <u>P.O. Box 641296</u> City: <u>San Jose</u> State: <u>CA</u> Zip: <u>95164</u> Phone: <u>408-799-8888</u>	Subcontractor	Pre Cast roof	\$21,897.00			
Name: <u>Accurate Door Solution Inc.</u> Address: <u>17861 Georgetown Lane</u> City: <u>Huntington</u> State: <u>CA</u> Zip: <u>92647</u> Phone: <u>714-842-0299</u>	Subcontractor	Door	\$15,000.00			

① As appropriate, Bidder 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, Bidder 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 Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

BIDDING DOCUMENTS

NAMED EQUIPMENT/MATERIAL SUPPLIER LIST

The Bidder seeking the recognition of equipment, materials, or supplies obtained from Suppliers towards achieving any mandatory, voluntary, or both subcontracting participation percentages shall list the Supplier(s) on the Named Equipment/Material Supplier List. The Named Equipment/Material Supplier List, at a minimum, shall have the name, locations (City) and the **DOLLAR VALUE** of the Suppliers. The Bidder will be credited up to 60% of the amount to be paid to the Suppliers for such materials and supplies unless vendor manufactures or substantially alters materials and supplies in which case 100% will be credited. The Bidder is to indicate (Yes/No) whether listed firm is a supplier or manufacturer. In calculating the subcontractor participation percentages, vendors/suppliers will receive 60% credit of the listed **DOLLAR VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed dollar value for purposes of calculating the Subcontractor Participation Percentage, Suppliers will receive 60% credit of the listed **DOLLAR VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed **DOLLAR VALUE** for purposes of calculating the subcontractor participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF VENDOR/SUPPLIER	MATERIALS OR SUPPLIES	DOLLAR VALUE OF MATERIAL OR SUPPLIES	SUPPLIER (Yes/No)	MANUFACTURER (Yes/No)	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB	WHERE CERTIFIED
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____						
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____						
Name: _____ Address: _____ City: _____ State: _____ Zip: _____ Phone: _____						

① As appropriate, Bidder shall identify Vendor/Supplier 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, Bidder shall indicate if Vendor/Supplier 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 Bidder will not receive any subcontracting participation percentages if the Bidder fails to submit the required proof of certification.

BIDDING DOCUMENTS

The Bid shall contain an acknowledgment of receipt of all addenda, the numbers of which shall be filled in on this Bid form. List the Addenda received and being acknowledged:

If an addendum or addenda has been issued by the City and not noted as being received by the Bidder, the Bid shall be rejected as being **non-responsive**.

The names of all persons interested in the foregoing proposal as principals are as follows:

Mark Atefi
Zohreh Sadatrafiei

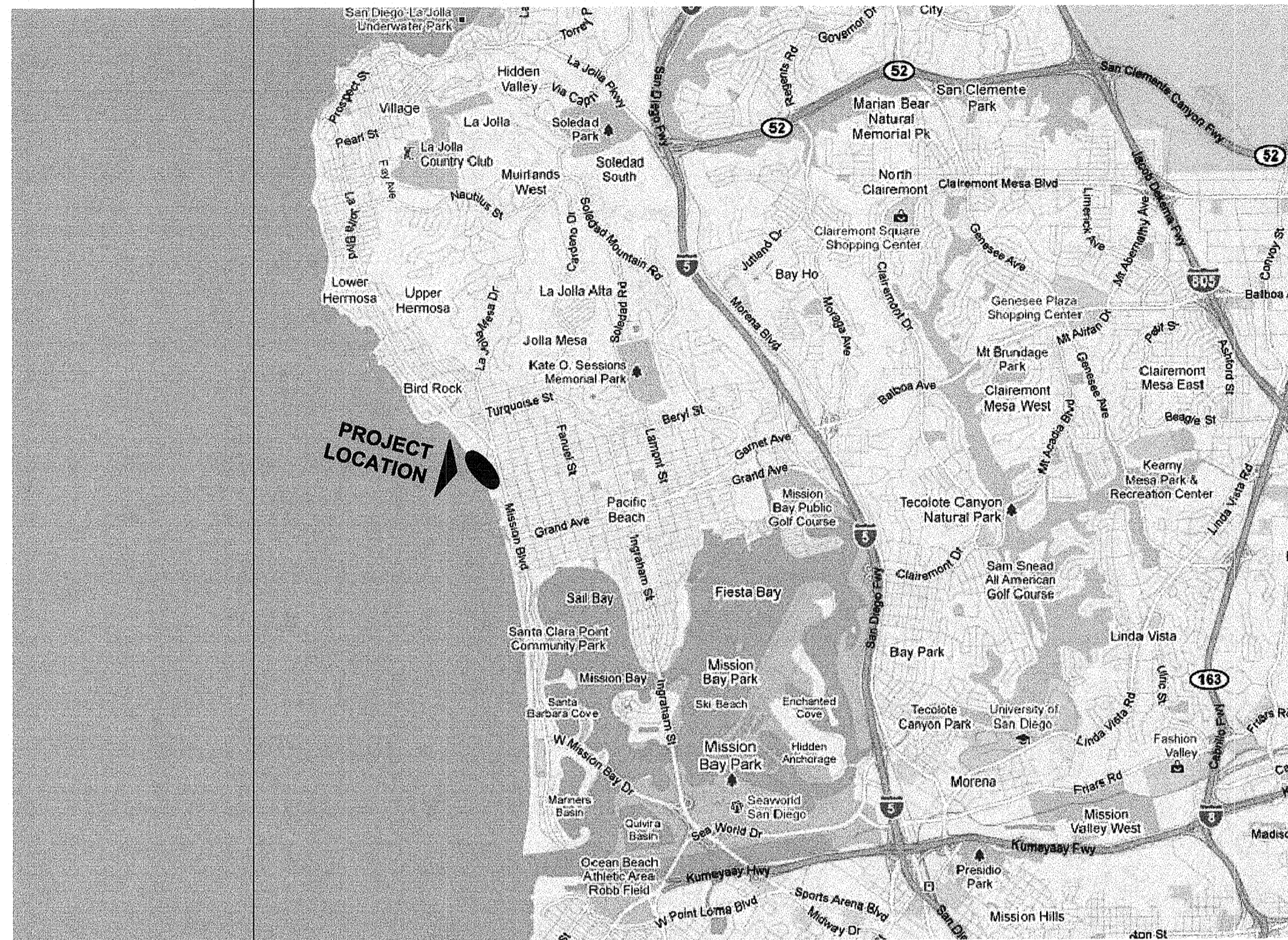
IMPORTANT NOTICE: If Bidder or other interested person is a corporation, state secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Bidder or other interested person is an individual, state first and last names in full.

Bidder: Mark Atefi
Title: President
Business Address: 991C Lomas Santa Fe Dr #115 Solana Beach CA 92075
Place of Business: Solana Beach
Place of Residence: San Diego
Signature: M Atefi

BIDDING DOCUMENTS

NOTES:

- A. The City shall determine the low Bid based on the Base Bid alone.
- B. Prices and notations shall be in ink or typewritten. All corrections (which have been initiated by the Bidder using erasures, strike out, line out, or "white-out") shall be typed or written in with ink adjacent thereto, and shall be initialed in ink by the person signing the bid proposal.
- C. Failure to initial all corrections made in the bidding documents shall cause the Bid to be rejected as **non-responsive** and ineligible for further consideration.
- D. Blank spaces must be filled in, using figures. Bidder's failure to submit a price for any Bid item that requires the Bidder to submit a price shall render the Bid **non-responsive** and shall be cause for its rejection.
- E. Unit prices shall be entered for all unit price items. Unit prices shall not exceed two (2) decimal places. If the Unit prices entered exceed two (2) decimal places, the City will only use the first two digits after the decimal points without rounding up or down.
- F. All extensions of the unit prices bid will be subject to verification by the City. In the case of inconsistency or conflict between the product of the Quantity x Unit Price and the Extension, the product shall govern.
- G. In the case of inconsistency or conflict, between the sums of the Extensions with the estimated total Bid, the sum of the Extensions shall govern.
- H. Bids shall not contain any recapitulation of the Work. Conditional Bids will be rejected as being **non-responsive**. Alternative proposals will not be considered unless called for.

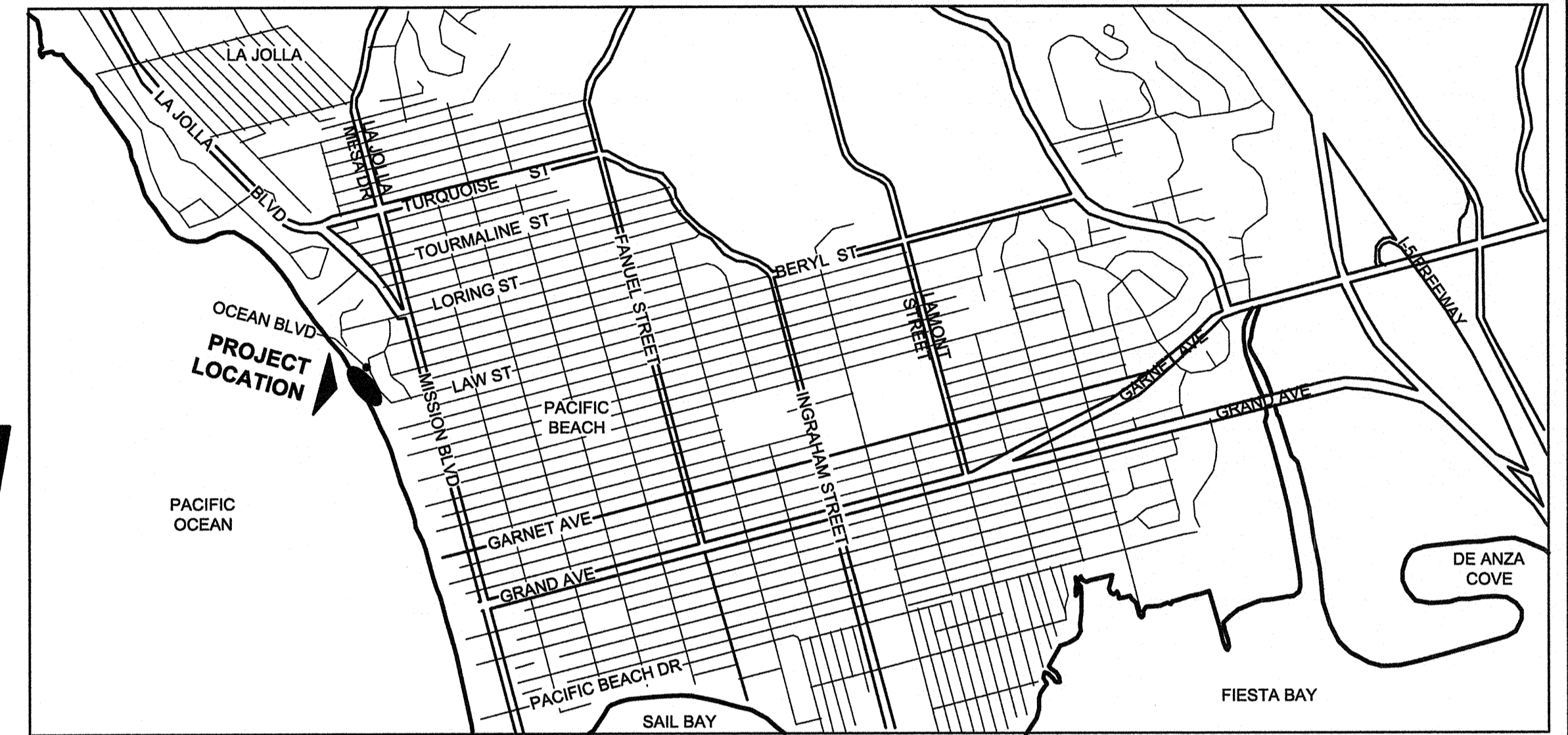


VICINITY MAP
NOT TO SCALE



NORTH

PALISADES PARK COMFORT STATION SEPTEMBER 2012



KEY MAP
NOT TO SCALE



NORTH

G-1

FUNDING CP/SAP		SPEC. NO.		G-1	
PLANS FOR THE CONSTRUCTION OF:					
PALISADES PARK COMFORT STATION					
COVER SHEET					
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 1 OF 46 SHEETS				W.B.S. S-10026 W.O. _____	
DATE: 6/18/13				SECTION HEAD	
FOR CITY ENGINEER		DATE		PROJECT MANAGER	
DESCRIPTION	BY	APPROVED	DATE	FILMED	
FINAL	MOA		08/02/12		
AS-BUILTS				CCS27 COORDINATE	
CONTRACTOR				CCS83 COORDINATE	
INSPECTOR				DATE STARTED	
				DATE COMPLETED	
				36598-1-D	

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW **X**

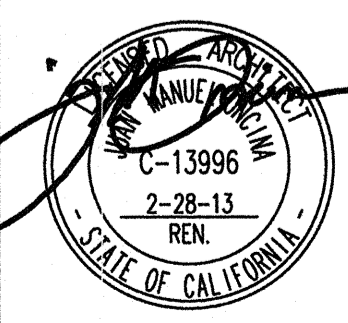
CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

MANUEL ONCINA ARCHITECTS INC.
ARCHITECTURE
PLANNING
INTERIORS

614 Panaykavaria Ave.
San Diego, CA 92103
619/295-4000 PH
619/295-4055 FX
www.oncinadec.com

SCALE: HORIZONTAL NO SCALE
VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION

PALISADES PARK - COMFORT STATION

CITY OF SAN DIEGO, CALIFORNIA

OWNER/APPLICANT

OWNER:
CITY OF SAN DIEGO
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
ATTN: JOSEPH DIAB
600 B. STREET, SUITE 800
SAN DIEGO, CA 92101
T. (619) 533-4615

PROJECT TEAM

ARCHITECT:
MANUEL ONCINA ARCHITECTS, INC.
514 PENNSYLVANIA AVENUE
SAN DIEGO, CA 92103
T. (619) 295-4900
F. (619) 295-4955
CONTACT: PATRICK BANNING
PBANNING@ONCINAARC.COM

CIVIL ENGINEER:
C.ROBERTS, INC.
16957 LAUREL HILL LANE, UNIT 206
SAN DIEGO, CA 92127
T. (858) 228-3655
F. (858) 228-3656
CONTACT: CHRIS ROBERTS
CHRIS@CROBERTSINC.COM

LANDSCAPE ARCHITECT:
NERI LANDSCAPE ARCHITECTURE
928 HORNBLEND STREET
SAN DIEGO, CA 92109
T. (858) 274-3222
F. (858) 274-3223
CONTACT: JIM NERI
JIM@NERILA.COM

STRUCTURAL ENGINEER:
ORION STRUCTURAL ENGINEERING
12257 POMEROAD ROAD, SUITE A
POWAY, CA 92064
T. (858) 679-1974
F. (858) 679-1975
CONTACT: RYAN OMER
RYAN@ORIONSE.COM

GEOTECHNICAL ENGINEER:
NINYO & MOORE
5710 RUFFIN ROAD
SAN DIEGO, CA 92123
T. (858) 576-1000
F. (858) 576-9600
CONTACT: CHRISTINA TRETINJAK
CTRETINJAK@NINYOANDMOORE.COM

MECHANICAL ENGINEER:
TEZA DESIGN
233 A STREET, SUITE 1103
SAN DIEGO, CA 92101
T. (619) 955-6834
F. (619) 209-7798
CONTACT: SIMON GIRMAI
SIMON@TEZA-DESIGN.COM

ELECTRICAL ENGINEER:
TURPIN & RATTAN ENGINEERING, INC.
4719 PALM AVENUE
LA MESA, CA 91941
T. (619) 466-6224
F. (619) 466-6233
CONTACT: KAREN ORTEGA
KORTEGA@TREISO.COM

FIRE RESISTANCE DATA

BASED ON CBC TABLE 601: BUILDING TYPE V-B

STRUCTURAL FRAME: 0 HOUR
BEARING WALLS (INT & EXT): 0 HOUR
NONBEARING WALLS - EXT: 0 HOUR
NONBEARING WALLS - INT: 0 HOUR
FLOOR CONSTRUCTION: 0 HOUR
ROOF CONSTRUCTION: 0 HOUR

BASED ON CBC TABLE 602: FIRE RESISTANCE RATING REQ'S FOR EXT WALLS BASED ON FIRE SEPARATION DISTANCE

X < 5 FT: 1 HOUR
5 FT - 10 FT: 1 HOUR
10 FT - 30 FT: 0 HOUR
X > 30 FT: 0 HOUR

ARCHITECTURAL SYMBOLS

	GRID LINE		DOOR, PER SCHED
	DETAIL CALL OUT		WINDOW, PER SCHED
	SECTION CALL OUT		SIGNAGE, PER SCHED
	ELEVATION T.O.: TOP OF B.O.: BOTTOM OF F.F.: FINISH FLOOR		FIRE EXTINGUISHER
	ROOM NUMBER		R: RECESSED
	KEYNOTE CALL OUT		S: SURFACE MOUNTED
	HOSE BIB		SR: SEMI-RECESSED
			PER DETAILS AND SPECS
			RESTROOM ACCESSORY (LETTER)
			FINISH CALLOUT

ABBREVIATIONS

AB: Anchor Bolt	ID: Inside Diameter
ADA: Americans with Disabilities Act of 1992	IN: Inch
AF: Above Finished Floor	INSUL: Insulation
ALUM: Aluminum	LB: Pound (weight)
ANOD: Anodized	MAX: Maximum
ARCH: Architectural	MANUF: Manufacturer
ASTM: American Society for Testing and Materials	MECH: Mechanical
	MIN: Minimum
B.O.: Bottom Of Board	MTL: Metal
BLKG: Solid Blocking	NIC: Not In Contract
C: Centerline	NTS: Not To Scale
COL: Column	OC: On Center
CONC: Concrete	OD: Outside Diameter
CONT: Continuous	P: Plate
CT: Ceramic Tile	PLUMB: Plumbing
CY: Cubic Yard	POT/P.O.T.: Path of Travel
D: Deep	PTD: Painted
DF: Douglas Fir	R: Radius
DIA: Diameter	RCP: Reflected Ceiling Plan
DM: Dimension	SCHED: Schedule
DN: Down	SF: Square Foot
DS: Downspout	SHT: Sheet
(E): Existing	SIM: Similar
ELECT: Electrical	SLR: Sessler
EMBED: Embedment	SQ: Square
EQ: Equal	SS: Stainless Steel
FAR: Floor Area Ratio	STL: Steel
FD: Floor Detail	STN: Stained
FF: Finished Floor	STRUCT: Structural
FG: Finished Grade	T&G: Tongue & Groove
FT: Foot, Feet	TEMP: Tempered
GA: Gauge	T.O.: Top of
GALV: Galvanized	TS: Tube Steel
GFCI: Ground Fault Circuit Interrupter	TYP: Typical
GF: Ground Fault Interrupted	UL: Underwriters' Laboratories
GL: Glass	UNO: Unless Otherwise Noted
GSP: Gross Square Feet	VIF: Vary In the Field
GYP BD: Gypsum Board	VTR: Vent Through Roof
HB: Hose Bib	WD: Wood
HR: Hour	WH: Water Heater

SCOPE OF WORK

PROPOSED WORK INCLUDES:

- WORK IN RIGHT OF WAY: PER ENGINEERING PERMIT No. 279919.
- DEMOLITION: OF EXISTING COMFORT STATION BUILDING AND ADJACENT SITE FEATURES.
- NEW WORK:
 - ACCESSIBLE PATH OF TRAVEL FROM PUBLIC WAY TO COMFORT STATION AND AMENITIES. CONSTRUCTION OF NEW SIDEWALK, CURB RAMP, PEDESTRIAN RAMP AND STAIR TO MEET CURRENT ACCESS CODE.
 - CONSTRUCTION OF NEW COMFORT STATION TO INCLUDE (1) UNISEX ACCESSIBLE RESTROOM STALL AND (3) UNISEX RESTROOM STALLS, MAINTENANCE ROOM AND EXTERIOR LAVATORIES.
 - NEW ACCESSIBLE DRINKING FOUNTAIN.
 - REMOVE AND REPAINT ACCESSIBLE STREET PARKING SPACES.
 - SITE DEVELOPMENT PERMIT FOR ENVIRONMENTALLY SENSITIVE LANDS. (NIC, BY CITY)

BUILDING DATA

OCCUPANCY: B
CONSTRUCTION TYPE: V-B
NO. OF STORIES: 1
BUILDING HEIGHT: 10'-0"
ALLOWABLE AREA: 9,000 SF
SPRINKLERED: NO

GOVERNING CODES:

2010 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE, Part 1, Title 24 CCR
2010 CALIFORNIA BUILDING CODE (CBC), Part 2, Title 24 CCR
2010 CALIFORNIA ELECTRICAL CODE (CEC), Part 3, Title 24 CCR
2010 CALIFORNIA MECHANICAL CODE (CMC), Part 4, Title 24 CCR
2010 CALIFORNIA PLUMBING CODE (CPC), Part 5, Title 24 CCR
2010 CALIFORNIA ENERGY CODE (CEC), Part 6, Title 24 CCR
2010 CALIFORNIA FIRE CODE, Part 9, Title 24 CCR
2010 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGreen), Part 11, Title 24 CCR
2010 CALIFORNIA REFERENCED STANDARDS, Part 12, Title 24 CCR
Title 19 CCR, Public Safety, State Fire Marshal Regulations

APPLICABLE STANDARDS:

2010 CBC, CHAPTER 35, APPLICABLE STANDARDS LISTED
AMERICAN WITH DISABILITIES ACT REGULATION: ADAAG DESIGN GUIDELINES

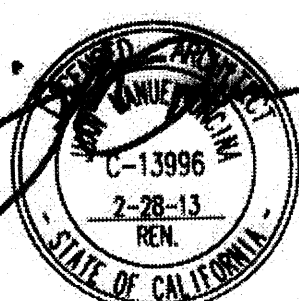
PROJECT DATA

APN: N/A
SITE ADDRESS: 4860 OCEAN BOULEVARD
SAN DIEGO, CA 92109
ZONING: UNZONED PARK LAND
FEMA ZONE: FEMA ZONE 'X'
PER MAP PANEL NO. 1592F
BUILDING COVERAGE:
EXISTING: 180 GSF
PROPOSED: 290 GSF

I HEREBY DECLARE THAT I AM THE ARCHITECT OF WORK FOR THIS PROJECT AND HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN THE ARCHITECT'S PRACTICE ACT AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS. I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ARCHITECT OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

JUAN MANUEL ONCINA 8 AUGUST 2012
(ARCHITECT'S NAME) DATE

CONSULTANT
MANUEL ONCINA ARCHITECTS INC.
ARCHITECTURE PLANNING INTERIORS
514 PENNSYLVANIA AVE.
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619-295-4956 FAX
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

SHEET INDEX

SHEET NO.	DISCIPLINE CODE	TITLE
1	G-1	COVER SHEET
2	G-2	PROJECT DATA
3	G-3	GENERAL NOTES
4	G-4	GENERAL NOTES
5	G-5	GENERAL ACCESSIBILITY DETAILS
6	D1	DEMOLITION PLAN
7	C1	NOTES AND DETAILS
8	C2	GRADING AND IMPROVEMENTS PLAN
9	C3	EROSION CONTROL PLAN
10	A1	SITE PLAN
11	A2	ENLARGED SITE PLAN, ELEVATION AND SECTION
12	A3	FLOOR PLAN / REFLECTED CEILING PLAN / ROOF PLAN
13	A4	ELEVATIONS AND SECTIONS
14	A5	INTERIOR ELEVATIONS / SCHEDULES
15	A6	DETAILS
16	A7	DETAILS
17	A8	DETAILS
18	A9	DETAILS
19	S1.1	GENERAL NOTES
20	S1.2	GENERAL NOTES
21	S1.3	GENERAL NOTES
22	S1.4	GENERAL NOTES
23	S1.5	GENERAL NOTES
24	S1.6	TYPICAL DETAILS
25	S1.7	TYPICAL DETAILS
26	S1.8	TYPICAL DETAILS
27	S2.1	FOUNDATION PLAN / FRAMING PLAN
28	S2.2	EMBEDMENT PLAN
29	S3.1	FOUNDATION DETAILS
30	S4.1	FRAMING DETAILS
31	P1.0	SCHEDULES, ABBREVIATIONS, SYMBOLS AND GENERAL NOTES
32	P2.0	PLUMBING SITE PLAN - WASTE AND VENT
33	P3.0	PLUMBING SITE PLAN - COLD WATER
34	P4.0	PLUMBING DETAILS
35	E1	GENERAL NOTES, SYMBOLS, FIXTURE SCHEDULE
36	E2	INTERIOR TITLE 24 COMPLIANCE
37	E3	TITLE 24 ACCEPTANCE FORMS
38	E4	EXTERIOR TITLE 24 COMPLIANCE
39	E5	ELECTRICAL SITE PLAN
40	E6	LIGHTING AND POWER PLANS
41	E7	SINGLE LINE DIAGRAM, PANEL SCHEDULE AND DETAIL
42	L1.0	LANDSCAPE DEMOLITION AND SALVAGE PLAN
43	L2.0	IRRIGATION PLAN
44	L2.1	IRRIGATION SCHEDULE, NOTES AND DETAILS
45	L3.0	LANDSCAPE PLANTING PLAN
46	L3.1	PLANTING SCHEDULE, NOTES AND DETAILS

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW X



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

SCALE	HORIZONTAL	VERTICAL
	NO SCALE	NO SCALE

FINDING CIP/SAP	SPEC. NO.	G-2
PLANS FOR THE CONSTRUCTION OF:		
PALISADES PARK COMFORT STATION		
PROJECT DATA		
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 2 OF 48 SHEETS		W.B.S. 5-10026 W.O.
DATE: 6/18/13	SECTION HEAD	PROJECT MANAGER
FOR CITY ENGINEER	DATE	FILED
DESCRIPTION	BY	APPROVED
FINAL	MOA	08/02/12
AS-BUILTS	DATE STARTED	DATE COMPLETED
CONTRACTOR		
INSPECTOR		
		36598-2-D

PALISADES PARK COMFORT STATION

FIRE NOTES

MEANS OF EGRESS

1. ALL EXIT DOORS SHALL BE EASILY OPENED FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. MANUALLY OPERATED LOCKING DEVICES SHALL NOT BE PROVIDED THAT DO NOT UNLATCH IN TANDEM WITH THE NORMAL OPERATION OF THE PASSAGE SET.
2. EXITS, EXIT SIGNS, FIRE ALARM PANELS, HOSE CABINETS, FIRE EXTINGUISHER LOCATIONS AND STANDPIPE CONNECTIONS SHALL NOT BE CONCEALED BY CURTAINS, MIRRORS OR OTHER MATERIAL.
3. THE MEANS OF EGRESS SHALL BE ILLUMINATED AT ALL TIMES THE BUILDING IS OCCUPIED IN ACCORDANCE WITH CBC 1006. THE MEANS OF EGRESS SHALL BE ILLUMINATED BY AN EMERGENCY POWER SYSTEM FOR NOT LESS THAN 90 MINUTES IN ACCORDANCE WITH CBC CHAPTER 27.
4. THE PATH OF EGRESS SHALL BE CLEARLY IDENTIFIED WITH EXIT SIGNS CONFORMING TO CBC 1011. EXITS SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED (CBC 1011.2) AND MUST HAVE 90-MINUTE EMERGENCY POWER BACKUP. TACTILE EXIT SIGNS SHALL BE PROVIDED PER CBC 1011.3 IN PUBLIC AND COMMERCIAL BUILDINGS, AND SHALL CONFORM TO CBC 1117B.5.
5. THE PATH OF EGRESS SHALL BE MAINTAINED FREE AND CLEAR OF OBSTRUCTIONS AT ALL TIMES. NO STORAGE IS PERMITTED IN AISLES.

BUILDING EXTERIOR

1. ADDRESS NUMBERS SHALL BE PROVIDED IN A POSITION PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. (CBC 501.2, CFC 505) TEMPORARY ADDRESS NUMBERS SHALL BE PROVIDED ON CONSTRUCTION FENCING OR THE BUILDING UNTIL PERMANENT NUMBERS CAN BE PROVIDED.
2. CONTRACTOR TO PROVIDE AN APPROVED KNOX BOX KEY CABINET AT ALL LOCATIONS REQUIRED BY FIRE OFFICIAL. COORDINATE FINAL LOCATION(S) AND MOUNTING HEIGHT WITH FIRE OFFICIAL. MASTER BUILDING KEY(S) FOR FIRE DEPARTMENT EMERGENCY ACCESS TO BE SECURED IN KNOX BOX.

MISCELLANEOUS (FIRE)

1. ALL DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME-RETARDANT CONDITION. IF TREATED BY A PRODUCT OR PROCESS APPROVED BY THE STATE FIRE MARSHAL, PROVIDE DOCUMENTATION TO THE BUILDING OFFICIAL. (CAL. CODE REGS., TITLE 19, SEC. 1.14, 3.08, 3.21, AND CFC 804)
2. ALL INTERIOR FINISHES MUST COMPLY WITH THE CBC CHAPTER 6.
3. THE CONTRACTOR SHALL PROVIDE A 4A20BC FIRE EXTINGUISHER AT EACH MECHANICAL, ELECTRICAL, AND EQUIPMENT ROOM

GENERAL NOTES

GENERAL REQUIREMENTS:

1. ALL WORK SHALL CONFORM TO THE CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, 2010 EDITION CALIFORNIA BUILDING STANDARDS CODE AND ANY OTHER APPLICABLE STANDARDS ON WHICH THESE CODES ARE BASED. WHERE CONFLICT BETWEEN BUILDING CODES AND CONTRACT DOCUMENTS OCCUR, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN. ALL STANDARDS SHALL BE THE LATEST ADOPTED VERSIONS AS OF THE DATE OF THESE DRAWINGS AND SPECIFICATIONS.
2. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS FOR ALL OF THE WORK TO BE IN ACCORDANCE WITH THE CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, 2010 EDITION CALIFORNIA BUILDING STANDARDS CODE. NOTIFY THE RESIDENT ENGINEER OF ANY EXISTING CONDITIONS DISCOVERED, WHICH WILL RESULT IN NON-COMPLIANT CONSTRUCTION, AND WHICH ARE NOT COVERED BY THESE CONTRACT DOCUMENTS.
4. CONTRACTOR SHALL NOT INSTALL WORK THAT VIOLATES THE CODES REFERENCED ABOVE AND ON TITLE SHEET. CONTRACTOR SHALL NOT ASSUME THAT NON-COMPLIANT WORK COMPLIES BASED ON ACCEPTANCE OF OVERALL WORK BY ANY BUILDING OFFICIAL HAVING JURISDICTION OVER THE WORK.
5. DRAWINGS SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES. THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER OF ANY DISCREPANCIES OR CONFLICTS.
6. ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER FOR CLARIFICATION IF NECESSARY.
7. THE INFORMATION SHOWN BY CONSULTANTS OR DISCIPLINE DOCUMENTS IS NOT MEANT TO DEFINE THE SCOPE OF WORK OF SUBCONTRACTOR'S RESPONSIBILITY. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO DETERMINE SCOPE OF WORK BETWEEN SUBCONTRACTOR'S DURING THE BIDDING PROCESS.
8. ANY PENETRATIONS OR EMBEDMENT SHALL NOT BE PLACED IN STRUCTURAL MEMBERS, FIRE-RATED ASSEMBLIES, AND CEILING AND FLOOR SLABS; NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR SUCH ITEMS; UNLESS SPECIFICALLY SHOWN ON THESE DRAWINGS. ALL SUCH ITEMS REQUIRE THE RESIDENT ENGINEER'S APPROVAL PRIOR TO START OF ANY WORK.
9. ALL EXISTING LIFE-SAFETY FEATURES OF THE EXISTING FACILITY MUST BE PROTECTED AND MAINTAINED AT CONTRACTOR'S EXPENSE THROUGHOUT THE CONSTRUCTION PERIOD. ALL EXIT PATHS MUST BE KEPT UNOBSTRUCTED. ALL FIRE-RATED WALLS AND FLOORS SHALL BE KEPT INTACT AND ALL FIRE ALARM SYSTEMS SHALL BE KEPT IN WORKING ORDER.
10. ALL CONSTRUCTION MUST MEET OR EXCEED ALL REQUIREMENTS STATED IN SOILS REPORT. COPIES OF SOILS REPORT ARE AVAILABLE UPON REQUEST.
11. SATISFACTORY EXECUTION OF CONSTRUCTION IS DEPENDENT UPON CONFORMANCE WITH THE INTENT OF THESE DRAWINGS. ALL COORDINATION, FEES, TASKS, LABOR, MATERIALS, TOOLS, CONNECTIONS, EQUIPMENT, CLEANUP REQUIRED TO FULLY FINISH THE DESCRIBED PROJECT SHALL BE FURNISHED AND PAID FOR BY THE CONTRACTOR. ANY AND ALL EXCEPTIONS SHALL BE REQUESTED AND AGREED TO IN WRITING AT THE TIME OF THE SIGNING OF OWNER / CONTRACTOR AGREEMENT.
12. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED DESIGN LIVE LOAD FOR EACH PARTICULAR LEVEL. WHEN WEIGHT OF MATERIALS OR EQUIPMENT MAY EXCEED DESIGN LOAD, STRUCTURAL SYSTEMS SHALL BE SHORED.
13. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF THE WORK, THE DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK OR AS DIRECTED BY RESIDENT ENGINEER.
14. ALL OMISSIONS AND/OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE RESIDENT ENGINEER. WORK SHOULD NOT PROCEED UNTIL A SOLUTION IS GIVEN BY THE RESIDENT ENGINEER.
15. ALL EXISTING TO REMAIN MECHANICAL, ELECTRICAL, PLUMBING AND EQUIPMENT DISTURBED BY NEW CONSTRUCTION SHALL BE REROUTED OR MODIFIED AS REQUIRED TO PROVIDE A COMPLETE OPERATING SYSTEM.

CONTRACTOR RESPONSIBILITIES:

1. THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL REVIEW AND VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS OF THE SITE DURING THE BIDDING PERIOD AND PRIOR TO STARTING WORK. ANY DISCREPANCIES OR INCONSISTENCIES DUE TO CURRENT FIELD CONDITIONS SHALL BE REPORTED TO THE RESIDENT ENGINEER PRIOR TO PROCEEDING. NO ADDITIONAL EXPENSE SHALL BE AWARDED RESULTING FROM THE FAILURE TO PERFORM THIS EXAMINATION.
2. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, AND THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
3. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE; DESIGN, FURNISH, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS. NEITHER THE OWNER NOR ARCHITECT WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE ARCHITECT FREE AND HARMLESS FROM ALL CLAIMS, DEMANDS AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT SHALL NOT INCLUDE INSPECTION OF THE ABOVE SAFETY ITEMS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING IMPROVEMENTS OR EQUIPMENT. SUCH DAMAGE WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE RESIDENT ENGINEER.
5. THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER AND SITE ADMINISTRATION REGARDING CONTRACTOR'S SITE USE AND ACCESS. IF SITE AND/OR BUILDING TO REMAIN OCCUPIED DURING CONSTRUCTION, MAINTAIN STAFF AND PUBLIC ACCESS AT ALL TIME SITE IS OPEN FOR USE, AND ENSURE ALL CONSTRUCTION WORK OCCURS INSIDE FENCED AREA.
6. THE CONTRACTOR SHALL VERIFY ACCESS TO ALL AREAS WHERE NEW UTILITIES WILL BE INSTALLED. THE CONTRACTOR SHALL INCLUDE IN HIS BID, ANY COST ASSOCIATED WITH OBTAINING ACCESS, INSTALLATION OF ACCESS PANELS AND/OR REROUTING OF PIPES/CONDUITS OR REPLACING FINISHES AND FIXTURES TO MATCH ADJACENT IMPROVEMENTS.
7. BEFORE EXCAVATING FOR THIS PROJECT, CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS TO VERIFY THE LOCATIONS OF ALL UNDERGROUND UTILITIES, AND REPORT ANY CONFLICTS TO RESIDENT ENGINEER. THIS SHALL BE COMPLETED SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF NECESSARY. EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES SHOWN ON PLANS ARE RESULT OF A SEARCH OF AVAILABLE RECORDS, AND TO THE BEST OF THE DESIGN TEAM'S KNOWLEDGE, NO OTHER UTILITIES EXIST EXCEPT AS SHOWN ON DRAWINGS.
8. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT THE UNDERGROUND UTILITIES SHOWN ON DRAWINGS AND ANY OTHER UTILITIES NOT OF RECORD OR NOT SHOWN.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENTATION AND/OR SURVEY BENCHMARK WHICH WILL BE DISTURBED OR DESTROYED BY CONSTRUCTION WITH THE ASSISTANCE OF A CIVIL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA AND AUTHORIZED TO PRACTICE LAND SURVEYING. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENTATION BY A LAND CORNER RECORD, OR RECORD OF SURVEY, AND BE FILED BY A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AS REQUIRED BY THE LAND SURVEYOR'S ACT.
10. THE CONTRACTOR SHALL NOTIFY THE CITY TRAFFIC ENGINEER AT LEAST FIVE (5) WORKING DAYS IN ADVANCE OR IMPLEMENTING ANY CONSTRUCTION DETOUR IN THE PUBLIC RIGHT OF WAY.
11. LOCATION AND ELEVATION OF IMPROVEMENTS TO BE MET BY WORK OF THIS PROJECT SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF THIS WORK.
12. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL IMPROVEMENTS ARE BUILT IN ACCORDANCE WITH THESE DRAWINGS AND SPECIFICATIONS. IF THERE IS ANY QUESTION, THE CONTRACTOR SHALL REQUEST AN INTERPRETATION PRIOR TO DOING ANY WORK BY CONTACTING THE RESIDENT ENGINEER. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE AND, UNLESS OTHERWISE INDICATED, DO NOT INDICATE THE METHOD OF CONSTRUCTION.
13. THE CONTRACTOR SHALL PROVIDE A SEPARATION OR BARRIER BETWEEN ALL DISSIMILAR METALS.

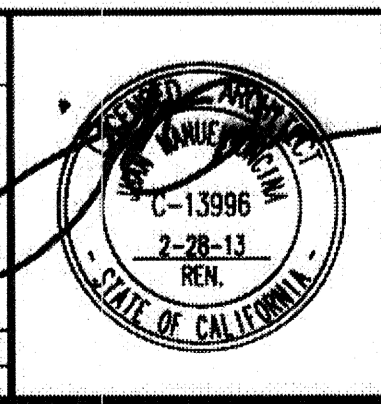
14. THE CONTRACTOR SHALL PROTECT ADJACENT PROPERTY AND PUBLIC RIGHT OF WAY FROM ANY EROSION OR SILTATION THAT RESULTS FROM CONSTRUCTION OPERATIONS BY APPROPRIATE MEANS UNTIL SUCH TIME THE PROJECT IS COMPLETE AND ACCEPTED BY THE OWNER.
15. AN APPROVED SET OF PLANS (BUILDING, FIRE SPRINKLER, FIRE ALARM, ETC.) SHALL BE ON THE JOB SITE DURING CONSTRUCTION. NO INSPECTIONS WILL BE MADE WITHOUT COMPLIANCE WITH ABOVE.
16. THE CONTRACTOR SHALL MAINTAIN THE WORK SITE AT ALL TIMES IN ACCORDANCE WITH GREENBOOK AND 2010 CITY SUPPLEMENT, SECTION 7-8.
17. SOILS COMPACTION TESTING AND EXCAVATION INSPECTION REPORT ARE TO BE PAID FOR BY THE CONTRACTOR AND SUBMITTED TO THE RESIDENT ENGINEER AND BUILDING INSPECTOR PRIOR TO FOUNDATION INSPECTION. THE RESIDENT ENGINEER AND BUILDING INSPECTOR ARE TO INSPECT EXCAVATIONS PRIOR TO POURING ANY CONCRETE.

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

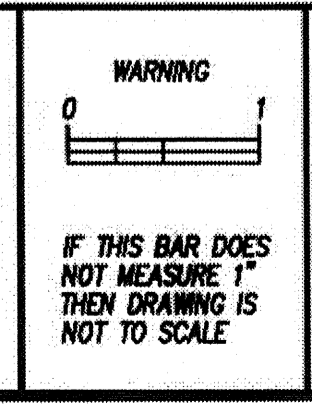
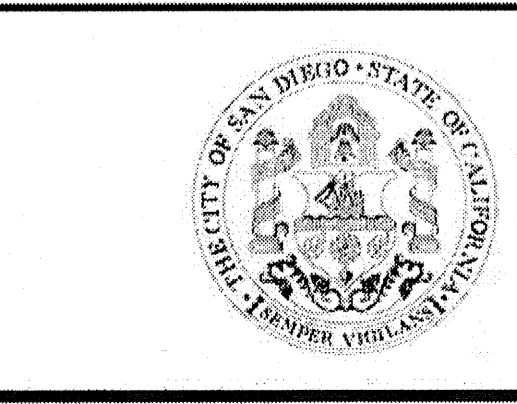
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SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



**CITY OF SAN DIEGO
PUBLIC WORKS PROJECT**



FUNDING CIP/SAP		SPEC. NO.		G-3	
PLANS FOR THE CONSTRUCTION OF:					
PALISADES PARK COMFORT STATION					
GENERAL NOTES					
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 3 OF 48 SHEETS				W.B.S. 5-10026 W.O.	
FOR CITY ENGINEER		DATE		SECTION HEAD	
DESCRIPTION	BY	APPROVED	DATE	FILED	PROJECT MANAGER
FINAL	MOA		08/02/12		
AS-BUILTS		DATE STARTED		DATE COMPLETED	
CONTRACTOR INSPECTOR				36598-3-D	

PALISADES PARK COMFORT STATION

GENERAL NOTES

EQUIVALENT FACILITIES

1. CONTRACTOR TO COORDINATE RESTROOM FACILITIES DEMOLITION AND CONSTRUCTION SCHEDULE WITH RESIDENT ENGINEER. TEMPORARY EQUIVALENT FACILITIES (TOILETS AND HAND SINKS) INCLUDING ACCESSIBLE FACILITIES SHALL BE PROVIDED BY CONTRACTOR DURING CONSTRUCTION AND BE AVAILABLE TO THE PUBLIC. CONTRACTOR TO PROVIDE WEEKLY MAINTENANCE AND CLEANING OF TEMPORARY FACILITIES THROUGHOUT CONSTRUCTION.

CALIFORNIA COASTAL COMMISSION REQUIREMENT

1. NO CONSTRUCTION FOR THE PROJECT SHALL TAKE PLACE WITHIN THE PARAMETERS OF THE BEACH AREA BETWEEN MEMORIAL DAY WEEKEND AND LABOR DAY OF ANY YEAR. CONSTRUCTION EQUIPMENT AND STAGING AREAS SHALL NOT ENCRONCH ONTO OR OBSTRUCT PUBLIC BEACH AREAS ADJACENT TO THE SUBJECT PROPERTY.

STORM WATER QUALITY NOTES / CONSTRUCTION BMP'S

THIS PROJECT SHALL COMPLY WITH ALL REQUIREMENTS OF THE STATE PERMIT: CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION, ORDER No. 2001.01 NPDES No. CAS010875. (HTTP://WWW.SWRCS.CA.GOV/RWQCB9/PROGRAMS/SD_STORMWATER.HTML); AND THE CITY OF SAN DIEGO LAND DEVELOPMENT CODE (HTTP://CLERKDOC.SANNET.GOV/RIGHTSITE/GETCONTENT/LOCAL.PDF?DMW_OBJECTID=090014518008CC43).

NOTES 1-6 BELOW REPRESENT KEY MINIMUM REQUIREMENTS FOR CONSTRUCTION BMP'S.

- SUFFICIENT BMP'S MUST BE INSTALLED TO PREVENT SALT, MUD OR OTHER CONSTRUCTION DEBRIS FROM BEING TRACKED INTO THE ADJACENT STREET(S) OR STORM WATER CONVEYANCE SYSTEMS DUE TO CONSTRUCTION VEHICLES OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING ANY SUCH DEBRIS THAT MAY BE IN THE STREET AT THE END OF EACH WORK DAY OR AFTER A STORM EVENT THAT CAUSES A BREACH IN THE INSTALLED CONSTRUCTION BMP'S.
- ALL STOCK PILES OF UNCOMPACTED SOIL AND/OR BUILDING MATERIALS THAT ARE INTENDED TO BE LEFT UNPROTECTED FOR A PERIOD GREATER THAN SEVEN CALENDAR DAYS ARE TO BE PROVIDED WITH EROSION AND SEDIMENT CONTROLS. SUCH SOIL MUST BE PROTECTED EACH DAY WHEN THE PROBABILITY OF RAIN IS 40% OR GREATER.
- A CONCRETE WASHOUT SHALL BE PROVIDED ON ALL PROJECTS WHICH PROPOSE THE CONSTRUCTION OF ANY CONCRETE IMPROVEMENTS THAT ARE TO BE POURED IN PLACE ON THE SITE.
- ALL EROSION / SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED IN WORKING ORDER AT ALL TIMES.
- ALL SLOPES THAT ARE CREATED OR DISTURBED BY CONSTRUCTION ACTIVITY MUST BE PROTECTED AGAINST EROSION AND SEDIMENT TRANSPORT AT ALL TIMES.
- THE STORAGE OF ALL CONSTRUCTION MATERIALS AND EQUIPMENT MUST BE PROTECTED AGAINST ANY POTENTIAL RELEASE OF POLLUTANTS INTO THE ENVIRONMENT.

CALIFORNIA GREEN BUILDING STANDARDS CODE

- 100% OF TREES, STUMPS, ROCKS AND ASSOCIATED VEGETATION AND SOILS RESULTING PRIMARILY FROM LAND CLEARING SHALL BE REUSED OR RECYCLED. A LETTER FROM THE CONTRACTOR WITH VERIFICATIONS NEEDS TO BE SUBMITTED TO THE INSPECTOR AND RESIDENT ENGINEER TO SHOW COMPLIANCE.
- PREVENT IRRIGATION SPRAY ON STRUCTURES.
- ADHESIVES, SEALANTS, CAULKS USED ON THE PROJECT SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS: (CAL GREEN 5.504.4.1) ADHESIVE, ADHESIVE BONDING PRIMERS, ADHESIVE PRIMERS, SEALANTS, SEALANT PRIMERS, AND CAULKS SHALL COMPLY WITH LOCAL OR REGIONAL AIR POLLUTION CONTROL OR AIR QUALITY MANAGEMENT DISTRICT RULES WHERE APPLICABLE, OR SCAQMD RULE 1168 VOC LIMITS, AS SHOWN IN TABLES 5.504.4.1 AND 5.504.4.2 OF CAL GREEN.
- A LETTER FROM THE CONTRACTOR CERTIFYING WHAT MATERIAL HAS BEEN USED AND ITS COMPLIANCE WITH THE CODE MUST BE SUBMITTED TO THE BUILDING INSPECTOR AND RESIDENT ENGINEER.
- AEROSOL ADHESIVES, AND SMALL UNIT SIZES OF ADHESIVES, AND SEALANT OR CAULKING COMPOUNDS (IN UNITS OF PRODUCT, LESS PACKAGING, WHICH DO NOT WEIGH MORE THAN ONE POUND AND DO NOT CONSIST OF MORE THAN 16 FLUID OUNCES) SHALL COMPLY WITH STATEWIDE VOC STANDARDS AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS, OF CCR, TITLE 17, COMMENCING WITH SECTION 94507.
- ARCHITECTURAL PAINTS AND COATINGS SHALL COMPLY WITH TABLE 5.504.4.2 UNLESS MORE STRINGENT LOCAL LIMITS APPLY (CGBSC 5.504.3)
- AEROSOL PAINTS AND COATINGS SHALL MEET THE PRODUCT-WEIGHTED MIR LIMITS FOR ROC IN SECTION 94522(a)(3) AND OTHER REQUIREMENTS, INCLUDING PROHIBITIONS ON USE OF CERTAIN TOXIC COMPOUNDS AND OZONE DEPLETING SUBSTANCES (CCR, TITLE 17, SECTION 94520 et seq)(CGBSC 5.504.4.3.1)
- A LETTER FROM THE CONTRACTOR CERTIFYING WHAT PAINT HAS BEEN USED AND ITS COMPLIANCE WITH THE CODE MUST BE SUBMITTED TO THE BUILDING INSPECTOR AND RESIDENT ENGINEER.

ENVELOPE MANDATORY MEASURES

- INSULATION MATERIAL SHALL HAVE BEEN CERTIFIED BY THE MANUFACTURER TO COMPLY WITH THE CALIFORNIA QUALITY STANDARDS FOR INSULATING MATERIAL PER CCR TITLE 20, CHAPTER 4, ARTICLE 5 AND INSTALLED IN COMPLIANCE WITH SECTION 118 OF THE CALIFORNIA ENERGY EFFICIENCY STANDARDS. INSULATION MATERIAL SHALL MEET THE FLAME SPREAD RATING AND SMOKE DEVELOPED INDEX REQUIREMENTS OF CBC 719.
- ALL EXTERIOR JOINTS AND OPENINGS IN THE BUILDING ENVELOPE THAT ARE OBSERVABLE SOURCES OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, WEATHER-STRIPPED OR OTHERWISE SEALED.
- SITE CONSTRUCTED DOORS, WINDOWS, AND SKYLIGHTS SHALL BE CAULKED BETWEEN THE UNIT AND THE BUILDING, AND SHALL BE WEATHER-STRIPPED (EXCEPT FOR UNFRAMED GLASS DOORS AND FIRE DOORS)
- MANUFACTURED DOORS AND WINDOWS INSTALLED SHALL HAVE AIR INFILTRATION RATES CERTIFIED BY THE MANUFACTURER PER SECTION 116 OF THE CALIFORNIA ENERGY EFFICIENCY STANDARDS. MANUFACTURED PENETRATION PRODUCTS MUST BE LABELED FOR U-VALUE AND SHGC VALUES.
- DEMISING WALL INSULATION SHALL BE INSTALLED IN ALL OPAQUE PORTIONS OF FRAMED DEMISING WALLS AND HAVE AN INSTALLED R-VALUE OF NOT LESS THAN R-13 BETWEEN FRAMING MEMBERS.
- PLACEMENT OF ROOF/CEILING INSULATION INSTALLED TO LIMIT HEAT LOSS AND GAIN THROUGH THE TOP OF CONDITIONED SPACES SHALL COMPLY WITH THE REQUIREMENTS OF CALIFORNIA ENERGY EFFICIENCY STANDARDS, SECTION 116.

PAVING AT WALKWAYS

1. ALL PAVEMENT CROSS SLOPES IN THE PATH OF TRAVEL, MEASURED PERPENDICULAR TO THE DIRECTION OF TRAVEL, SHALL BE A MAXIMUM OF 1.5%. RUNNING SLOPES OF PAVEMENT IN PATH OF TRAVEL, MEASURED PARALLEL WITH DIRECTION OF TRAVEL, SHALL BE A MAXIMUM OF 4.5% UNLESS SPECIFIED ON THESE DRAWINGS AS A RAMP. MAXIMUM SLOPES FOR PAVEMENT IN THE PATH OF TRAVEL ARE ABSOLUTE AND SUPERCEDE CONSTRUCTION TOLERANCES STATED IN THE PROJECT SPECIFICATION OR ELSEWHERE. THE CONTRACTOR HAS THE OPTION OF ADJUSTING GRADES TO ALLOW FOR CONSTRUCTION TOLERANCE BUT SHALL NOT ADJUST GRADES TO LESS THAN 1% CROSS SLOPE OR GREATER THAN 2%. THE CONTRACTOR SHALL CONTACT THE RESIDENT ENGINEER REGARDING ANY GRADE REVISIONS PRIOR TO CONSTRUCTION OF PAVEMENT AREAS. THE PAVEMENT SLOPES WILL BE REVIEWED AFTER CONSTRUCTION AND PAVEMENT EXCEEDING THE MAXIMUM SLOPES SPECIFIED ABOVE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

2. ALL CONCRETE PAVEMENT SHALL BE INSTALLED PER GREENBOOK SPECIFICATIONS WITH CITY SUPPLEMENT PROVISIONS, AND PER CITY STANDARD DRAWINGS WITH NOT LESS THAN #3 STEEL REINFORCEMENT BARS AT 18" ON CENTER EACH WAY, AT MID-HEIGHT OF SLAB AND SUPPORTED BY CHAIRS OR EQUIVALENT.

WALKS AND SIDEWALKS:

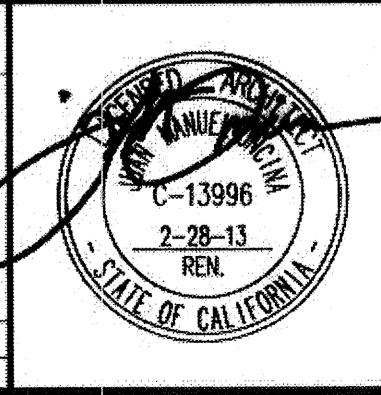
- WALKWAYS SHALL HAVE A CONTINUOUS COMMON SURFACE, NOT INTERRUPTED BY STEPS OR BY ABRUPT CHANGE IN LEVEL EXCEEDING 1/2 INCH, AND SHALL BE A MINIMUM OF 48 INCHES IN WIDTH.
- SURFACES WITH A SLOPE OF LESS THAN 6 PERCENT GRADIENT SHALL BE AT LEAST AS SLIP-RESISTANT AS THAT DESCRIBED AS A MEDIUM SALTED FINISH WITH A STATIC COEFFICIENT OF FRICTION OF 0.6 OR GREATER.
- SURFACES WITH A SLOPE OF 6 PERCENT GRADIENT OR GREATER SHALL BE SLIP-RESISTANT WITH A STATIC COEFFICIENT OF FRICTION OF 0.8 OR GREATER.
- SURFACE CROSS SLOPES SHALL NOT EXCEED 1.5%.
- WALKWAYS SHALL BE FREE OF GRATINGS WHENEVER POSSIBLE. FOR GRATINGS LOCATED IN THE SURFACE OF ANY OF THESE AREAS, GRID OPENINGS IN GRATING SHALL BE LIMITED TO 1/2 INCH IN THE DIRECTION OF TRAFFIC FLOW.
- WHEN THE SLOPES IN THE DIRECTION OF TRAVEL OF ANY WALK EXCEEDS 1 UNIT VERTICAL TO 20 UNITS HORIZONTAL IT SHALL COMPLY WITH THE PROVISIONS FOR PEDESTRIAN RAMPS PER 2010 CBC SECTION 1133B.5.
- CHANGES IN LEVEL UP TO 1/4 INCH MAY BE VERTICAL AND WITHOUT EDGE TREATMENT. CHANGES IN LEVEL BETWEEN 1/4 INCH AND 1/2 INCH SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL. CHANGES IN LEVELS GREATER THAN 1/2 INCH SHALL BE ACCOMPLISHED BY MEANS OF A CURB RAMP, RAMP, ELEVATOR OR PLATFORM LIFT IN COMPLIANCE WITH CURRENT CODE.
- ALL WALKS WITH CONTINUOUS GRADIENTS SHALL HAVE LEVEL AREAS AT LEAST 5' IN LENGTH AT INTERVALS OF 400 FEET MAXIMUM.

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

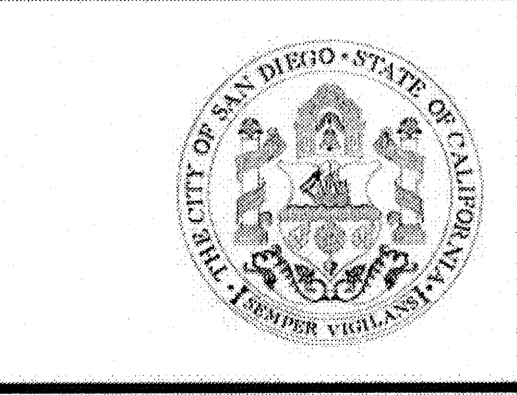
CONSULTANT

MANUEL ONCINA
ARCHITECTS INC.
ARCHITECTURE
PLANNING
INTERIORS
614 Pennsylvania Ave.
San Diego, CA 92103
619/295-4966 FAX
www.oncina.com

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**CITY OF SAN DIEGO
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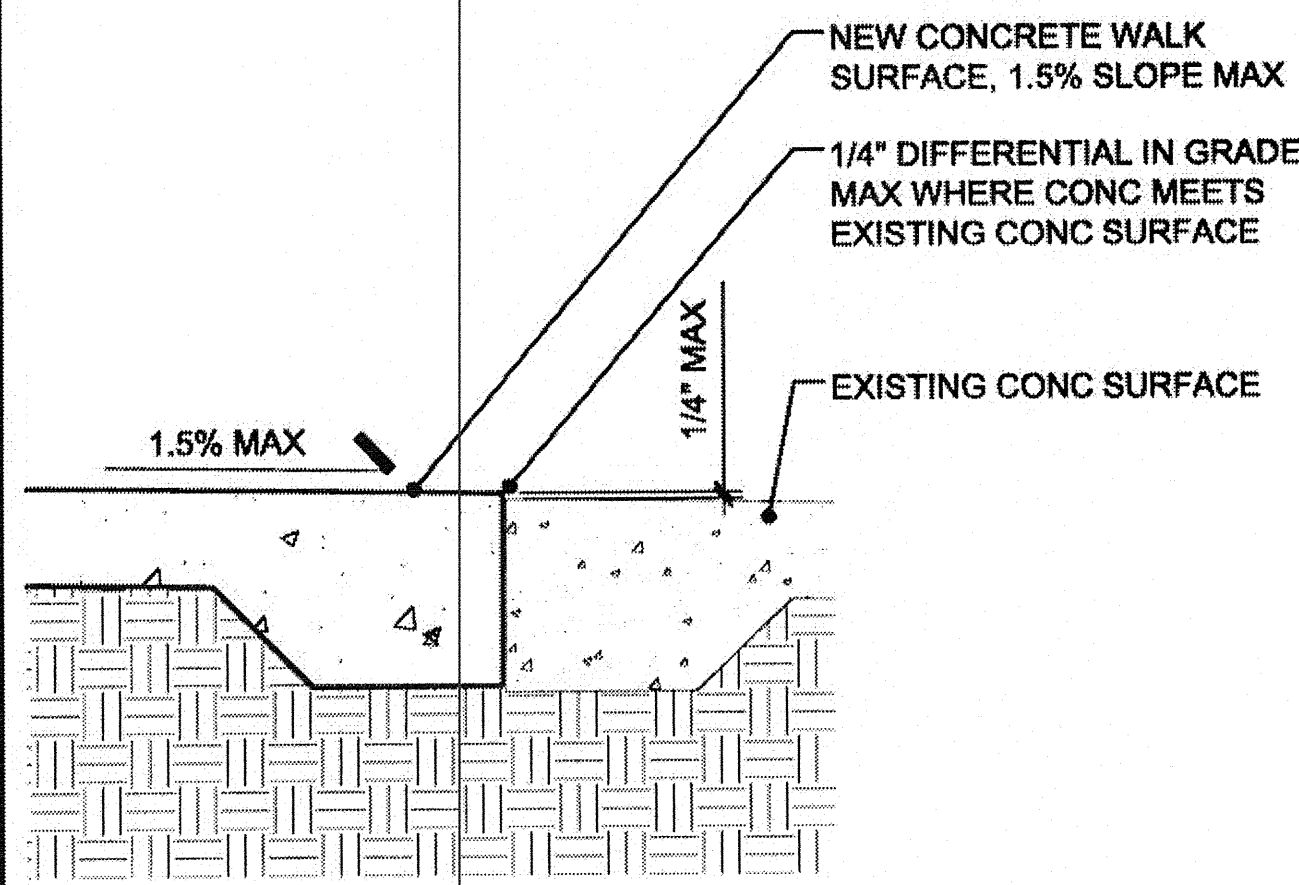


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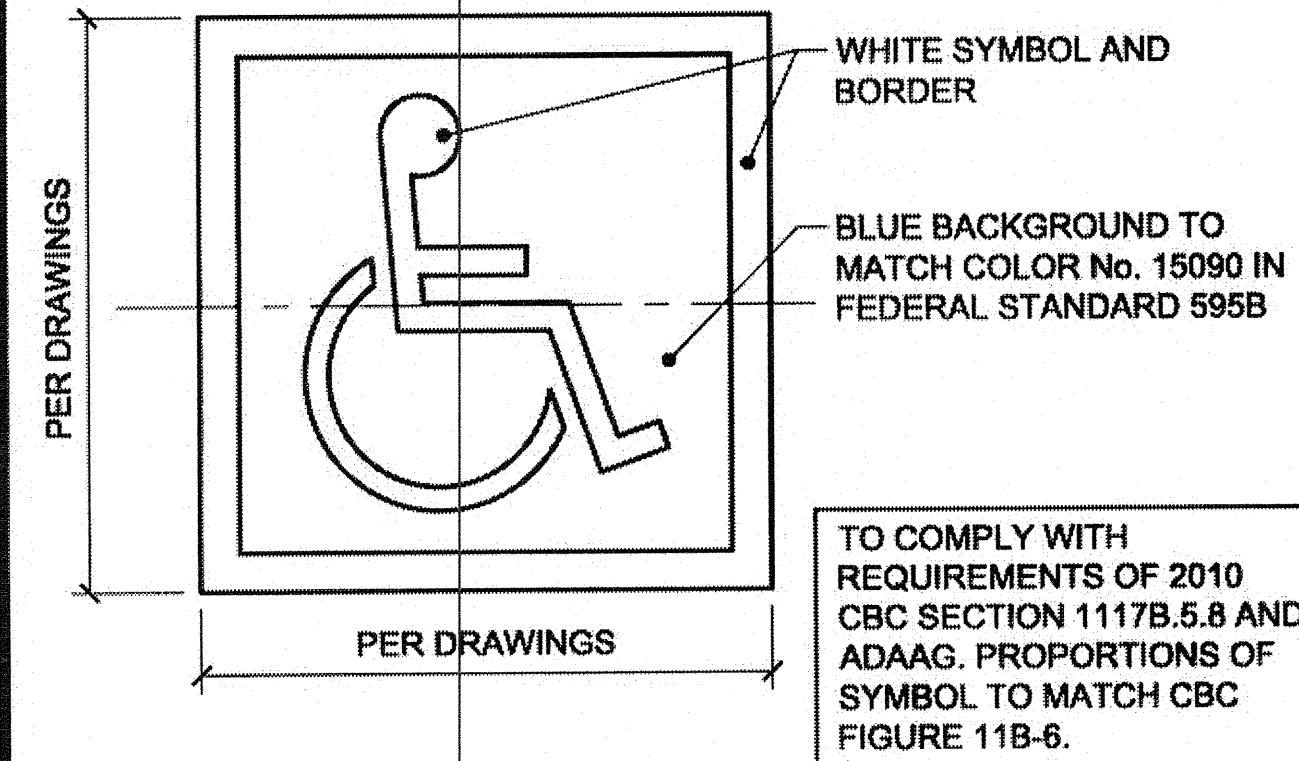
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

FUNDING CIP/SAP	SPEC. NO.	G-4
PLANS FOR THE CONSTRUCTION OF: PALISADES PARK COMFORT STATION		
GENERAL NOTES		
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 4 OF 46 SHEETS		W.B.S. S-10026 W.O.
FOR CITY ENGINEER	DATE 6/18/13	SECTION HEAD
DESCRIPTION BY APPROVED DATE FILMED	FINAL MOA 08/02/12	PROJECT MANAGER
AS-BUILTS		CCS27 COORDINATE
CONTRACTOR INSPECTOR	DATE STARTED DATE COMPLETED	CCS83 COORDINATE
		36598-4-D

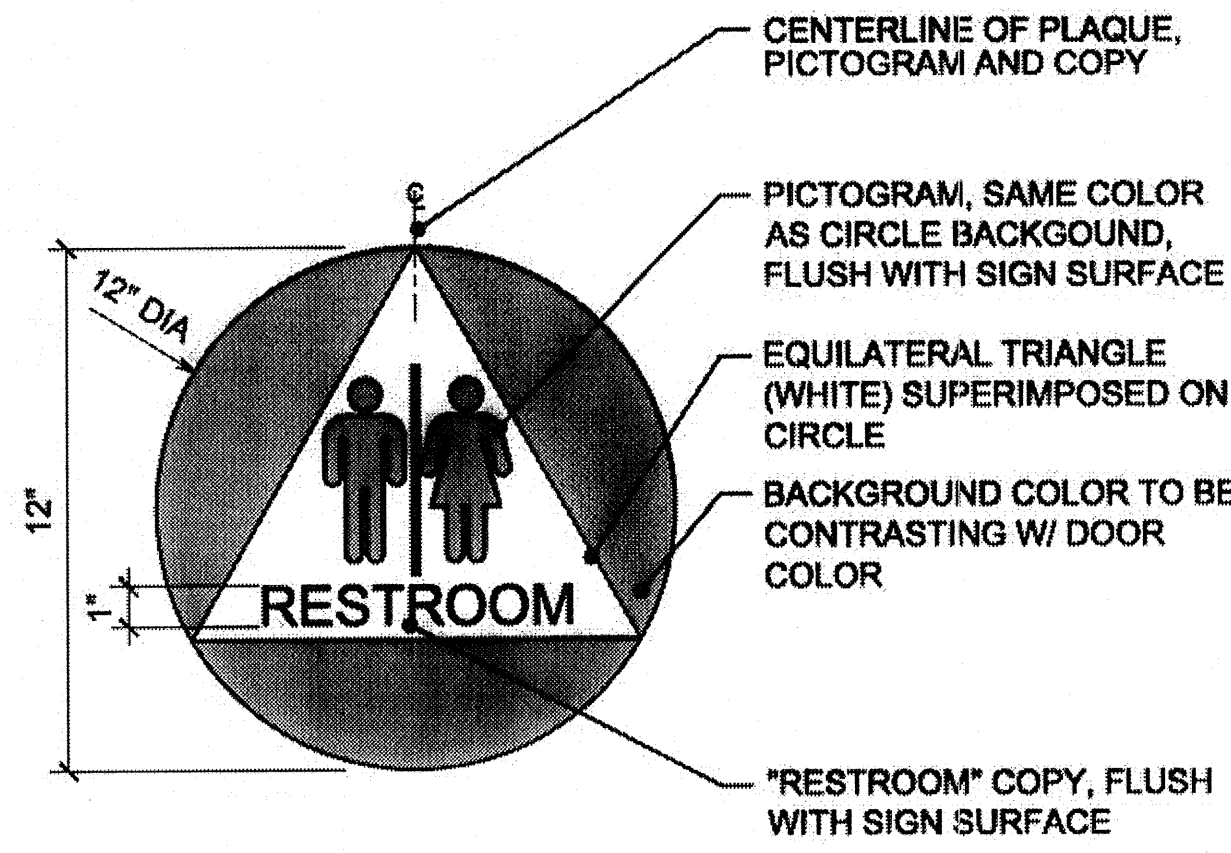
PALISADES PARK COMFORT STATION



11 LEVEL DIFFERENTIAL AT SURFACE CHANGE
SCALE: 1-1/2"=1'-0"

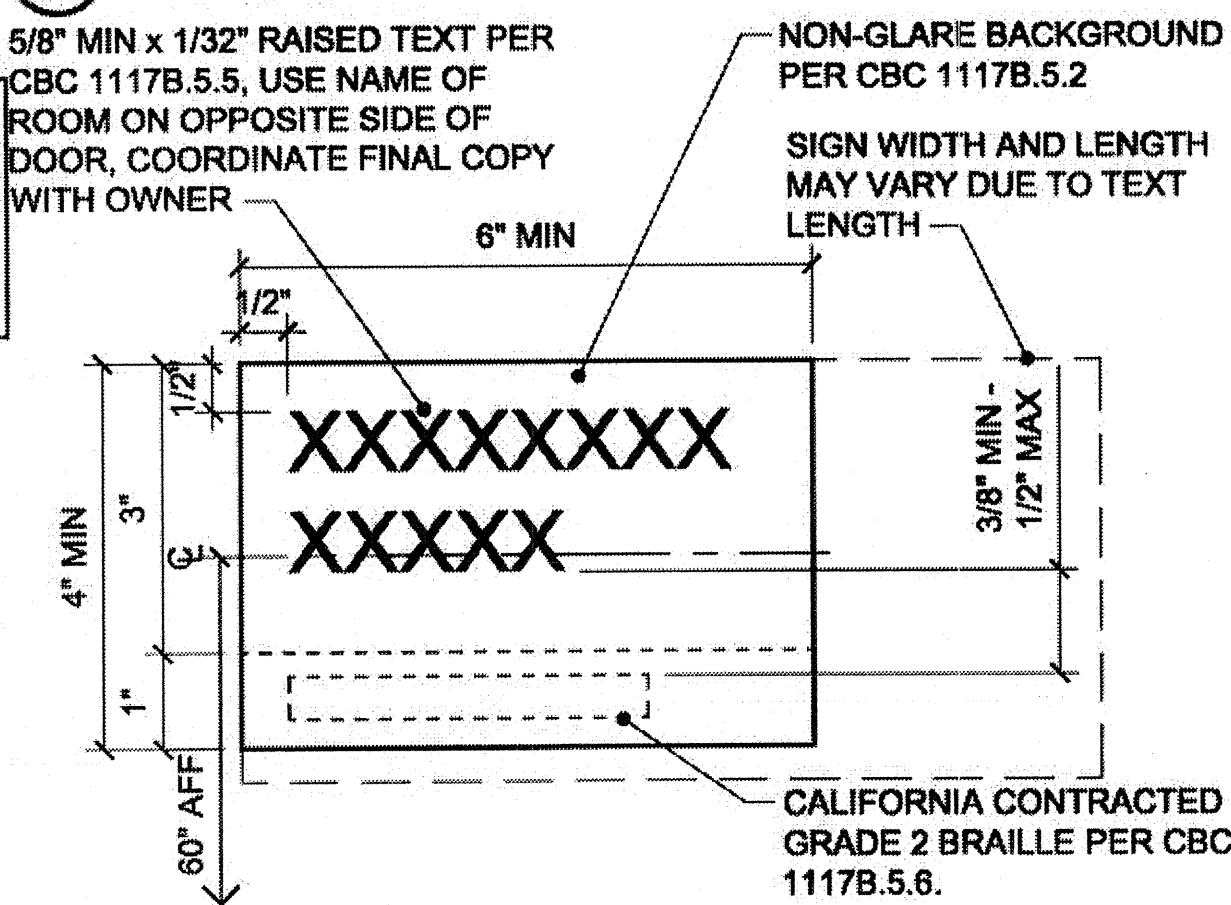


12 INTERNATIONAL SYMBOL OF ACCESSIBILITY
SCALE: 6"=1'-0"



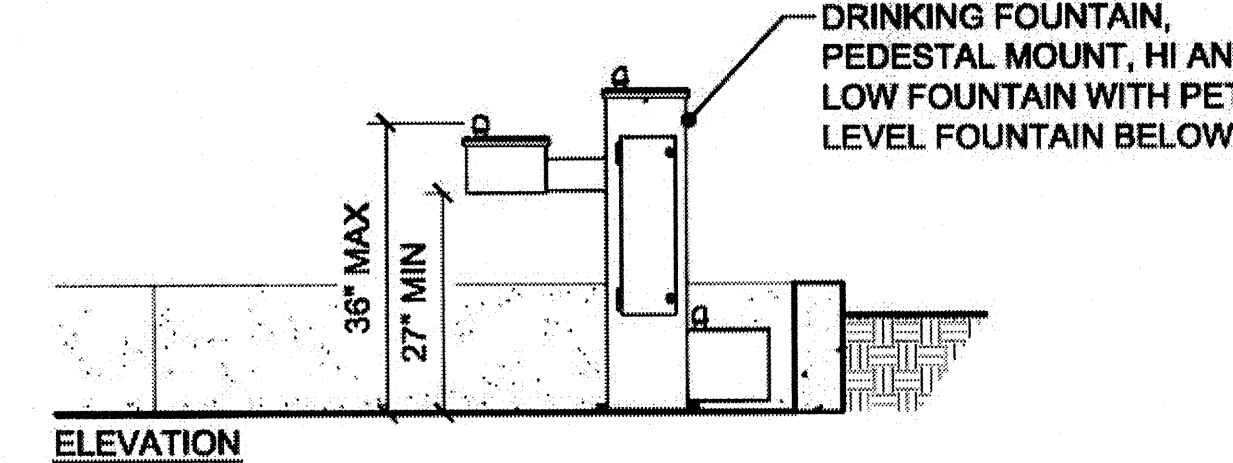
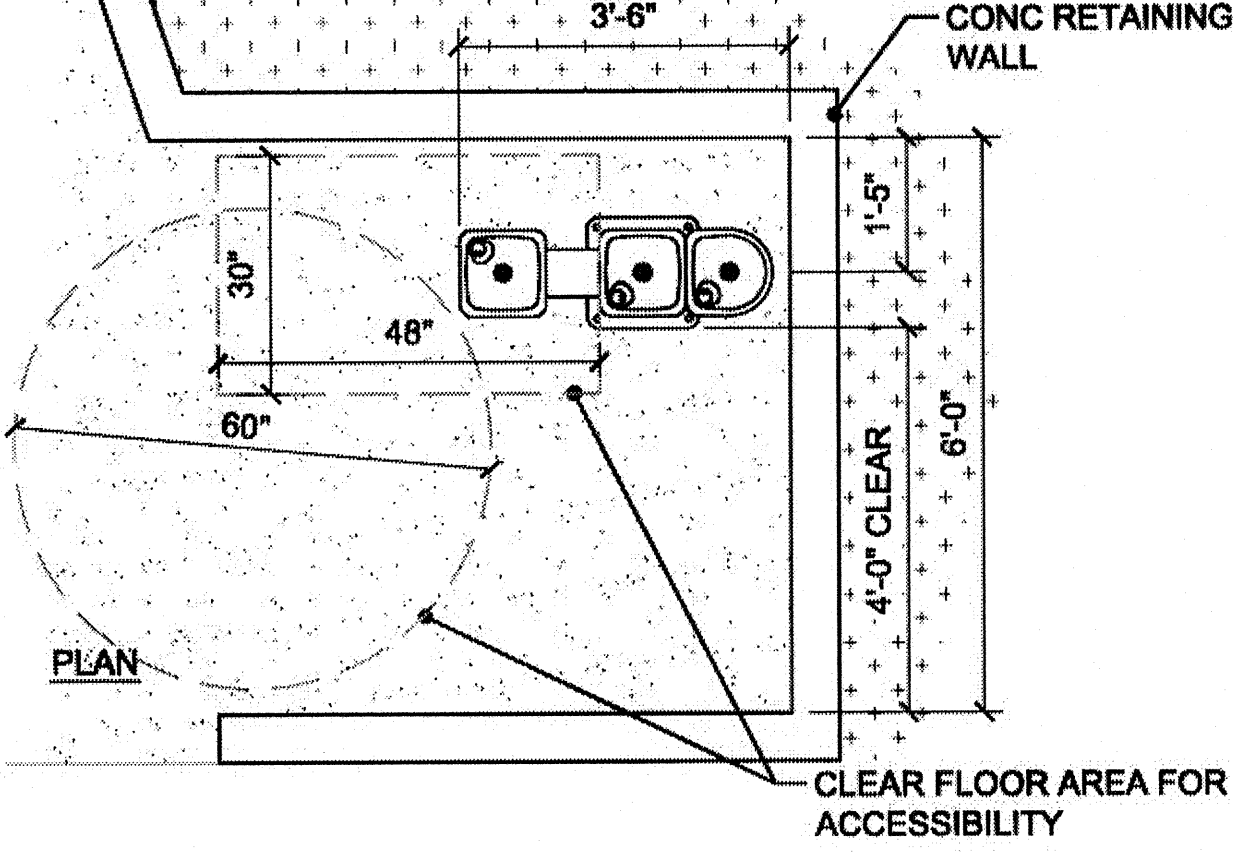
- NOTES:**
1. PLAQUES ARE TO BE MOUNTED 60" ABOVE FINISH FLOOR TO CENTERLINE OF PLAQUE, CENTER OF DOOR.
 2. SECURE PLAQUES TO DOOR WITH VANDALPROOF SS SCREWS AND PERMANENT DOUBLE-SIDED ADHESIVE.
 3. SIGN SURFACE TO BE COMPLETELY FLUSH WITH NO EXTRUSIONS.
 4. CONTRACTOR TO SUBMIT SHOP DRAWINGS, WITH COPY, FOR REVIEW AND APPROVAL PRIOR TO FABRICATION

9 RESTROOM DOOR PLAQUE
SCALE: NOT TO SCALE

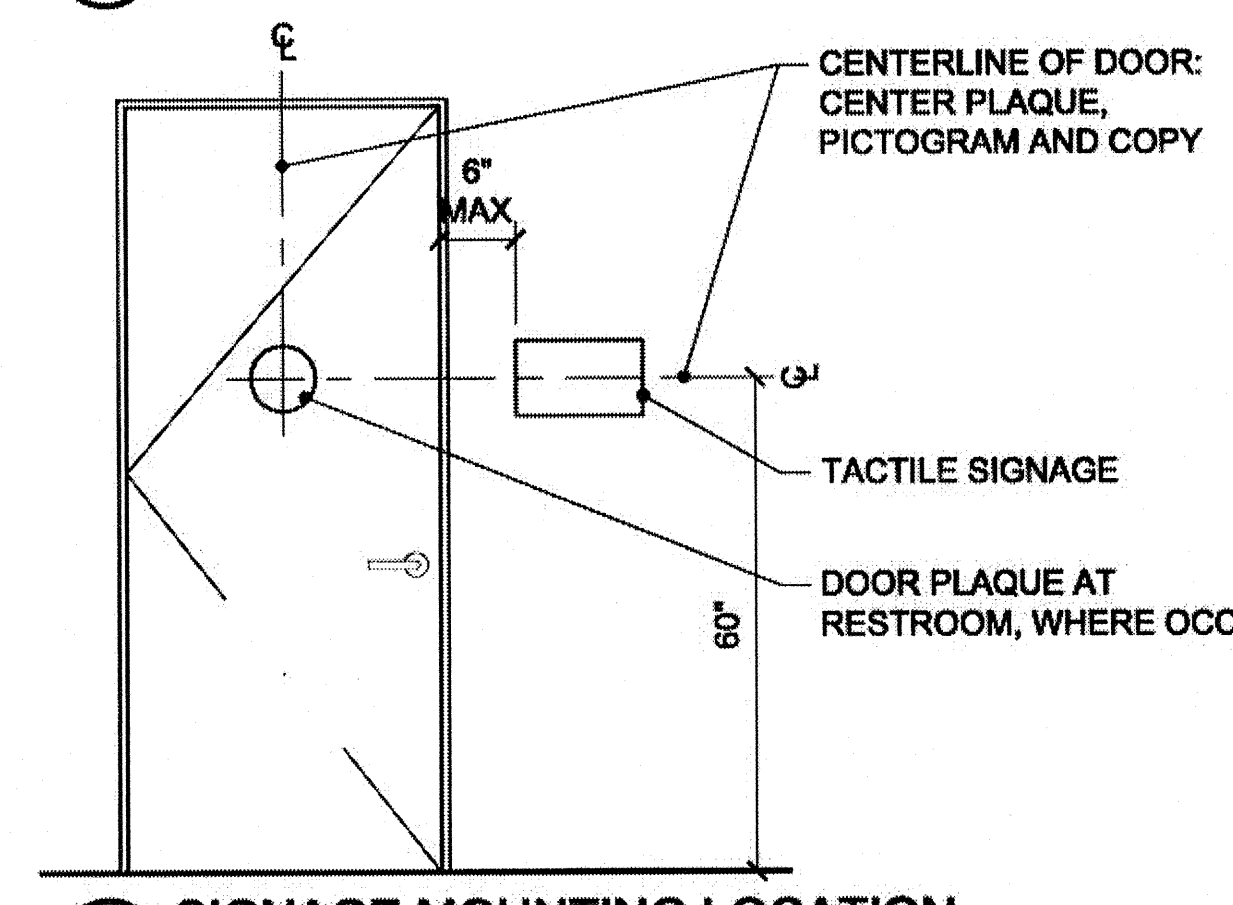


- NOTE:**
1. TEXT COLOR TO CONTRAST BACKGROUND COLOR. COLOR CHOICES ARE FROM MANUFACTURER'S STANDARD COLORS.
 2. CONTRACTOR TO SUBMIT SHOP DRAWINGS INCLUDING COPY FOR ALL SIGNS FOR REVIEW AND APPROVAL BEFORE FABRICATION.
 3. SIGNAGE TO COMPLY WITH CBC SECTION 1117B.5.
 4. SIGN FABRICATED FROM ETCHED ZINC PLATE, PAINTED, MIN 1/8" THICK, FASTENED WITH VANDAL-PROOF SS316 MASONRY SCREWS.

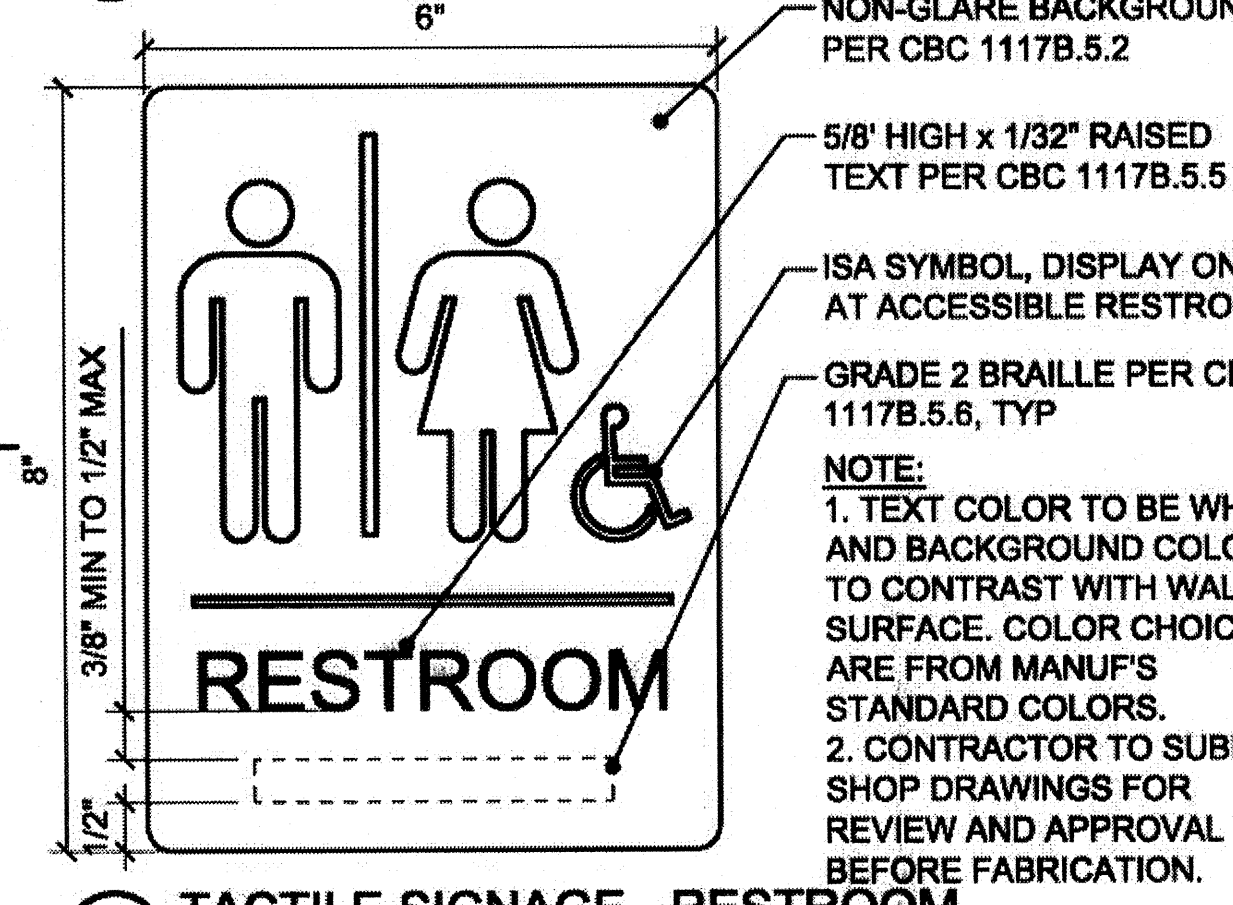
10 TACTILE SIGNAGE - ROOM I.D.
SCALE: 6"=1'-0"



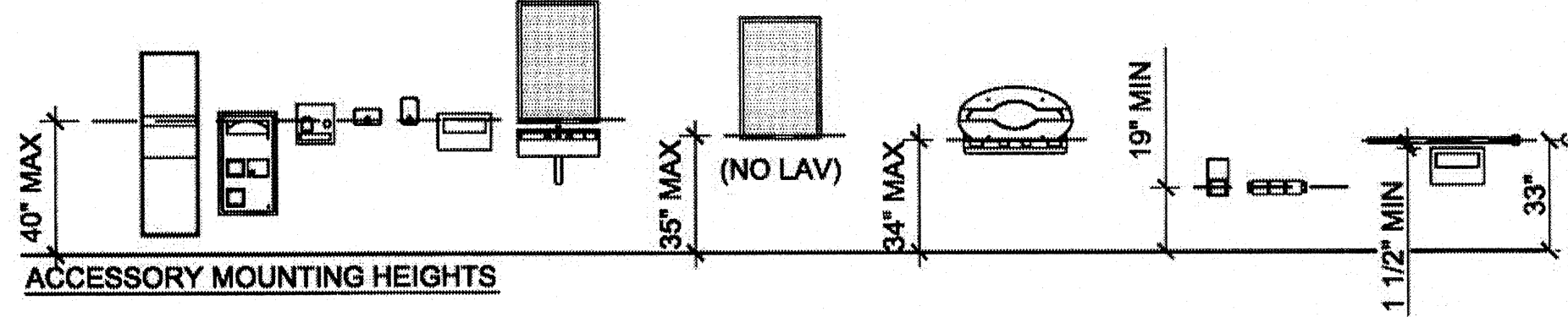
6 ACCESSIBLE DRINKING FOUNTAIN
SCALE: 1/2"=1'-0"



7 SIGNAGE MOUNTING LOCATION
SCALE: NOT TO SCALE

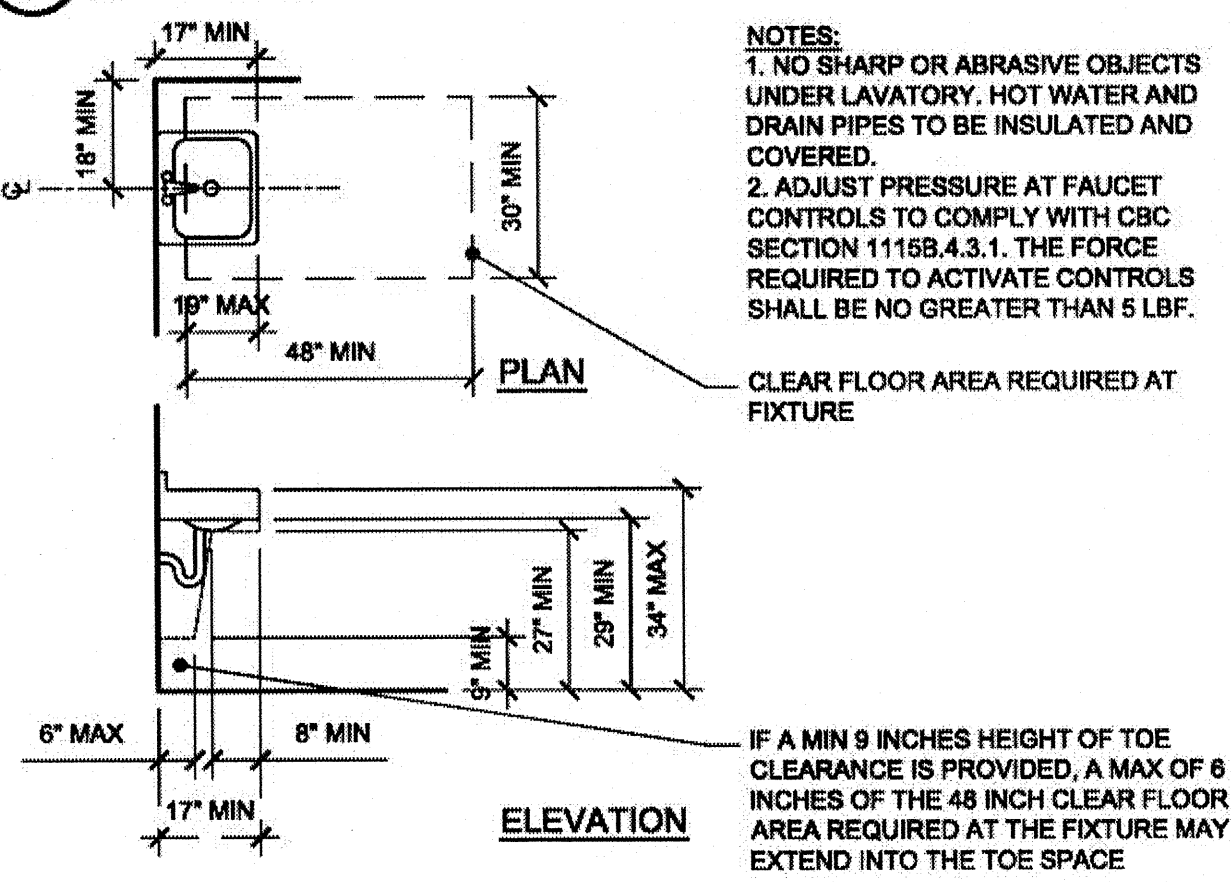


8 TACTILE SIGNAGE - RESTROOM
SCALE: 8"=1'-0"

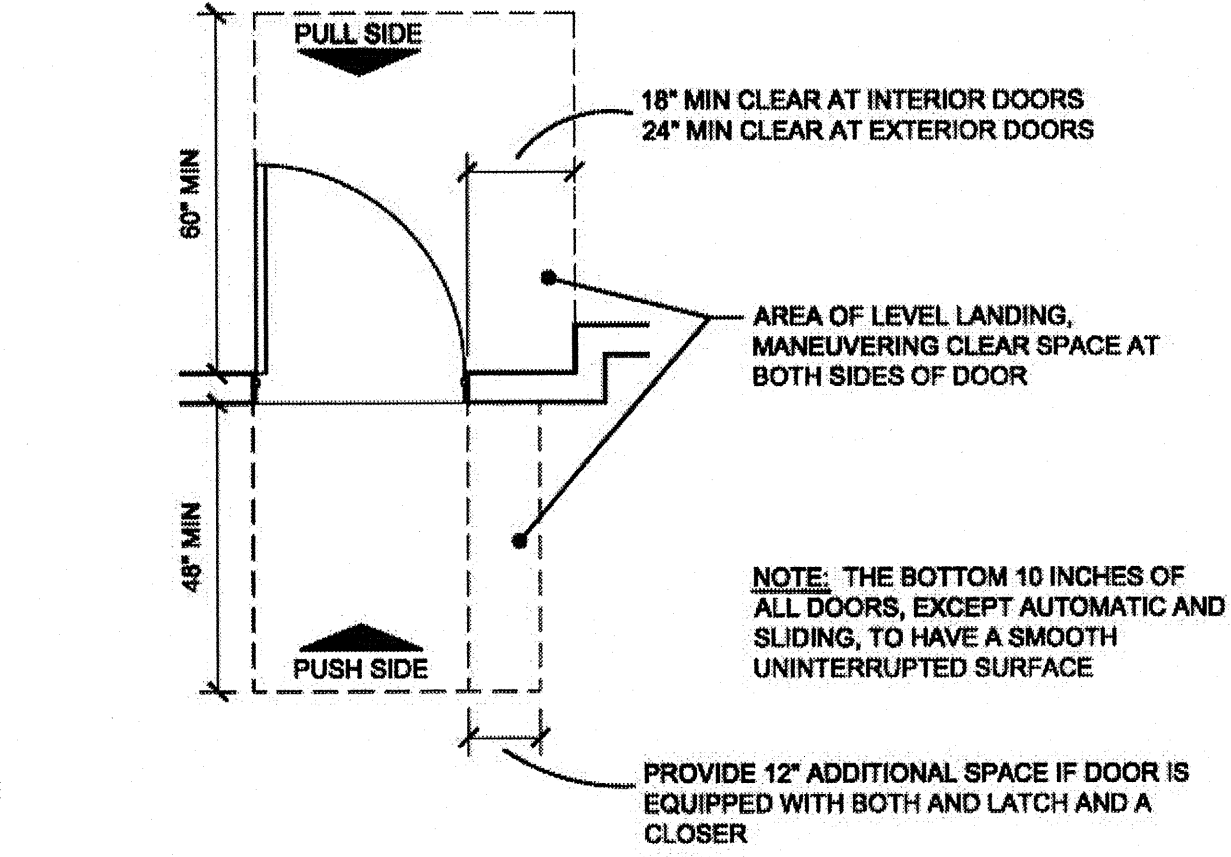


- ACCESSORY MOUNTING HEIGHTS**
- NOTES:**
1. ALL RESTROOM ACCESSORIES TO BE MOUNTED SO THAT NO OPERABLE PART EXCEEDS 40" AFF.
 2. MIRROR LOCATED ABOVE ACCESSIBLE LAVATORIES SHALL BE INSTALLED WITH BOTTOM EDGE OF REFLECTING SURFACE 40" MAX AFF.
 3. WHEN MIRRORS PROVIDED AT LOCATIONS OTHER THAN ABOVE LAVATORIES AND COUNTERTOPS, AT LEAST ONE SHALL BE INSTALLED WITH BOTTOM EDGE OF REFLECTING SURFACE AT 35" MAX AFF.
 4. DIAPER CHANGING STATIONS TO BE MOUNTED 34" MAX AFF TO TOP OF CHANGING DECK WHEN IN OPEN POSITION.
 5. TOILET TISSUE DISPENSERS TO BE MOUNTED 19" MIN AFF.

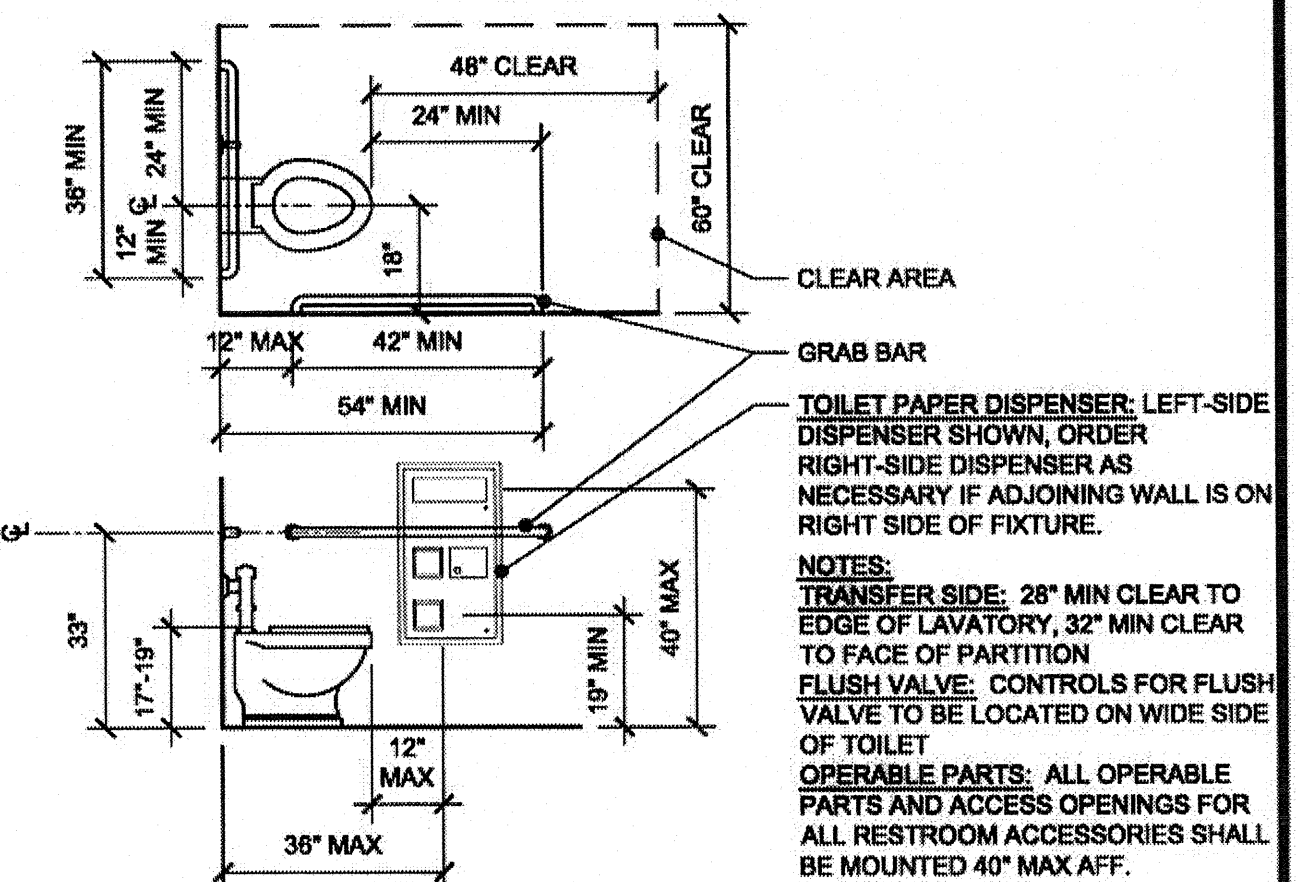
3 RESTROOM ACCESSORY MOUNTING HEIGHTS
SCALE: 1/4"=1'-0"



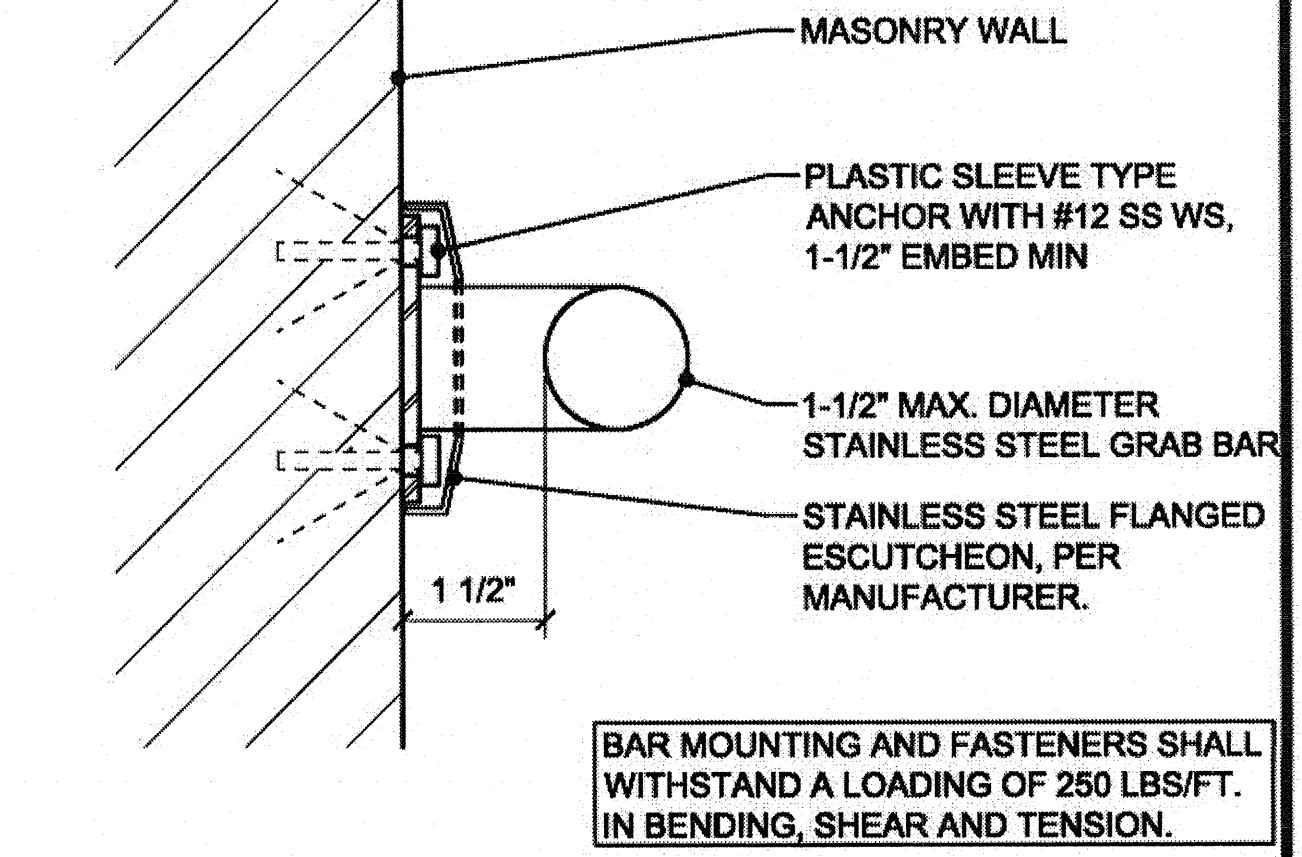
4 ACCESS REQUIREMENTS AT LAVATORY
SCALE: 3/8"=1'-0"



5 REQUIRED CLEARANCES AT ALL DOORS
SCALE: NOT TO SCALE



1 ACCESS REQUIREMENTS AT TOILET
SCALE: 3/8"=1'-0"



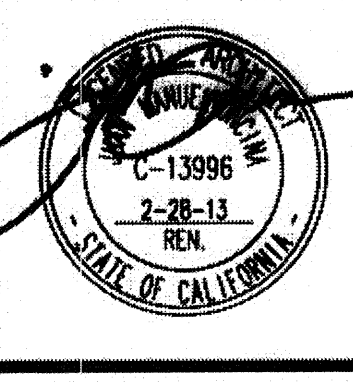
2 GRAB BAR AT MASONRY WALL
SCALE: 6"=1'-0"

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

MANUEL ONCINA ARCHITECTS INC. ARCHITECTURE PLANNING INTERIORS
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www.oncina.com

SCALE: HORIZONTAL NO SCALE VERTICAL NO SCALE



CITY OF SAN DIEGO PUBLIC WORKS PROJECT

Seal of the City of San Diego, State of California.

WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

FUNDING CIP/SAP	SPEC. NO.	G-5
PLANS FOR THE CONSTRUCTION OF:		
PALISADES PARK COMFORT STATION		
GENERAL ACCESSIBILITY DETAILS		
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 5 OF 48 SHEETS		W.B.S. 5-10026 W.O.
FOR CITY ENGINEER	DATE	SECTION HEAD
DESCRIPTION	BY	APPROVED
FINAL	MOA	08/02/12
AS-BUILTS		
CONTRACTOR INSPECTOR	DATE STARTED	DATE COMPLETED
		36598-5-D

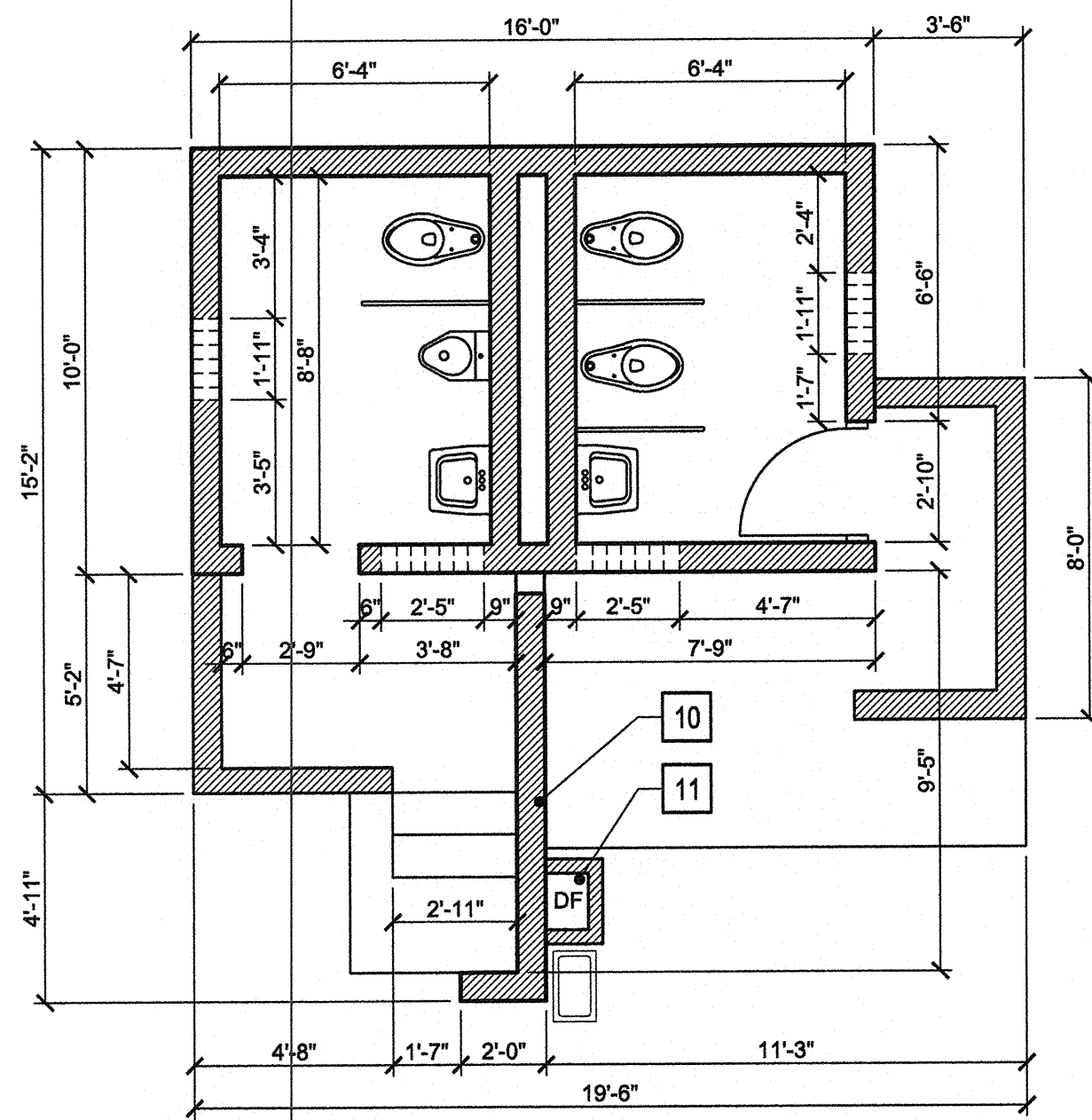
PALISADES PARK COMFORT STATION



EXISTING PHOTO A

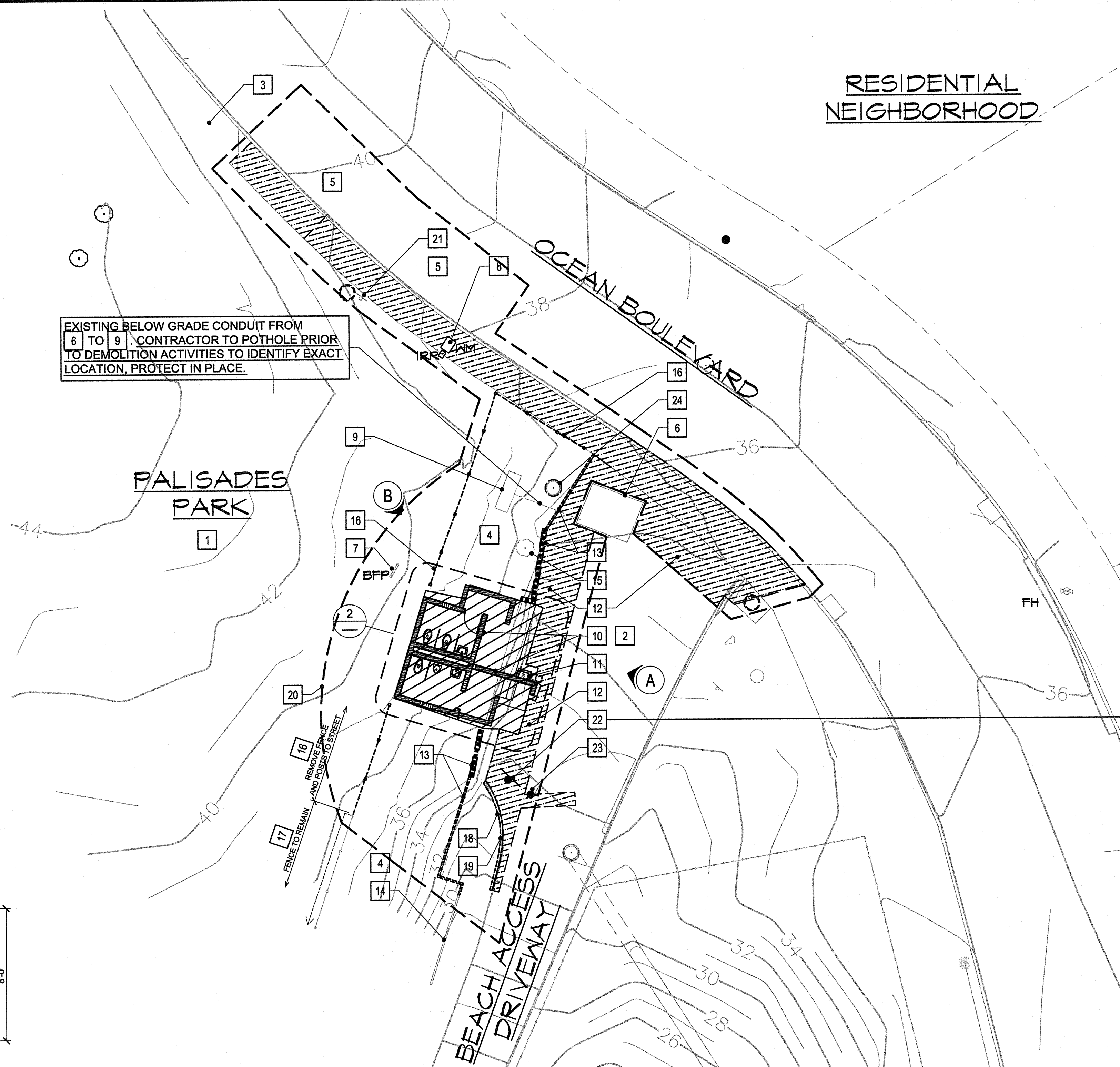


EXISTING PHOTO B



EXISTING BUILDING DIAGRAM 2
SCALE: 1/4"=1'-0"

DIAGRAM BASED ON CASUAL SITE OBSERVATION AND FIELD MEASUREMENTS ONLY.



LEGEND

- EXISTING BUILDING, TO BE REMOVED
- EXISTING PAVEMENT, TO BE REMOVED

NOTES

- 1 EXISTING PARK AREA, PALISADES PARK, PROTECT FROM DISRUPTION DURING CONSTRUCTION ACTIVITIES
- 2 EXISTING DRIVEWAY, TO REMAIN
- 3 EXISTING SIDEWALK, TO REMAIN
- 4 EXISTING VEGETATED AREA, SEE LANDSCAPE DRAWINGS FOR PLANT REMOVAL AND SALVAGE
- 5 EXISTING ACCESSIBLE PARKING SPACE, TYP OF 2, TO REMAIN
- 6 EXISTING BELOW GRADE UTILITY VAULT, TO REMAIN, PROTECT IN PLACE
- 7 EXISTING BACKFLOW PREVENTOR, REMOVE AND RETURN TO CITY
- 8 EXISTING WATER METER AND IRRIGATION CONTROL VALVE, TO REMAIN, ADJUST AS NECESSARY TO INSTALL FLUSH WITH NEW CONC SURFACE
- 9 EXISTING ELECTRICAL CABINET AND PUBLIC ART INSTALLATION, TO REMAIN, PROTECT IN PLACE
- 10 EXISTING RESTROOM BUILDING, SCREEN WALLS AND STAIRS: TO BE REMOVED IN ENTIRETY INCLUDING ALL ABOVE AND BELOW GRADE WALLS, FOUNDATIONS, FIXTURES AND UTILITIES. REMOVE WATER LINE TO WATER METER. POTHOLE TO LOCATE (E) LINE
- 11 EXISTING DRINKING FOUNTAIN, TO BE REMOVED IN ENTIRETY INCLUDING PEDESTAL SLAB, SAND DRAINAGE TRAP AND BELOW GRADE UTILITIES
- 12 AREA OF PAVEMENT TO BE REMOVED, COORD WITH NEW WORK BOUNDARY AND SAWCUT AS NECESSARY
- 13 EXISTING RETAINING WALL AND FOOTING, COBBLESTONE AND WOOD MATERIALS, TO BE REMOVED
- 14 EXISTING RETAINING WALL, WOOD MATERIALS, PORTION TO REMAIN AS INDICATED
- 15 EXISTING TREE, TO BE REMOVED, SEE LANDSCAPE DRAWINGS
- 16 EXISTING WOOD POST AND FENCE, TO BE REMOVED
- 17 EXISTING WOOD POST AND FENCE, TO REMAIN
- 18 EXISTING ASPHALT BERM, TO BE REMOVED
- 19 EXISTING ASPHALT BERM, PORTION TO REMAIN
- 20 OUTLINE OF AREA OF IMPROVEMENT, SEE PLANS FOR MORE INFORMATION
- 21 REMOVE EXISTING ACCESSIBLE PARKING SIGNAGE, COORDINATE TIMING WITH INSTALLATION OF NEW SIGNAGE SO THAT SIGNAGE IS NEVER ABSENT FROM SITE
- 22 REMOVE EXISTING METAL SIGNS AND STEEL POSTS, SALVAGE SIGNS FOR REINSTALLATION
- 23 REMOVE EXISTING STEEL POST, SALVAGE FOR REINSTALLATION
- 24 EXISTING MANHOLE, REMOVE TOP 16" RING CAREFULLY AT GROUT LINE, REPLACE WITH CUSTOM-POURED RING TO ALIGN COVER FLUSH WITH FINISHED WORK.

EXISTING BELOW GRADE CONDUIT FROM 6 TO 9. CONTRACTOR TO POT HOLE PRIOR TO DEMOLITION ACTIVITIES TO IDENTIFY EXACT LOCATION, PROTECT IN PLACE.

'SURFING ZONE' INFO SIGN AND 'AUTHORIZED CITY VEHICLES ONLY' SIGN

GENERAL DEMOLITION NOTES

1. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID AND FIELD VERIFY ALL CONDITIONS NOTED ON THE DEMOLITION DRAWINGS AND SPECIFICATIONS. NOT ALL EXISTING AND DEMOLITION CONDITIONS HAVE BEEN SHOWN OR IDENTIFIED. CONTRACTOR TO COORDINATE ALL REQUIRED DEMOLITION BASED ON BOTH NEW WORK AND DEMOLITION DOCUMENTS. THE OWNER RESERVES THE RIGHT TO REMOVE ANY ITEMS FROM THE SITE PRIOR TO THE START OF CONSTRUCTION.
2. REFER TO DEMOLITION KEYNOTES ON THIS SHEET AND SPECIFICATIONS FOR EXTENT OF WORK.
3. CONTRACTOR TO REFER TO CONSULTANTS DRAWINGS FOR ADDITIONAL DEMOLITION NOTES.
4. CAP CONNECTIONS WHERE UTILITIES REMOVED, AND TO BE ABANDONED.
5. CONTRACTOR SHALL PATCH AND REPAIR TO MATCH ADJACENT CONDITIONS, ANY DAMAGED AREA BEHIND OR SURROUNDING ITEMS THAT ARE REMOVED. COORDINATE EXTENT OF ALL DEMOLITION WITH NEW WORK REQUIREMENTS. DO NOT PATCH AREAS THAT WILL BE CONCEALED AS RESULT OF NEW WORK, U.O.N.
6. EXTENT OF DEMOLITION IS SHOWN GRAPHICALLY, FULL SCOPE OF DEMOLITION WORK SHALL BE DETERMINED BY CONTRACTOR TO ACCOMMODATE NEW CONSTRUCTION. CONTRACTOR SHALL PROTECT FROM DAMAGED ANYTHING THAT IS TO REMAIN, BE RELOCATED OR SALVAGED.
7. CONTRACTOR TO OBTAIN DEMOLITION PERMIT PRIOR TO PROCEEDING WITH DEMOLITION ACTIVITIES.
8. USE EXTREME CARE TO AVOID DAMAGING ANY AREA ADJACENT TO THE DEMOLITION WHICH IS NOT PART OF THIS WORK. ANY DAMAGE TO AREAS NOT PART OF THIS WORK SHALL BE PATCHED, REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.
9. WHERE ITEMS ARE INDICATED AS "SALVAGE", DETACH ENTIRE ITEM FROM EXISTING CONSTRUCTION, PROTECT AND STORE ON SITE, U.O.N.
10. MAINTAIN PROTECTED EGRESS AND ACCESS TO THE WORK AT ALL TIMES.

DEMOLITION PLAN 1

SCALE: 1:10 north

FUNDING CIP/SAP		SPEC. NO.		D1
PLANS FOR THE CONSTRUCTION OF:				
PALISADES PARK COMFORT STATION				
DEMOLITION PLAN				
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 6 OF 46 SHEETS			W.B.S. S-10026 W.O.	
APPROVED BY	DATE	DATE		SECTION HEAD
FOR CITY ENGINEER	6/18/13			PROJECT MANAGER
DESCRIPTION	BY	APPROVED	DATE	FILED
FINAL	MOA		08/02/12	
AS-BUILTS		DATE STARTED		CCS27 COORDINATE
CONTRACTOR		DATE COMPLETED		CCS83 COORDINATE
INSPECTOR				36598-6-D

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

MANUEL ONCINA ARCHITECTS INC. ARCHITECTURE PLANNING INTERIORS
614 Piermyvaria Ave. San Diego, CA 92103
619/295-4985 FAX
www.oncina.com

SCALE HORIZONTAL NO SCALE VERTICAL NO SCALE

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING

IF THIS BAR DOES NOT MEASURE 1' THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION

GENERAL NOTES

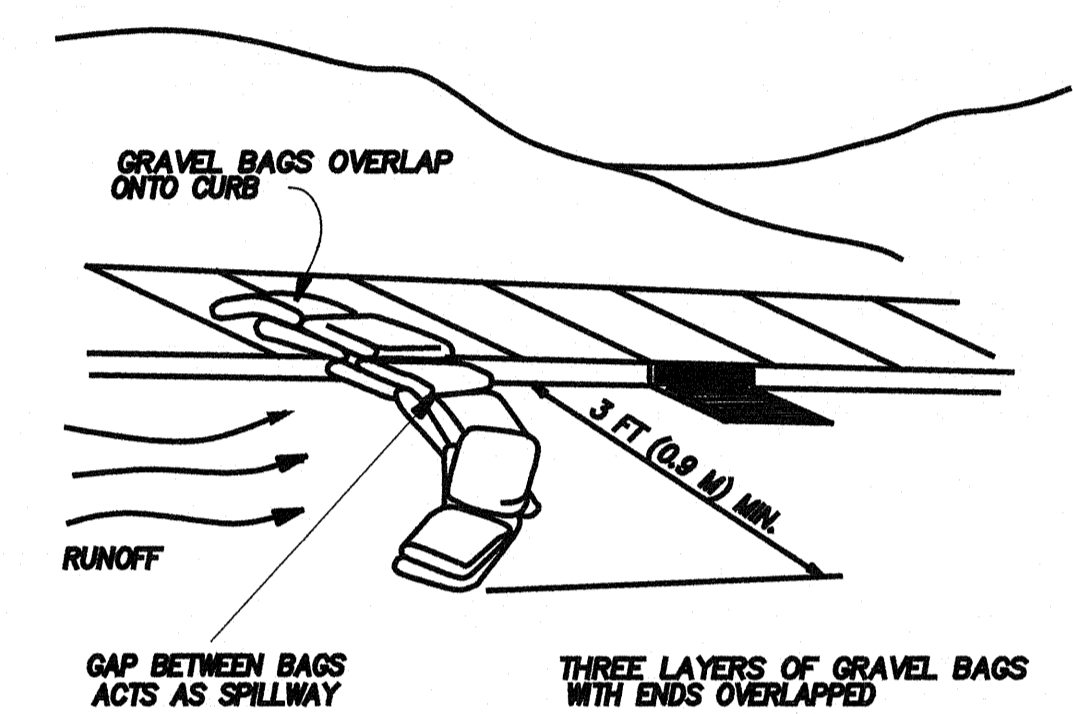
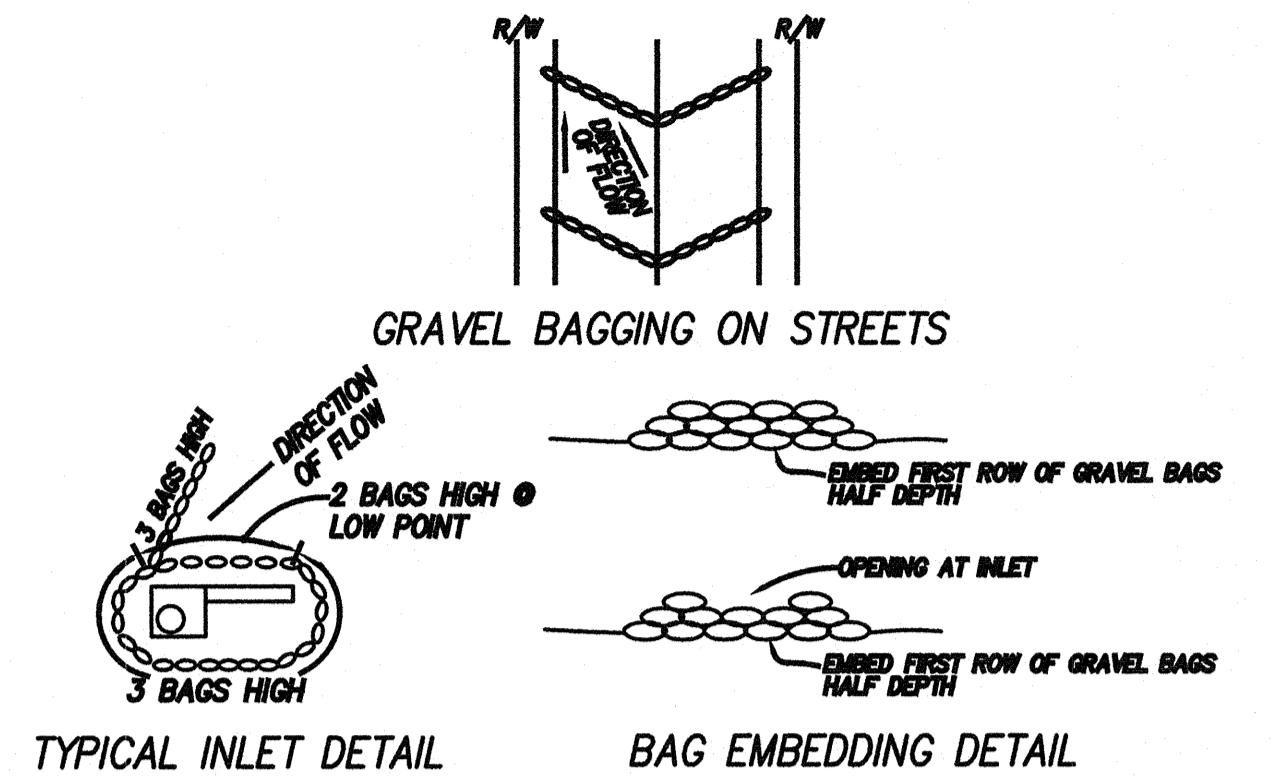
- APPROVAL OF THESE PLANS BY THE CITY ENGINEER DOES NOT AUTHORIZE ANY WORK TO BE PERFORMED UNTIL A NOTICE TO PROCEED HAS BEEN ISSUED.
- THE APPROVAL OF THIS PLAN OR ISSUANCE OF A PERMIT BY THE CITY OF SAN DIEGO DOES NOT AUTHORIZE THE CONTRACTOR AND OWNER TO VIOLATE ANY FEDERAL, STATE OR CITY LAWS, ORDINANCES, REGULATIONS, OR POLICIES, INCLUDING, BUT NOT LIMITED TO, THE FEDERAL ENDANGERED SPECIES ACT OF 1973 AND AMENDMENTS THERETO (16 USC SECTION 1531 ET. SEQ.)
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY MONUMENTS AND/OR VERTICAL CONTROL BENCHMARKS WHICH ARE DISTURBED OR DESTROYED BY CONSTRUCTION. A LICENSED LAND SURVEYOR MUST FIELD LOCATE, REFERENCE, AND/OR PRESERVE ALL HISTORICAL OR CONTROLLING MONUMENTS PRIOR TO ANY EARTHWORK. IF DESTROYED, A LAND SURVEYOR SHALL REPLACE SUCH MONUMENTS WITH APPROPRIATE MONUMENTS. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT. IF ANY VERTICAL CONTROL IS TO BE DISTURBED OR DESTROYED, THE CITY OF SAN DIEGO FIELD SURVEY SECTION MUST BE NOTIFIED, IN WRITING, AT LEAST 3 DAYS PRIOR TO THE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPLACING ANY VERTICAL CONTROL BENCHMARKS DESTROYED BY THE CONSTRUCTION.
- CONTRACTOR SHALL IMPLEMENT AN EROSION AND SEDIMENT CONTROL PROGRAM DURING THE PROJECT GRADING AND/OR CONSTRUCTION ACTIVITIES. THE PROGRAM SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE STATE WATER RESOURCE CONTROL BOARD AND THE CITY OF SAN DIEGO MUNICIPAL CODE AND STORM WATER STANDARDS MANUAL.
- ALL EXISTING AND/OR PROPOSED PUBLIC UTILITY SYSTEM AND SERVICE FACILITIES SHALL BE INSTALLED UNDERGROUND IN ACCORDANCE WITH SECTION 144.0240 OF THE MUNICIPAL CODE.
- PRIOR TO ANY DISTURBANCE TO THE SITE, EXCLUDING UTILITY MARK-OUTS AND SURVEYING, THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR A PRE-CONSTRUCTION MEETING WITH THE CITY OF SAN DIEGO FIELD ENGINEERING DIVISION (858) 627-3200.
- DEVIATIONS FROM THESE SIGNED PLANS WILL NOT BE ALLOWED UNLESS A CONSTRUCTION CHANGE IS APPROVED BY THE CITY ENGINEER OR THE CHANGE IS REQUIRED BY THE CITY INSPECTOR.
- AS-BUILT DRAWINGS MUST BE SUBMITTED TO THE RESIDENT ENGINEER PRIOR TO ACCEPTANCE OF THIS PROJECT BY THE CITY OF SAN DIEGO.
- CONTRACTOR SHALL REMOVE AND REPLACE ALL UTILITY BOXES SERVING AS HANDHOLES THAT ARE NOT IN "AS-NEW" CONDITION IN PROPOSED SIDEWALK. DAMAGED BOXES, OR THOSE THAT ARE NOT IN COMPLIANCE WITH CURRENT CODE SHALL BE REMOVED AND REPLACED WITH NEW BOXES, INCLUDING WATER, SEWER, TRAFFIC SIGNALS, STREET LIGHTS, DRY UTILITIES-SOGAE, COX, ETC. ALL NEW METAL LIDS SHALL BE SLIP RESISTANT (FRICTION FACTOR >= 0.50) AND INSTALLED FLUSH WITH PROPOSED SIDEWALK GRADE. IF A SLIP RESISTANT METAL LID IS NOT COMMERCIALY AVAILABLE FOR THAT USE, NEW BOXES AND LIDS SHALL BE INSTALLED.

GRADING NOTES

- GRADING AS SHOWN ON THESE PLANS SHALL BE IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS AND CHAPTER 14, ARTICLE 2, DIVISION 1, OF THE SAN DIEGO MUNICIPAL CODE, 2000 EDITION.
- PLANT AND IRRIGATE ALL CUT AND FILL SLOPES AS REQUIRED BY ARTICLE 2, DIVISION 4, SECTION 142.0411 OF THE SAN DIEGO LAND DEVELOPMENT CODE AND ACCORDING TO SECTION IV OF THE LAND DEVELOPMENT MANUAL LANDSCAPE STANDARDS.
- GRADED, DISTURBED, OR ERODED AREAS THAT WILL NOT BE PERMANENTLY PAVED, COVERED BY STRUCTURE, OR PLANTED SHALL BE TEMPORARILY REVEGETATED WITH A NON-IRRIGATED HYDROSEED MIX, GROUND COVER, OR EQUIVALENT MATERIAL.
- GRADED PAD AREAS SHALL BE HYDRO-SEEDING TO PREVENT EROSION. IN THE EVENT THAT CONSTRUCTION OF BUILDING(S) OR PERMANENT SLOPE PLANTING DOES NOT OCCUR WITHIN 30 DAYS OF GRADING, HYDRO-SEED SHALL BE IRRIGATED OR RE-APPLIED AS NECESSARY TO ESTABLISH GROWTH.
- PRIOR TO GRADING THE FIRST 8" OF TOPSOIL SHALL BE STOCKPILED AND REAPPLIED TO SLOPES AFTER COMPLETION OF GRADING AS RECOMMENDED BY PROJECT BIOLOGIST.
- EMERGENCY EROSION CONTROL MEASURES TO CONTROL SOILS MOVEMENT SATISFACTORY TO THE CITY ENGINEER IN THE EVENT THE SITE IS EXPOSED TO EROSION DURING THE PERIOD BETWEEN NOVEMBER 1ST AND APRIL 15TH. EROSION CONTROL MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO, SLOPE PROTECTION, INSTALLATION OF JUTE MATTING OR APPROVED EQUIVALENT, SILTING BASINS, SILT CONTROL, GRAVEL BAGGING AND STORM DRAIN.
- TEMPORARY EROSION CONTROL DEVICES SHOWN ON GRADING PLAN WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED AS AND WHEN THE INSPECTOR SO DIRECTS AS THE WORK PROGRESSES.
- BRUSH AND TREES SHALL BE REMOVED ONLY WITHIN THE AREA TO BE GRADED. WHEN TREES ARE REMOVED, THE ROOT SYSTEMS SHALL ALSO BE REMOVED AND THE RESULTING BE REMOVED AND THE RESULTING EXCAVATION FILLED WITH PROPERLY COMPACTED FILL SOILS.
- CUT AND FILL SLOPES SHALL BE TRIMMED TO THE FINISH GRADE TO PRODUCE A SMOOTH AND UNIFORM SURFACE OR CROSS-SECTION. THE SLOPES OF EXCAVATIONS OR EMBANKMENTS SHALL BE SHAPED AND TRIMMED AS DIRECTED BY THE ENGINEER OF WORK AND LEFT IN A NEAT AND ORDERLY CONDITION. ALL STONES, ROOTS, OR OTHER WASTE MATTER EXPOSED ON EXCAVATION OR EMBANKMENT SLOPE SHALL BE REMOVED AND DISPOSED OF.
- WHERE TRENCHES ARE WITHIN EASEMENTS, SOILS REPORTS SHALL BE SUBMITTED TO THE ENGINEER OF WORK BY A QUALIFIED SOILS ENGINEER WHICH INDICATES THAT TRENCH BACKFILL WAS COMPACTED AS OBSERVED BY THE SOILS ENGINEER IN ACCORDANCE WITH ONSITE EARTHWORK SPECIFICATIONS.
- CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO ALLOW REVISIONS TO PLANS IF REVISIONS ARE NECESSARY DUE TO LOCATION OF EXISTING FACILITIES.
- CONTRACTOR SHALL NOTIFY THE SAN DIEGO GAS & ELECTRIC COMPANY PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS WORK WITH COMPANY REPRESENTATIVE.
- CONTRACTOR SHALL NOTIFY THE TELEPHONE COMPANY PRIOR TO STARTING WORK NEAR COMPANY FACILITIES AND SHALL COORDINATE HIS WORK WITH COMPANY REPRESENTATIVES.
- STORM DRAIN SYSTEM SHALL BE INSTALLED IMMEDIATELY AFTER ROUGH GRADING IS COMPLETE.

EROSION AND SEDIMENT CONTROL NOTES:

- TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:
- ALL REQUIREMENTS OF THE CITY OF SAN DIEGO "LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED GRADING/IMPROVEMENTS CONSISTENT WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WATER QUALITY TECHNICAL REPORT (WQTR), AND/OR WATER POLLUTION CONTROL PLAN (WPCP).
 - FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
 - FOR INLETS LOCATED AT SUMPS ADJACENT TO TOP OF SLOPES, THE CONTRACTOR SHALL ENSURE THAT WATER DRAINING TO THE SUMP IS DIRECTED INTO THE INLET AND THAT A MINIMUM OF 1.00' FREEBOARD EXISTS AND IS MAINTAINED ABOVE THE TOP OF THE INLET. IF FREEBOARD IS NOT PROVIDED BY GRADING SHOWN ON THESE PLANS, THE CONTRACTOR SHALL PROVIDE IT VIA TEMPORARY MEASURES, I.E. GRAVEL BAGS OR DIKES.
 - THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
 - THE CONTRACTOR OR QUALIFIED PERSON SHALL CHECK AND MAINTAIN ALL LINED AND UNLINED DITCHES AFTER EACH RAINFALL.
 - THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
 - EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
 - THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
 - THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
 - ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED GRADING PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
 - GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
 - ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
 - THE CONTRACTOR SHALL ONLY GRADE, INCLUDING CLEARING AND GRUBBING FOR THE AREAS FOR WHICH THE CONTRACTOR OR QUALIFIED PERSON CAN PROVIDE EROSION/SEDIMENT CONTROL MEASURES.
 - THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.



GRAVEL BAGS
N.T.S

"DIG ALERT NOTICE"

SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES THAT A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT ID. NUMBER, CALL UNDERGROUND SERVICE ALERT TOLL FREE 1-800-422-4133 AT LEAST TWO WORKING DAYS BEFORE YOU DIG.

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF SAN DIEGO IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

Christopher J. Roberts
 CHRISTOPHER J. ROBERTS 09/08/12 089419
 DATE REGISTRATION EXPIRES: 08-30-14

R.C.E.

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

CJ ROBERTS INC
 ENGINEERING · CONSTRUCTION
 16957 LAUREL HILL LANE SUITE 206 SAN DIEGO CA 92127
 (858) 228-3655 TEL (858) 228-3656 FAX

SCALE HORIZONTAL NO SCALE
 VERTICAL NO SCALE

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PLANS FOR THE CONSTRUCTION OF:

PALISADES PARK COMFORT STATION

NOTES AND DETAILS

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 7 OF 46 SHEETS

W.B.S. S-10026
 W.O. _____

APPROVED: *Christopher J. Roberts* DATE: 09/08/12

FOR CITY ENGINEER DATE: 09/08/12

DESCRIPTION	BY	APPROVED	DATE	FILMED	SECTION HEAD
100%	MOA		02/09/12		PROJECT MANAGER

AS-BUILTS DATE STARTED DATE COMPLETED

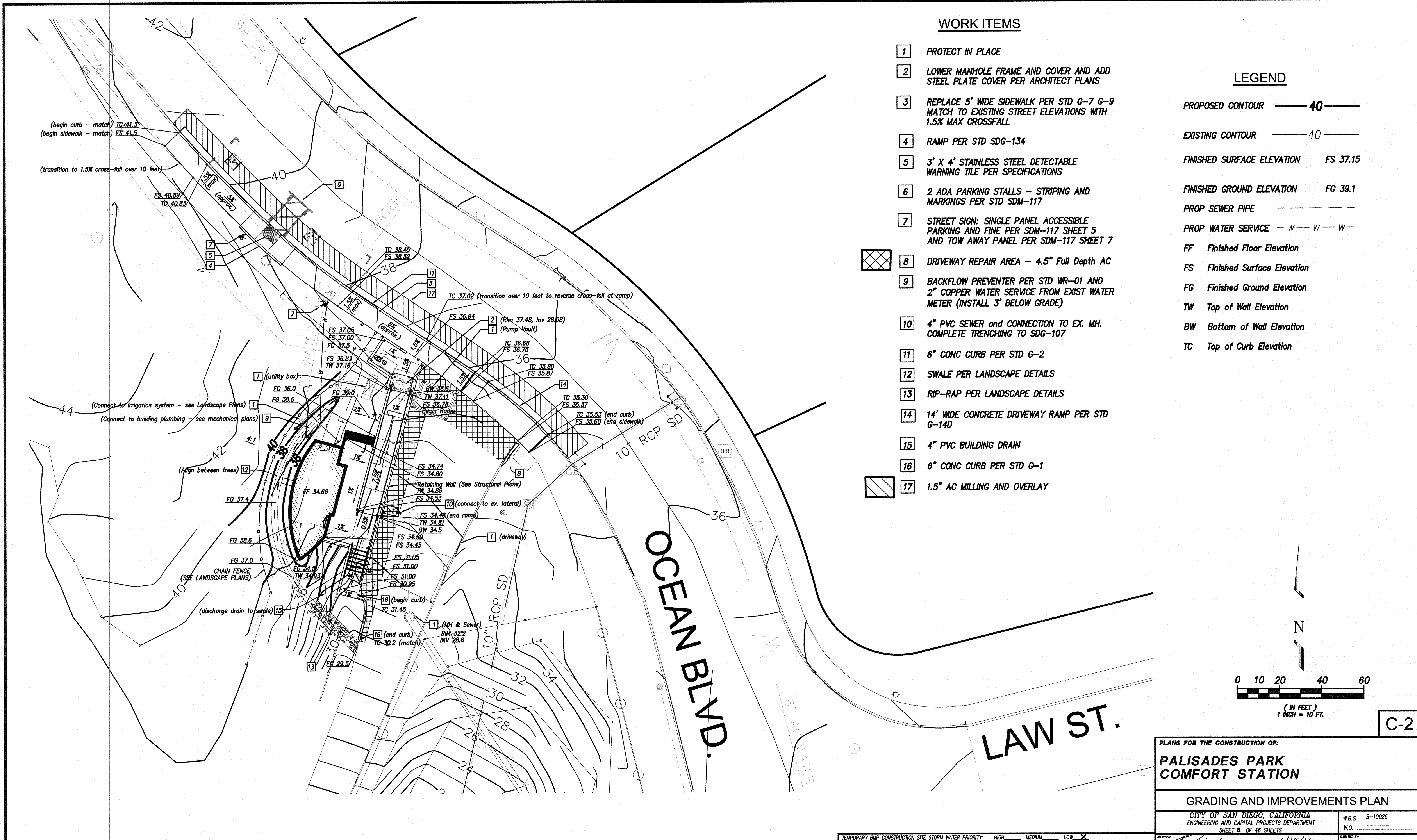
CONTRACTOR INSPECTOR

CCS27 COORDINATE CCS83 COORDINATE

36598-7-D

C-1

PALISADES PARK COMFORT STATION

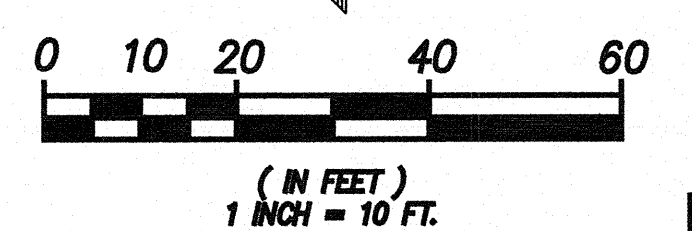


WORK ITEMS

- 1 PROTECT IN PLACE
- 2 LOWER MANHOLE FRAME AND COVER AND ADD STEEL PLATE COVER PER ARCHITECT PLANS
- 3 REPLACE 5' WIDE SIDEWALK PER STD G-7 G-9 MATCH TO EXISTING STREET ELEVATIONS WITH 1.5% MAX CROSSFALL
- 4 RAMP PER STD SDG-134
- 5 3' X 4' STAINLESS STEEL DETECTABLE WARNING TILE PER SPECIFICATIONS
- 6 2 ADA PARKING STALLS - STRIPING AND MARKINGS PER STD SDM-117
- 7 STREET SIGN: SINGLE PANEL ACCESSIBLE PARKING AND FINE PER SDM-117 SHEET 5 AND TOW AWAY PANEL PER SDM-117 SHEET 7
- 8 DRIVEWAY REPAIR AREA - 4.5" Full Depth AC
- 9 BACKFLOW PREVENTER PER STD WR-01 AND 2" COPPER WATER SERVICE FROM EXIST WATER METER (INSTALL 3' BELOW GRADE)
- 10 4" PVC SEWER and CONNECTION TO EX. MH. COMPLETE TRENCHING TO SDG-107
- 11 6" CONC CURB PER STD G-2
- 12 SWALE PER LANDSCAPE DETAILS
- 13 RIP-RAP PER LANDSCAPE DETAILS
- 14 14' WIDE CONCRETE DRIVEWAY RAMP PER STD G-14D
- 15 4" PVC BUILDING DRAIN
- 16 6" CONC CURB PER STD G-1
- 17 1.5" AC MILLING AND OVERLAY

LEGEND

- PROPOSED CONTOUR ——— 40 ———
- EXISTING CONTOUR ——— 40 ———
- FINISHED SURFACE ELEVATION FS 37.15
- FINISHED GROUND ELEVATION FG 39.1
- PROP SEWER PIPE - - - - -
- PROP WATER SERVICE - W - W - W -
- FF Finished Floor Elevation
- FS Finished Surface Elevation
- FG Finished Ground Elevation
- TW Top of Wall Elevation
- BW Bottom of Wall Elevation
- TC Top of Curb Elevation



C-2

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

GRADING AND IMPROVEMENTS PLAN

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET # OF 46 SHEETS

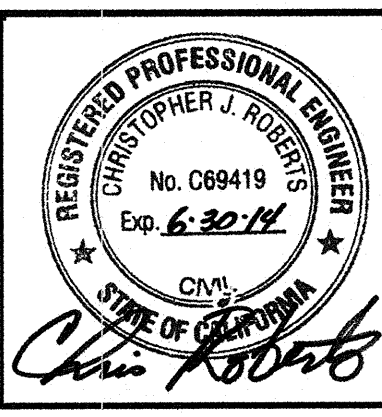
APPROVED BY: <i>[Signature]</i>	DATE: 6/18/13	SECTION HEAD: <i>[Signature]</i>
FOR CITY ENGINEER	DATE	PROJECT MANAGER: <i>[Signature]</i>
DESCRIPTION BY APPROVED DATE FILMED		CCS27 COORDINATE
100% MOA	02/09/12	CCS83 COORDINATE
AS-BUILTS		
CONTRACTOR	DATE STARTED	CONTRACTOR: 36598-8-D
INSPECTOR	DATE COMPLETED	

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

CJ ROBERTS INC
 ENGINEERING • CONSTRUCTION
 16957 LAUREL HILL LANE SUITE 206 SAN DIEGO CA 92127
 (658) 228-3655 TEL (658) 228-3656 FAX

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

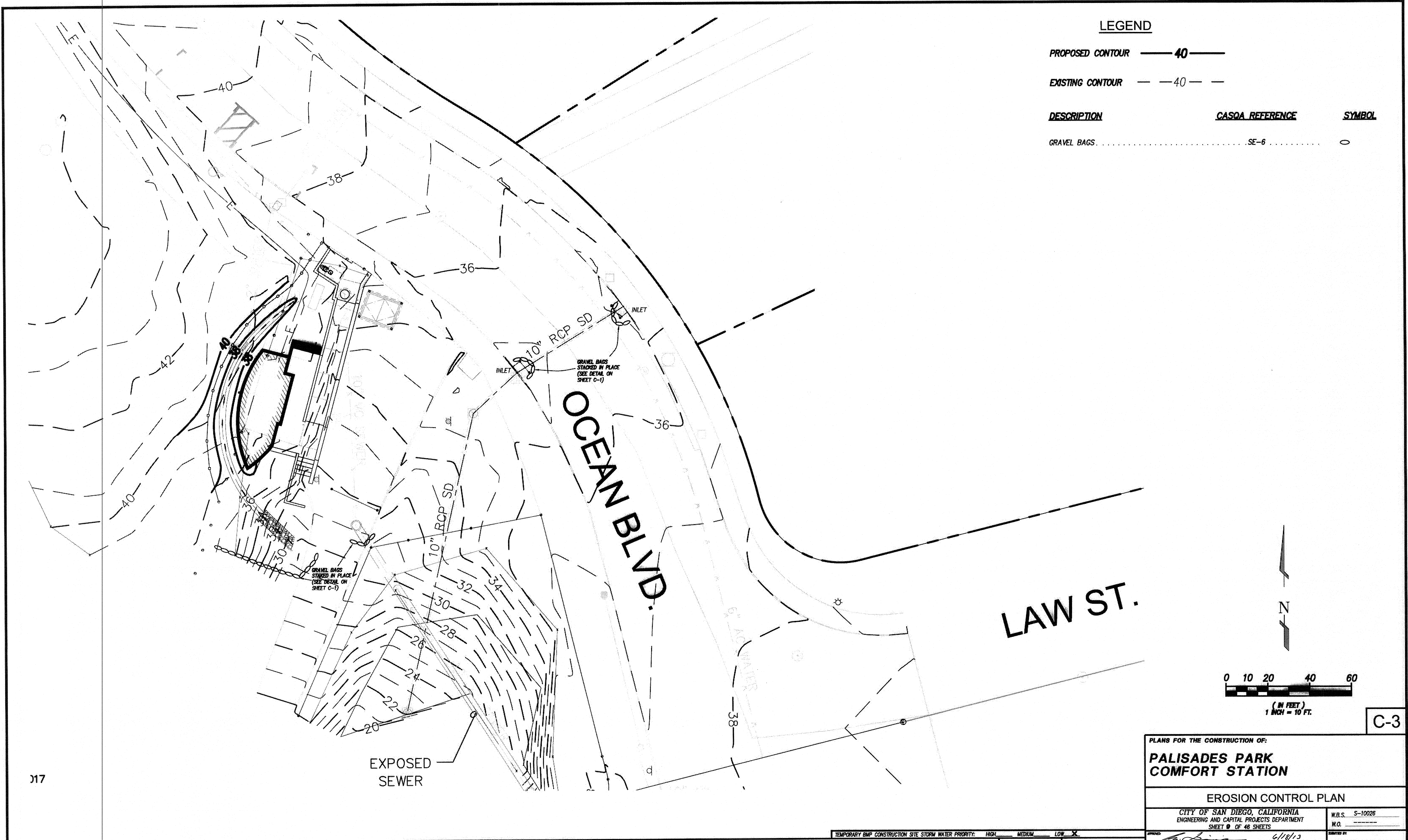
TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW



WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION



LEGEND

PROPOSED CONTOUR	— 40 —
EXISTING CONTOUR	- - 40 - -
DESCRIPTION	CASQA REFERENCE SYMBOL
GRAVEL BAGS SE-6 ○

17

C-3

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

EROSION CONTROL PLAN

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET # OF 46 SHEETS

W.B.S. S-10026
 W.O. _____

DESCRIPTION	BY	APPROVED	DATE	FILED	SECTION HEAD
100% MOA			02/09/12		PROJECT MANAGER
AS-BUILTS					CCS27 COORDINATE
CONTRACTOR INSPECTOR			DATE STARTED DATE COMPLETED		CCS83 COORDINATE

36598-9-D

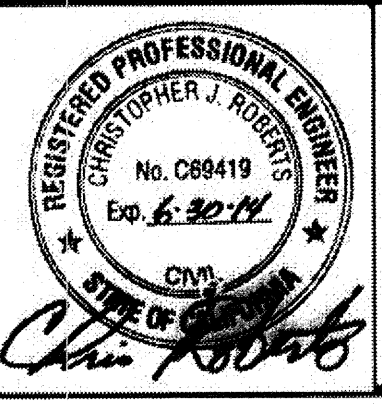
TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW **X**

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

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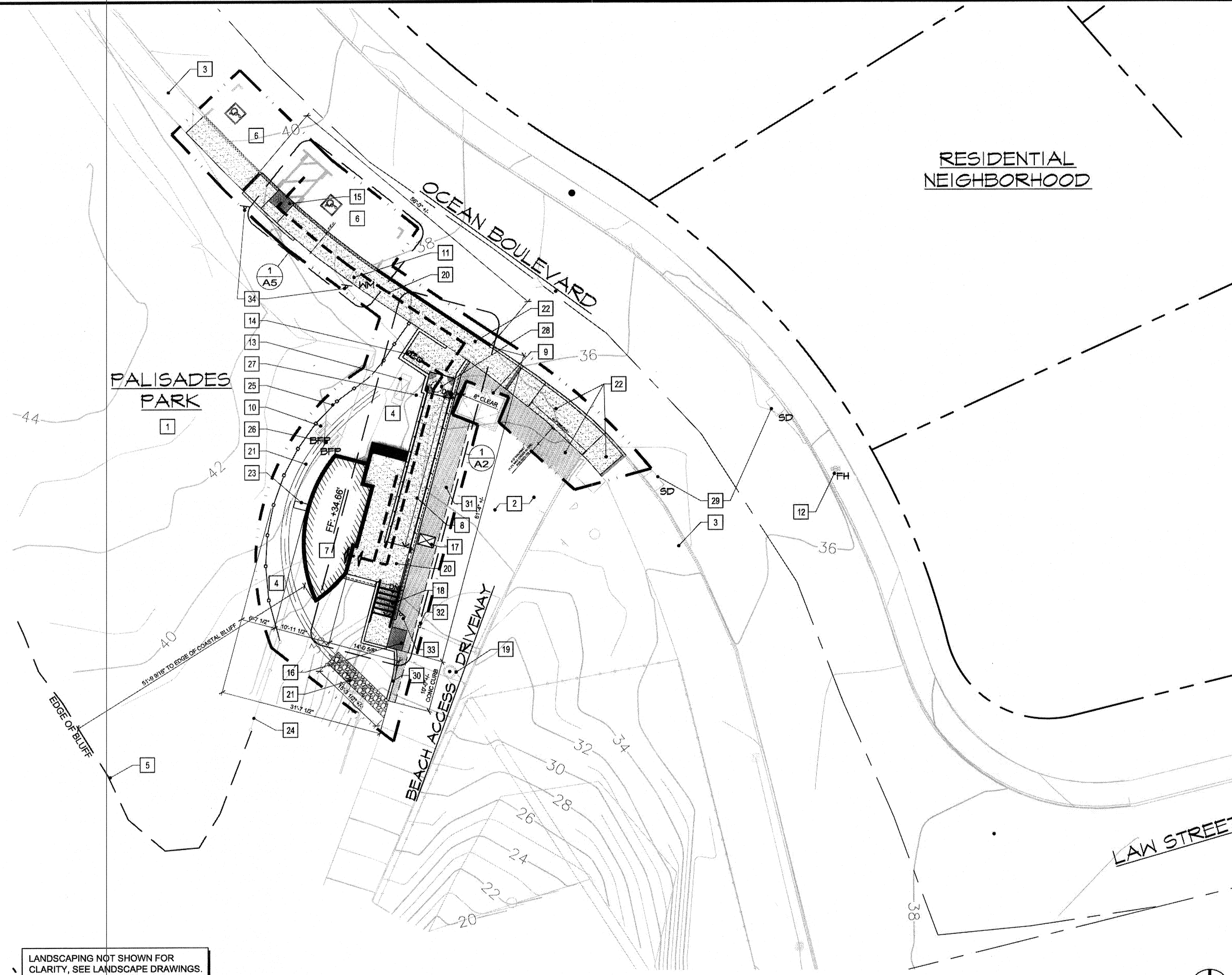


CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION



NOTES (CONT)

- * 27 EXISTING BELOW GRADE CONDUIT FROM 13 TO 9. CONTRACTOR TO POTHOLE PRIOR TO CONSTRUCTION ACTIVITIES FOR EXACT LOCATION, PROTECT IN PLACE.
- * 28 (E) SEWER MANHOLE, REINSTALL, ADJUST VERTICALLY TO BE FLUSH WITH NEW CONC WALK
- * 29 (E) STORM DRAIN INLET, TO REMAIN, SEE CIVIL DWG FOR BMP MEASURES
- * 30 NEW CONC CURB TO EDGE OF RIPRAP
- * 31 REPAIR ASPHALT DRIVEWAY, TO BE FLUSH WITH EXISTING DRIVEWAY, PER CIVIL DWG
- 32 REINSTALL GATE POST, PATCH SURROUNDING DRIVEWAY SURFACE
- 33 REINSTALL 'SURFING ZONE' INFO SIGN AND 'AUTHORIZED CITY VEHICLES ONLY' SIGN WITH NEW POST PER SDRSD M-45
- 34 INSTALL ACCESSIBLE PARKING SIGNAGE [6.0], 1 POST PER ACCESSIBLE PARKING SPACE PER DETAIL 3/A6, POST PER SDRSD M-45

NOTES (* = COORD W/ CIVIL DRAWINGS)

- 1 EXISTING PARK AREA, PALISADES PARK
- 2 EXISTING CONCRETE AND ASPHALT DRIVEWAY
- 3 EXISTING CONCRETE WALK
- 4 LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS
- 5 EXISTING EDGE OF COASTAL BLUFF, APPROXIMATED PER AERIAL PHOTOGRAPHY
- 6 ACCESSIBLE PARKING SPACE, TYP OF 2, WITH NEW CURB RAMP, ISA SYMBOL, STRIPING
- 7 PROPOSED COMFORT STATION BUILDING
- 8 PROPOSED CONCRETE RAMP AND WALK WITH SS RAILING BOTH SIDES, SLIP-RESISTANT MEDIUM BROOM FINISH
- * 9 EXISTING BELOW GRADE UTILITY VAULT, PROTECT IN PLACE, NEW CONSTRUCTION 8" MIN CLEAR FROM EXTENTS OF VAULT LID FRAME
- * 10 NEW BFP, FOR IRRIGATION, INSTALL PER SDRSD WR-01
- * 11 EXISTING WATER METER, ADJUST AS NECESSARY TO INSTALL FLUSH WITH NEW CONC WALK, PER SDRSD W-2, W-15
- 12 EXISTING FIRE HYDRANT, TO REMAIN
- * 13 EXISTING CONC PAD WITH ELECTRICAL (SCADA) CABINET AND PUBLIC ART INSTALLATION, PROTECT IN PLACE
- 14 ACCESSIBLE HI-LOW PEDESTAL-MOUNT DRINKING FOUNTAIN, ON CONCRETE PAD PER 6/G-5
- * 15 AREA OF DEPRESSED CURB RAMP WITH 36" DEEP TRUNCATED DOME WARNING STRIP AT STREET
- * 16 36" WIDE TRUNCATED DOME WARNING STRIP AT DRIVEWAY PER SDRSD SDG-130
- * 17 SAND INTERCEPTOR, INSTALL SLIGHTLY ABOVE GRADE WITH TAMPER-PROOF COVER, FOR MORE INFORMATION SEE PLUMBING DRAWINGS
- 18 CONC STAIR, WITH SLIP RESISTANT MEDIUM BROOM FINISH, TYPE 316 SS HANDRAIL BOTH SIDES
- * 19 EXISTING MANHOLE, TO REMAIN
- * 20 NEW CONCRETE WALK, GRADE PER CIVIL DWG, MAX CROSS SLOPE 1.5%, PER SDRSD G-11
- * 21 NEW GRAVEL SWALE AND RIPRAP, PER CIVIL DRAWINGS
- * 22 PROVIDE NEW WALK AND DRIVEWAY PER SDG-162 (OLD STND G-14D), SEE CIVIL DWGS
- 23 CONCRETE SPLASHPAD, 16x30x4" MIN
- 24 (E) FENCE TO REMAIN
- 25 NEW FENCE, PER LANDSCAPE DWG
- * 26 NEW BFP, FOR RESTROOM BUILDING, INSTALL PER SDRSD WR-01

LEGEND

- LIMIT OF WORK
- ▬ BUILDING FOOTPRINT
- ▬ NEW LOW WALL
- ▬ NEW LOW WALL W/ COBBLE VENEER
- ▬ NEW CONCRETE SURFACE
- ▬ NEW ASPHALT SURFACE
- ▬ ACCESSIBLE PATH OF TRAVEL
- ▬ BLUE CURB
- ▬ RED CURB
- ▬ TRUNCATED DOME WARNING STRIP, MIN 36" DEEP
- ♿ ISA SYMBOL AT ACCESSIBLE PARKING SPACE
- ♿ ACCESSIBLE ENTRANCE
- ♿ SIGN
- ▬ NEW FENCE, PER LANDSCAPE

GENERAL NOTES

1. FOR ALLOWABLE LEVEL DIFFERENTIAL AT CHANGE IN SURFACES, SEE DETAIL 11/G-5
2. ALL EXTERIOR ENTRANCES AND EXITS IDENTIFIED WITH A TRIANGULAR SYMBOL ON THIS PLAN ARE ACCESSIBLE AND COMPLY WITH CBC SECTION 1133B.1.1 INCLUDING PROVISIONS A-G.
3. FOR GRATINGS AND STRAINERS LOCATED IN THE SURFACE OF ANY PEDESTRIAN WAY OR IN P.O.T., THE MAX GRATE OR STRAINER OPENING SHALL NOT EXCEED 1/2" IN THE DIRECTION OF TRAFFIC FLOW.

LANDSCAPING NOT SHOWN FOR CLARITY, SEE LANDSCAPE DRAWINGS. SEE CIVIL DRAWINGS FOR GRADING, DRAINAGE AND UTILITIES.

SITE PLAN 1
SCALE: 1:10 north

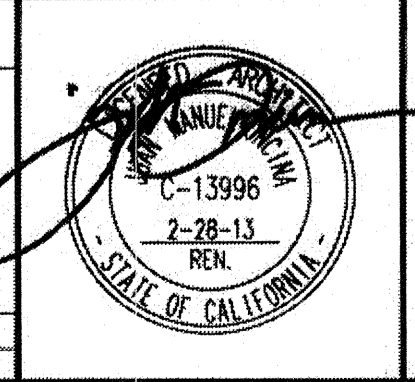
FUNDING CR/SAP	SPEC. NO.	A1
PLANS FOR THE CONSTRUCTION OF:		
PALISADES PARK COMFORT STATION		
SITE PLAN		
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 10 OF 46 SHEETS		W.B.S. S-10026 W.O. _____
APPROVED BY	DATE	SECTION HEAD
FOR CITY ENGINEER	6/18/13	PROJECT MANAGER
DESCRIPTION	BY	APPROVED
FINAL	MOA	05/02/12
AS-BUILTS		
CONTRACTOR	DATE STARTED	DATE COMPLETED
INSPECTOR		
		36598-10-D

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

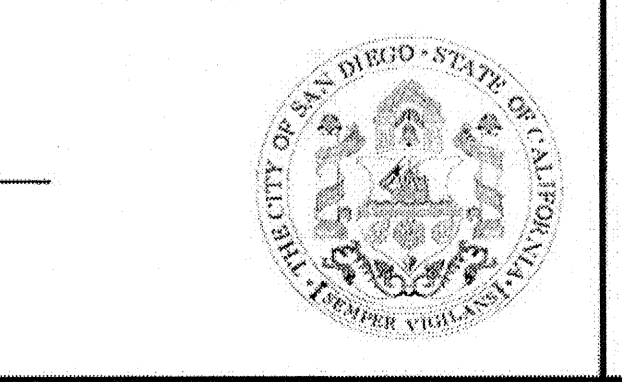
CONSULTANT

MANUEL ONCINA ARCHITECTS INC.
ARCHITECTURE PLANNING INTERIORS
514 Pennsylvania Ave.
San Diego, CA 92103
619/295-4000 FAX
619/295-4925 FAX
www.oncina.com

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

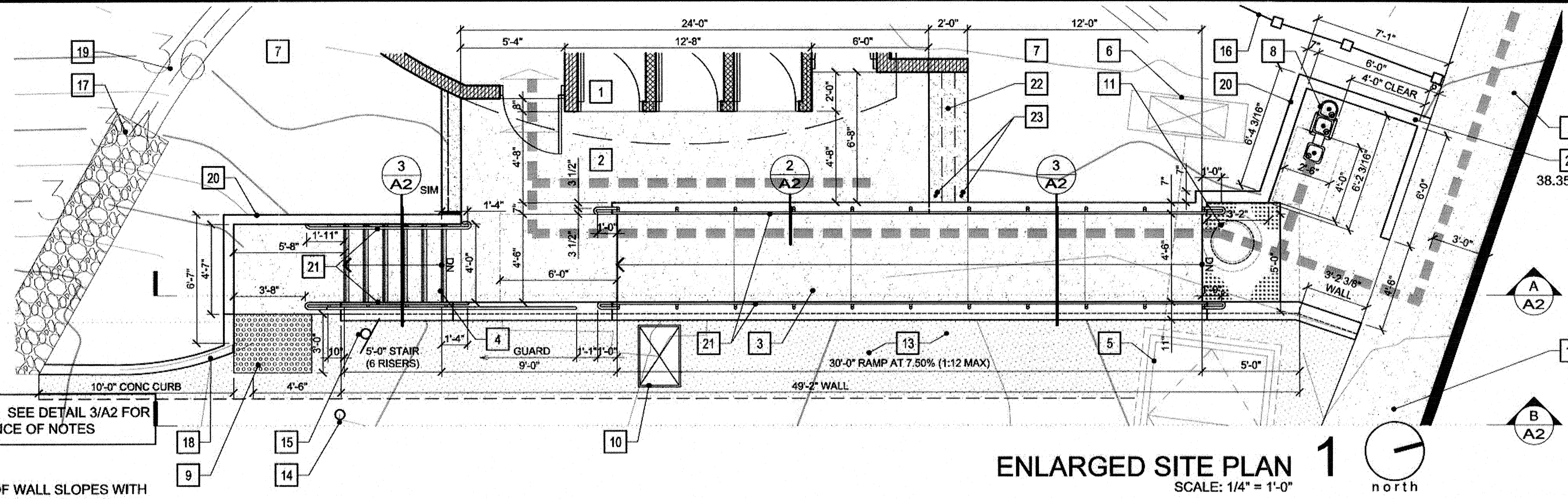


CITY OF SAN DIEGO PUBLIC WORKS PROJECT



WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION



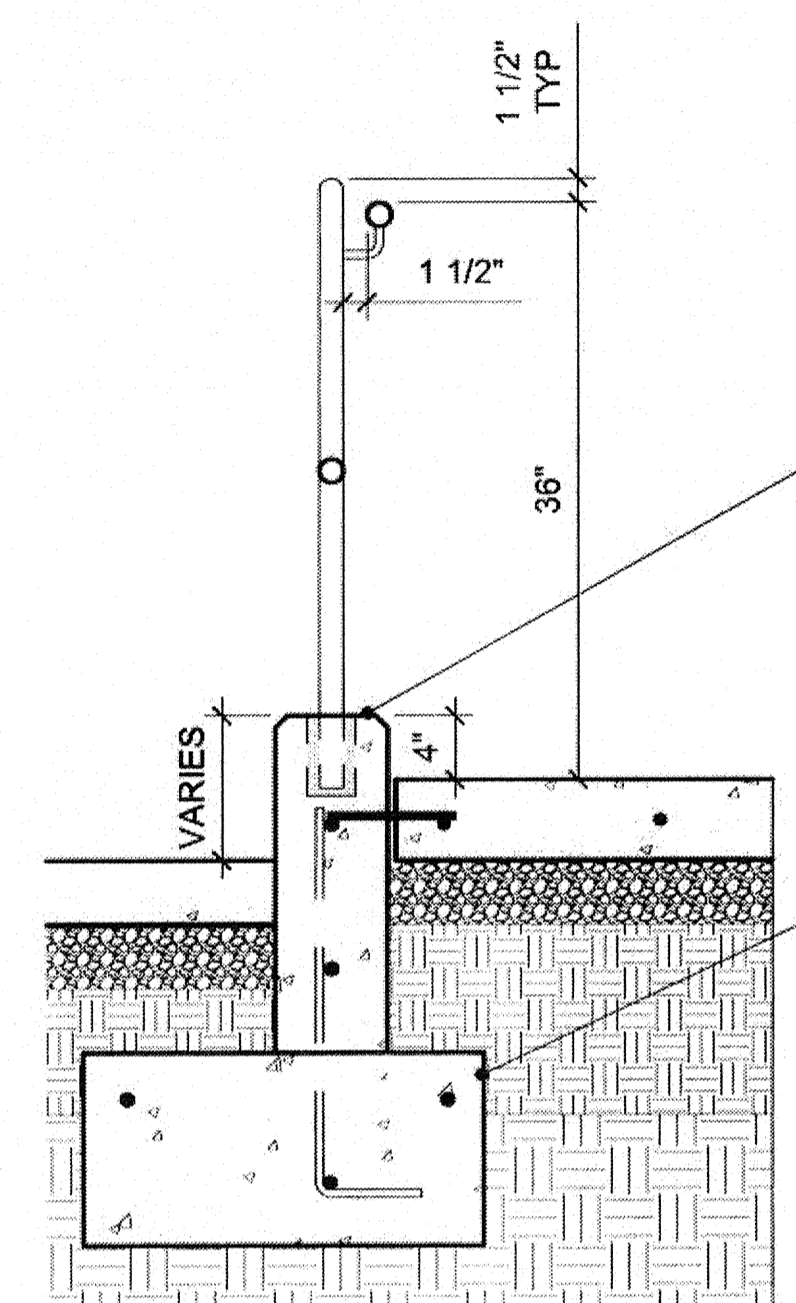
NOTES (* = COORD W/ CIVIL DRAWINGS)

- 1 PROPOSED COMFORT STATION BUILDING
- * 2 NEW CONCRETE WALK, GRADE PER CIVIL DWG, MAX CROSS SLOPE 1.5%, PER SDRSD G-11
- * 3 NEW CONCRETE RAMP AND WALK WITH SS RAILING BOTH SIDES, SLIP-RESISTANT MEDIUM BROOM FINISH
- 4 NEW CONC STAIR, WITH SLIP RESISTANT MEDIUM BROOM FINISH, TYPE 316 SS RAILING BOTH SIDES
- * 5 EXISTING BELOW GRADE UTILITY VAULT, PROTECT IN PLACE, NEW CONSTRUCTION 8" MIN CLEAR FROM EXTENTS OF VAULT LID FRAME
- * 6 EXISTING CONC PAD WITH ELECTRICAL (SCADA) CABINET AND PUBLIC ART INSTALLATION, PROTECT IN PLACE
- 7 LANDSCAPE AREA, SEE LANDSCAPE DRAWINGS
- 8 ACCESSIBLE HI-LOW PEDESTAL-MOUNT DRINKING FOUNTAIN, ON CONCRETE PAD
- * 9 36" WIDE TRUNCATED DOME WARNING STRIP AT DRIVEWAY PER SDRSD SDG-130 AND CITY APPROVED MATERIALS LIST (AML)
- * 10 SAND INTERCEPTOR, INSTALL SLIGHTLY ABOVE GRADE WITH TAMPER-PROOF COVER, FOR MORE INFORMATION SEE PLUMBING DRAWINGS
- * 11 (E) SEWER MANHOLE, REINSTALL, ADJUST VERTICALLY TO BE FLUSH WITH DEPRESSED CONC SURFACE, INSTALL STEEL PLATE FLUSH WITH WALKING SURFACE, PER DETAIL 5/A6
- * 12 TRANSITION NEW WALK TO DRIVEWAY PER SDRSD G-14D
- * 13 REPAIR ASPHALT DRIVEWAY, TO BE FLUSH WITH EXISTING DRIVEWAY, PER CIVIL DWG
- 14 REINSTALL GATE POST, PATCH SURROUNDING DRIVEWAY SURFACE
- 15 REINSTALL SIGN WITH NEW POST PER SDRSD M-45
- 16 NEW FENCE, PER LANDSCAPE DWG
- * 17 NEW RIPRAP, PER CIVIL AND LANDSCAPE DWG, DAYLIGHT SUBDRAIN IN THIS AREA
- * 18 NEW CONC CURB TO EDGE OF RIPRAP
- * 19 NEW GRAVEL SWALE, PER CIVIL AND LANDSCAPE DWG
- 20 NEW LOW CONC WALL
- 21 NEW SS RAILING, AND GUARD WHERE OCCURS, TYPE 316 TYP
- 22 4" CONC SLAB OVER PLUMBING CAVITY
- 23 SS CANOPY SUPPORT POST, TYPE 316, PER 3/A9. EMBED IN MASONRY PER STRUCT, TYP OF 2
- 24 LIGHT, PER ELECTRICAL
- 25 CONTROL JOINT PER 9/S1.6

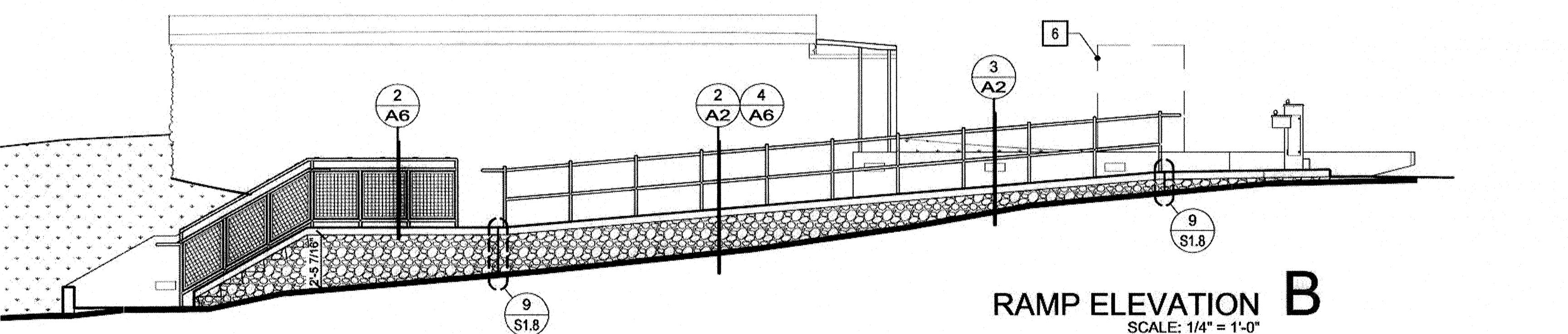
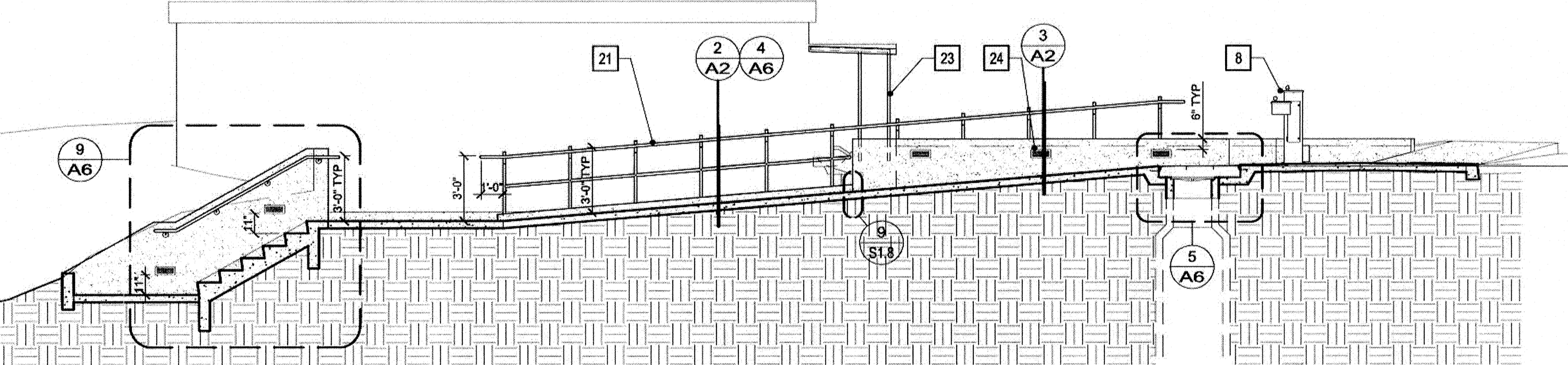
NOTE: SEE DETAIL 3/A2 FOR BALANCE OF NOTES

TOP OF WALL SLOPES WITH RAMP, MAINTAIN 4" ABOVE RAMP SURFACE

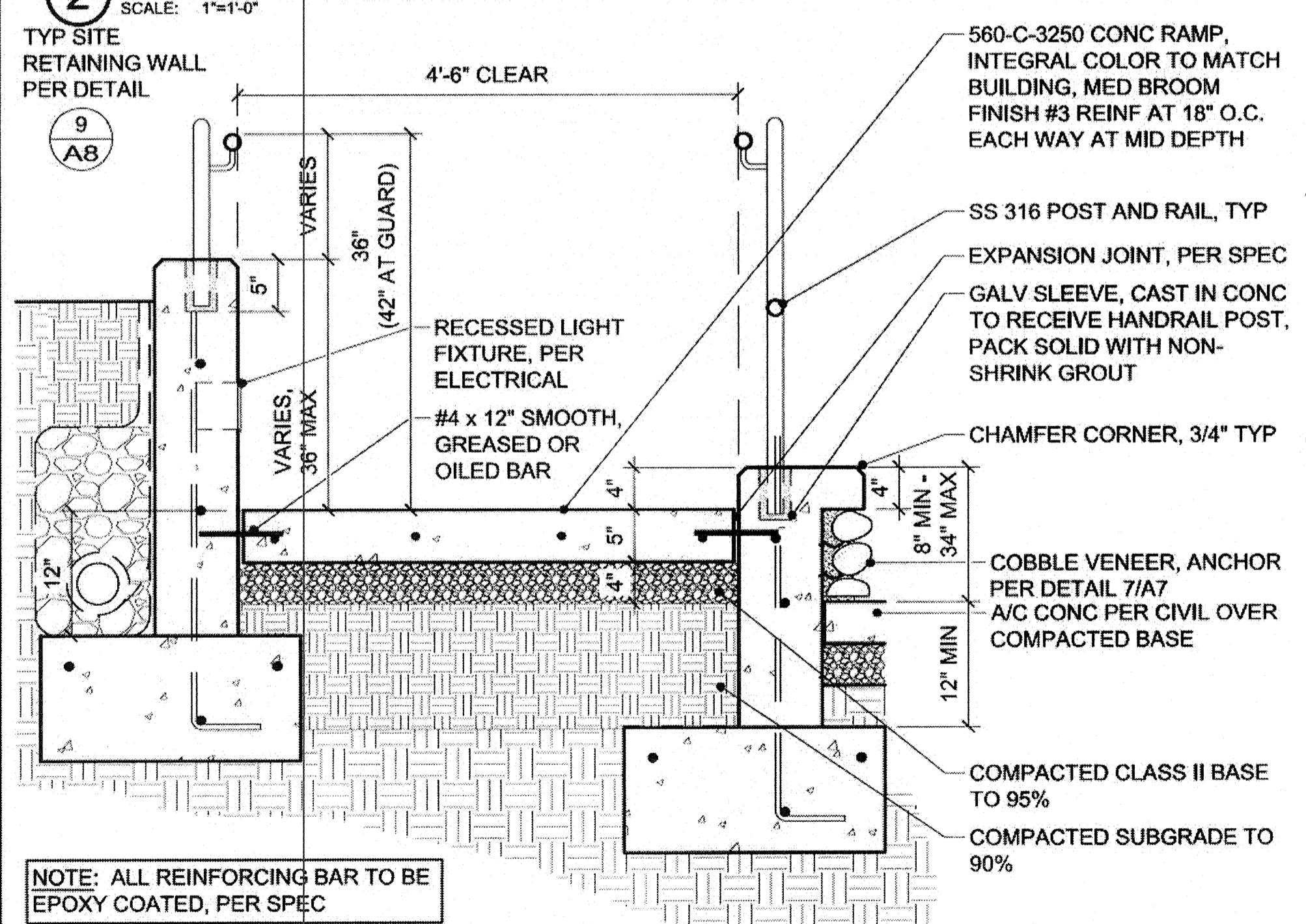
TYP SITE RETAINING WALL AND FOOTING PER DETAIL 9/A8



NOTE: ALL REINFORCING BAR TO BE EPOXY COATED, PER SPEC



2 PEDESTRIAN RAMP AND RAILING
SCALE: 1" = 1'-0"



NOTE: ALL REINFORCING BAR TO BE EPOXY COATED, PER SPEC

3 PEDESTRIAN RAMP AND RAILING
SCALE: 1" = 1'-0"

LEGEND

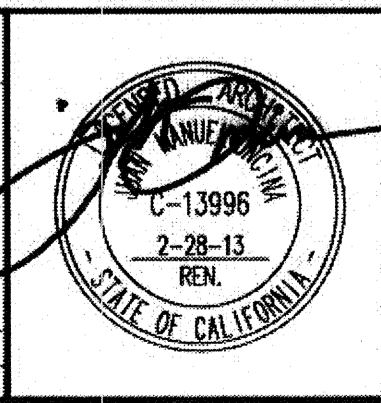
- NEW LOW WALL
- NEW LOW WALL WITH COBBLE VENEER
- NEW CONCRETE PAVING
- NEW ASPHALT PAVING
- ACCESSIBLE PATH OF TRAVEL
- RED CURB
- TRUNCATED DOME WARNING STRIP, MIN 36" WIDE
- ACCESSIBLE ENTRANCE
- SIGN

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

MANUEL CINCUA ARCHITECTS INC. ARCHITECTURE PLANNING INTERIORS
514 Pennsylvania Ave. San Diego, CA 92103
619/295-4900 PH 619/295-4955 FX
www.manuelcinqua.com

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO PUBLIC WORKS PROJECT

WARNING: IF THIS BAR DOES NOT MEASURE, THEN DRAWING IS NOT TO SCALE

FOR CITY ENGINEER				
DESCRIPTION	BY	APPROVED	DATE	FILMED
FINAL	MOA		08/02/12	

FUNDING CP/SAP: _____ SPEC. NO. _____

PLANS FOR THE CONSTRUCTION OF:

PALISADES PARK COMFORT STATION

ENLARGED SITE PLAN, ELEVATION, SECTION

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 11 OF 46 SHEETS

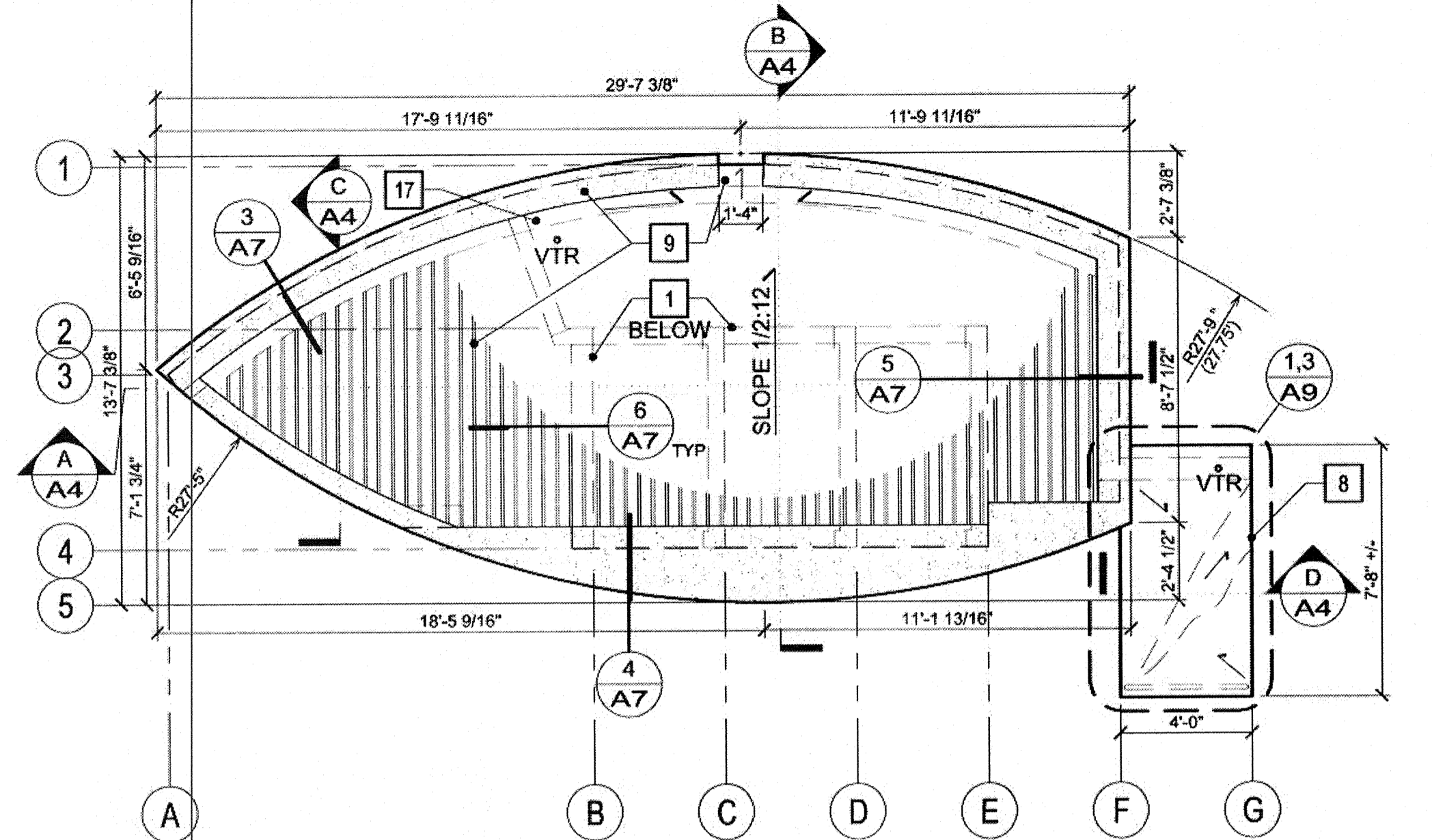
W.B.S. S-10026
W.O. _____

SECTION HEAD: _____
PROJECT MANAGER: _____
CCS27 COORDINATE: _____
CCS83 COORDINATE: _____

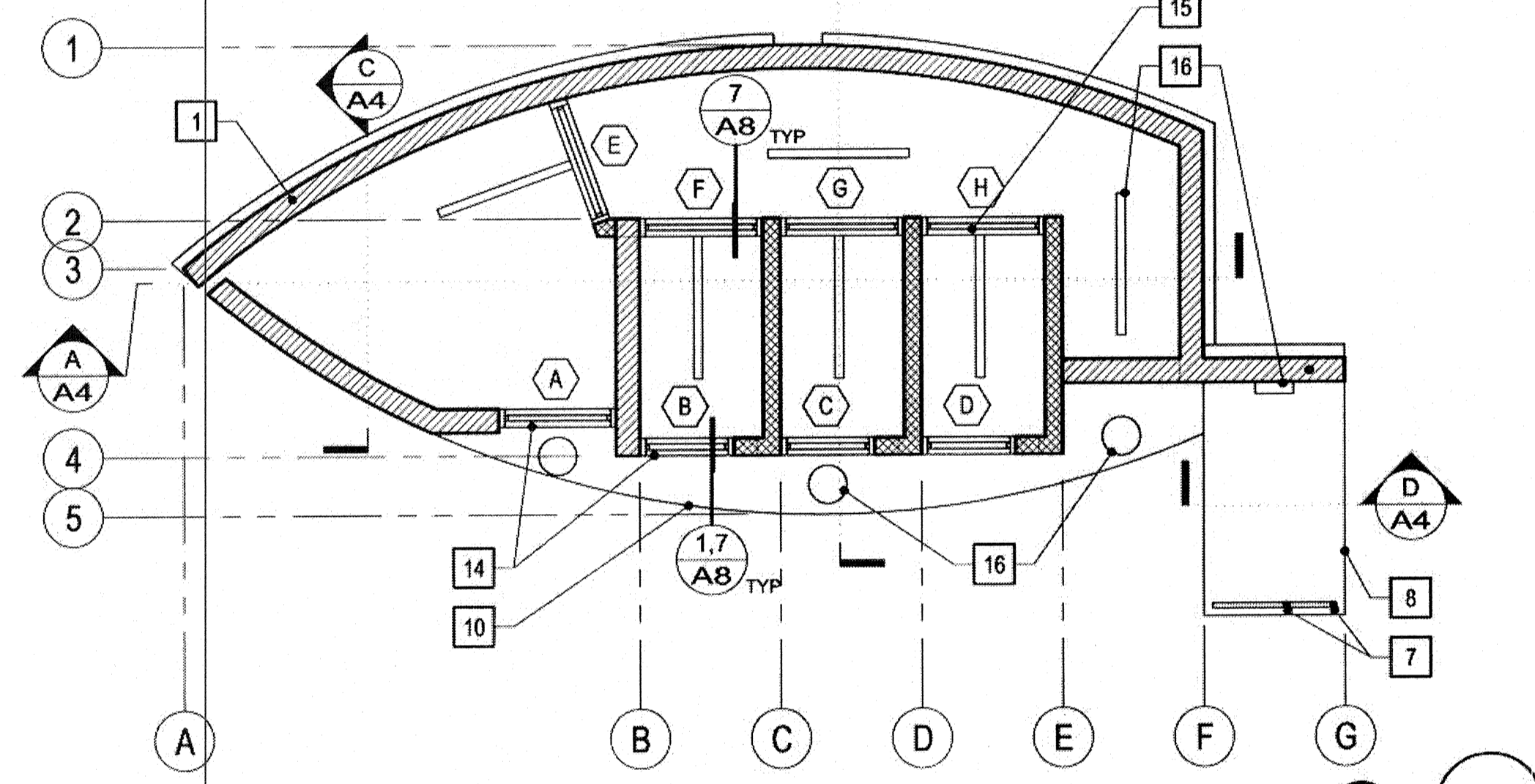
CONTRACTOR INSPECTOR: _____ DATE STARTED: _____ DATE COMPLETED: _____

36598-11-D

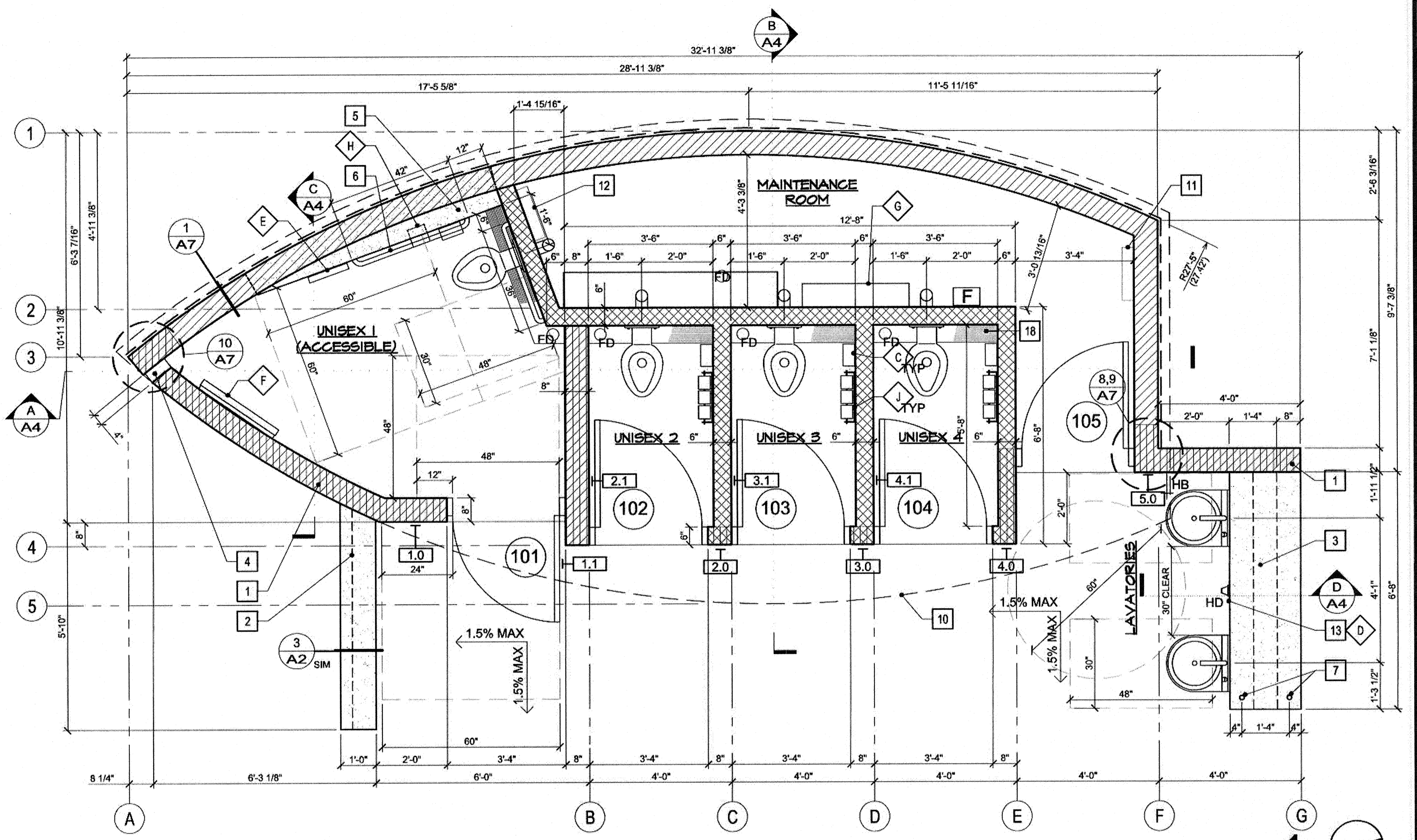
PALISADES PARK COMFORT STATION



ROOF PLAN 3
SCALE: 1/4" = 1'-0"
north



REFLECTED CEILING PLAN 2
SCALE: 1/4" = 1'-0"
north

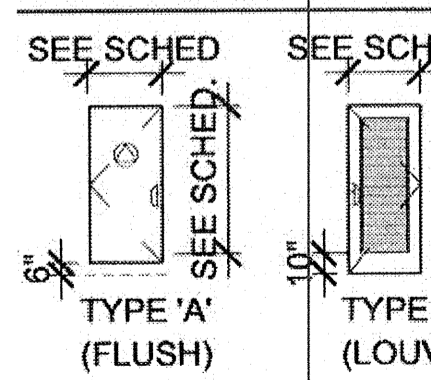


FLOOR PLAN 1
SCALE: 1/2" = 1'-0"
north

DOOR SCHEDULE													
NO	SIZE (W x H x TH)	DOOR		FRAME		FIRE RATING	LATCH	CLOSER	HDWR	DETAILS (A/B)			COMMENTS
		TYPE	MAT'L	MAT'L	FIN					HEAD	JAMB	SILL	
101	3'-0" x 7'-0" x 1 3/4"	A	FG	FG	INT	NR	Y	N	1	1	2	3	1, 2, 3
102	3'-0" x 7'-0" x 1 3/4"	A	FG	FG	INT	NR	Y	N	1	1	2	3	1, 2, 3
103	3'-0" x 7'-0" x 1 3/4"	A	FG	FG	INT	NR	Y	N	1	1	2	3	1, 2, 3
104	3'-0" x 7'-0" x 1 3/4"	A	FG	FG	INT	NR	Y	N	1	1	2	3	1, 2, 3
105	3'-0" x 7'-0" x 1 3/4"	B	FG	FG	INT	NR	Y	N	2	4	2	5	1

NOTE: DOORS IN THE MEANS OF EGRESS SYSTEM TO BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.

DOOR LEGEND



SCHEDULE LEGEND

- FG = FIBERGLASS
- INT = INTEGRAL COLOR, FACTORY FINISHED
- SS = STAINLESS STEEL
- NR = NON-RATED
- Y = YES
- N = NO

SCHEDULE COMMENTS

1. FIELD MEASURE ROUGH OPENING BEFORE ORDERING
2. DOOR UNDERCUT BY 8 INCH AFG, NO THRESHOLD
3. PROVIDE LEVER-TYPE HARDWARE, PER SPECIFICATION.

NOTES

- 1 MASONRY WALL, PER LEGEND AND STRUCTURAL DWG
- 2 LOW MASONRY WALL, WITH INTEGRAL COLOR CIP CONC WALL CAP
- 3 LOW MASONRY WALL, WITH INTEGRAL COLOR CIP CONC SLAB OVER CHASE CAVITY
- 4 GLASS BLOCK, SOLID WITH STIPPLE PATTERN ON INTERIOR FACE
- 5 CIP CONC STEM WALL, INTEGRAL COLOR, 1/8 RADIUS ALL CORNERS, SMOOTH FINISH ALL FACES, PER STRUCT DWG
- 6 SS GRAB BAR
- 7 SS POST, EMBED IN CENTER OF MASONRY CELL, TYP OF 2, PER STRUCT DWG
- 8 SS SHEET CANOPY, 3/8" THICK, TYPE 316, #4 FINISH, CUSTOM-SHAPED PER 1.3/A9, ANCHOR TO MASONRY WALL AND SS FRAME PER STRUCT DETAILS 7.8.9/S3.1
- 9 CONG ROOF SLAB, INTEGRAL COLOR WITH HIGH-LOW GROOVE PATTERN ON TOP SURFACE, INTEGRAL PARAPET, TROUGH GUTTER AND SCUPPER OUTLET. SEE STRUCT DWG
- 10 LINE OF ROOF, ABOVE
- 11 PANEL, PER ELECTRICAL DWG
- 12 IRRIGATION CONTROL PANEL, PER LANDSCAPE DWG
- 13 HAND DRYER, SEE ELECTRICAL DRAWINGS FOR POWER
- 14 FIBERGLASS LOUVER, INTEGRAL WITH DOOR FRAME, BIRD SCREEN
- 15 FIBERGLASS LOUVER AND FRAME, BIRD SCREEN
- 16 LIGHT FIXTURE, PER ELECTRICAL
- 17 RAIN SENSOR, MOUNT TO INTERIOR FACE OF INTEGRAL CONC ROOF PARAPET PER LANDSCAPE DRAWINGS. SEE DETAIL 3/A7 FOR LOCATION ONLY
- 18 GRATING AT TROUGH DRAIN, PER DETAIL 6/A8, CUSTOM CUT TO COVER TROUGH OPENING AT EACH RESTROOM

WALL LEGEND

- CONCRETE STEM WALL, HEIGHT PER INTERIOR ELEVATION, SMOOTH TROWEL FINISH
- 8" MASONRY+VENEER: 8x8x16 BLOCK, GREY COLOR, PRECISION, COBBLE VENEER BELOW GRADE: PRECISION, NO VENEER
- 8" MASONRY: 8x4x16 BLOCK, SAND COLOR EXPOSED EXTERIOR FACE. COMBED FACE INTERIOR FACE: PRECISION
- 6" MASONRY: 6x4x16 BLOCK, GREY COLOR, PRECISION FACE
- 6" MASONRY: 6x4x16 BLOCK, SAND COLOR INTERIOR FACE: PRECISION EXPOSED EXTERIOR FACE: COMBED FACE

GENERAL NOTES

1. THRESHOLDS AT ALL DOORS SHALL COMPLY WITH ADAAG 4.13.8 AND CBC 1133B.2.4.1.
2. DOOR LANDINGS SHALL SLOPE 1.5% MAX IN ALL DIRECTIONS.
3. ROOMS WITH FLOOR DRAINS SHALL HAVE 1.5% MAX SLOPE IN ALL DIRECTIONS IN P.O.T. OR IN PEDESTRIAN WAYS.
4. ALL DIMS FOR ACCESSIBILITY PURPOSES ARE TO F.O.FINISH U.O.N.

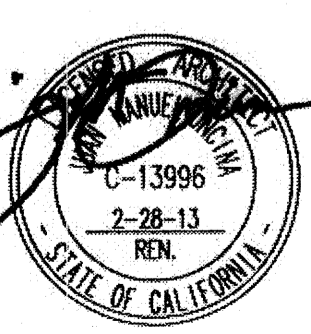
**CITY OF SAN DIEGO
PUBLIC WORKS PROJECT**



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT
MANUEL ONCINA ARCHITECTS INC.
ARCHITECTURE PLANNING INTERIORS
5141 Brea Vista Ave.
San Diego, CA 92113
619-226-4900
619-226-4955 FAX
www.oncina.com



FUNDING CIP/SAP: _____ SPEC. NO. _____

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

FLOOR PLAN, REF CEILING PLAN, ROOF PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 12 OF 46 SHEETS

W.B.S. S-10026
I.G. _____

FOR CITY ENGINEER: _____ DATE: 6/18/13
DESCRIPTION: FINAL BY: MOA APPROVED: _____ DATE: 08/02/12 FILMED: _____
PROJECT MANAGER: _____

SECTION HEAD: _____
CCS27 COORDINATOR: _____
CCS83 COORDINATOR: _____

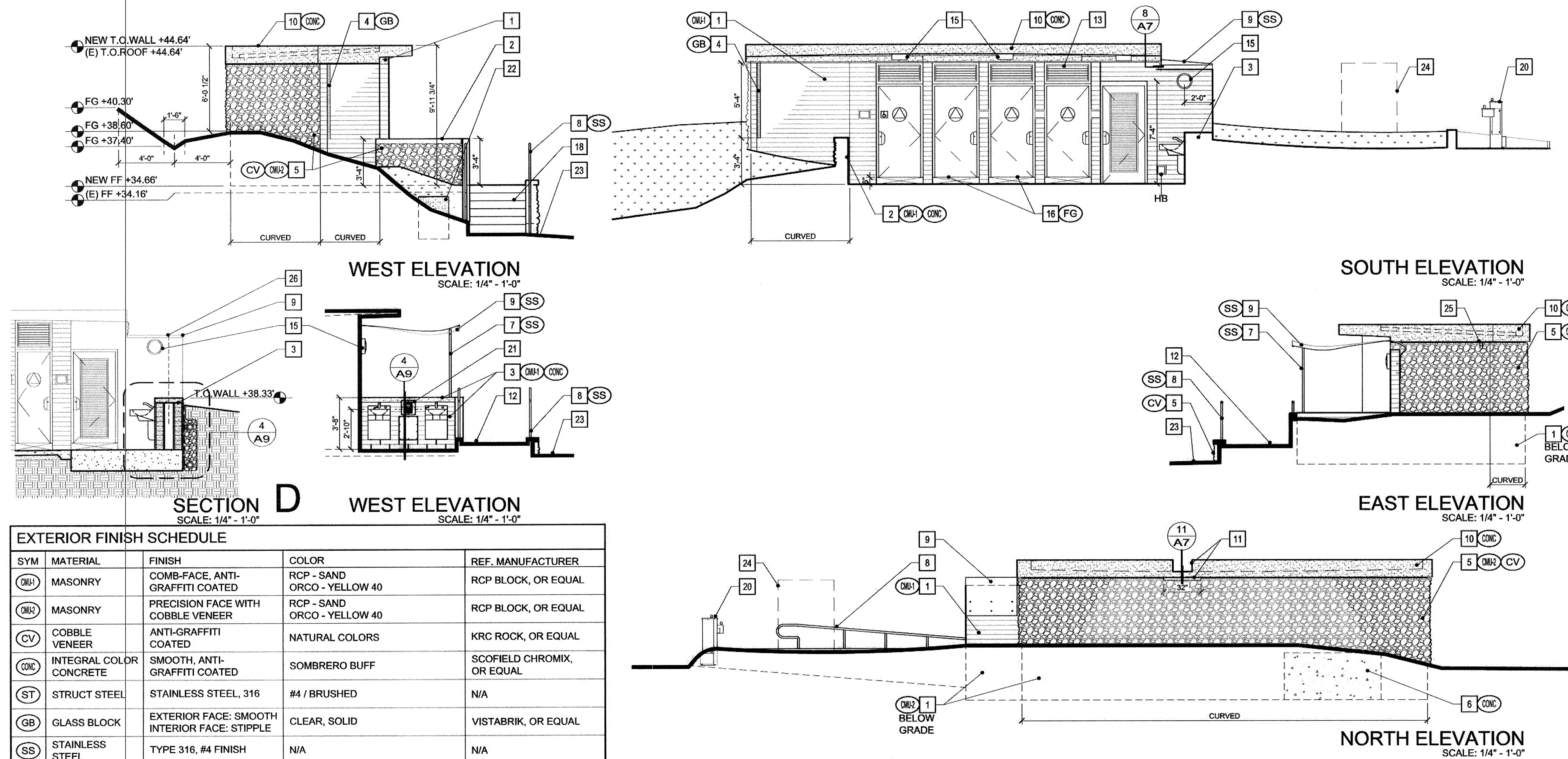
AS-BUILTS: _____
CONTRACTOR: _____ DATE STARTED: _____ DATE COMPLETED: _____
INSPECTOR: _____

36598-12-D

PALISADES PARK COMFORT STATION

NOTES

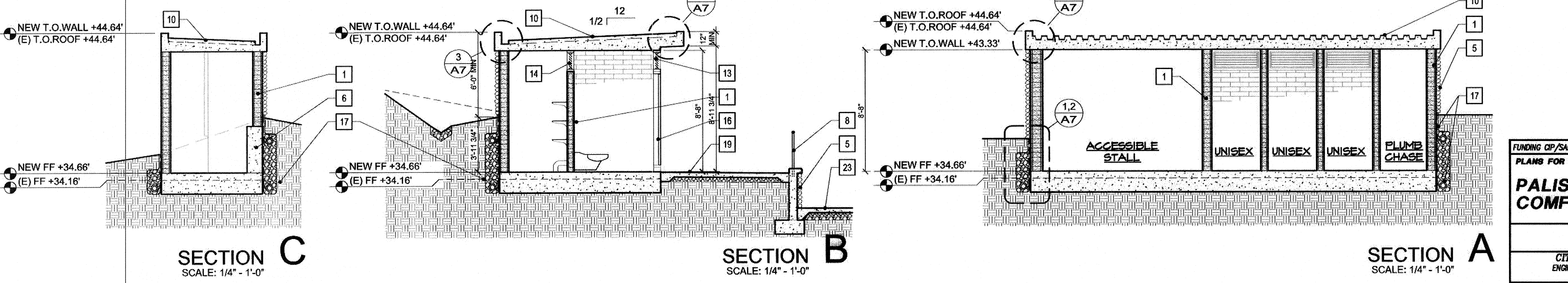
- 1 MASONRY WALL, PER PLAN AND STRUCTURAL DWG
- 2 LOW MASONRY WALL, WITH INTEGRAL COLOR CIP CONC WALL CAP
- 3 LOW MASONRY WALL, WITH INTEGRAL COLOR CIP CONC SLAB OVER CHASE CAVITY, ALL VERTICAL NON-RETAINING JOINTS TO BE WEEP JOINTS
- 4 GLASS BLOCK, SOLID WITH STIPPLE PATTERN ON INTERIOR FACE
- 5 COBBLE VENEER OVER PRECISION MASONRY PER SCHEDULE, ANCHOR PER DETAIL 7/A7
- 6 CIP CONC STEM WALL, INTEGRAL COLOR, 1/8 RADIUS ALL CORNERS, SMOOTH FINISH ALL FACES, PER STRUCT DWG
- 7 SS POST, TYPE 316, EMBED IN MASONRY, TYP OF 2, PER STRUCT DWG
- 8 SS RAILING 1-1/2 OD MAX, TYPE 316, #4 FINISH, TYP
- 9 SS SHEET CANOPY, 3/8" THICK, CUSTOM-SHAPED PER 1,3/A9, ANCHOR TO MASONRY WALL AND SS FRAME PER STRUCT DWG, TYPE 316 - #4 FINISH, TYP
- 10 PRECAST CONC ROOF SLAB, INTEGRAL COLOR WITH HIGH-LOW GROOVE PATTERN ON TOP SURFACE, INTEGRAL PARAPET, TROUGH GUTTER AND SCUPPER OUTLET, SEE STRUCT DWG
- 11 16" WIDE BLOCK OUT AT CONC ROOF SLAB, FOR ROOF DRAINAGE, 18 GA SS316 DRIP EDGE
- 12 CONCRETE RAMP AND WALK WITH SS RAILING BOTH SIDES, SLIP-RESISTANT FINISH
- 13 FIBERGLASS LOUVER, INTEGRAL WITH DOOR FRAME, BIRD SCREEN
- 14 FIBERGLASS LOUVER AND FRAME, BIRD SCREEN
- 15 LIGHT FIXTURE, PER ELECTRICAL
- 16 FIBERGLASS DOORS, UNDERCUT 6" AFG
- 17 BELOW GRADE WATERPROOFING AND SUBDRAINAGE, PER DETAILS AND SPEC
- 18 CONC STAIR, WITH MED BROOM SLIP RESISTANT FINISH, SS HANDRAIL BOTH SIDES
- 19 NEW CONCRETE WALK, GRADE PER CIVIL DWG, MAX CROSS SLOPE 1.5%, PER SDRSD G-11, LIGHT BROOM FINISH
- 20 ACCESSIBLE HI-LOW PEDESTAL-MOUNT DRINKING FOUNTAIN, ON CONCRETE PAD
- 21 HAND DRYER, SEE ELECTRICAL DRAWINGS FOR POWER
- 22 SAND INTERCEPTOR, INSTALL 2" ABOVE GRADE WITH TAMPER-PROOF COVER, FOR MORE INFORMATION SEE PLUMBING DRAWINGS
- 23 EXISTING BEACH ACCESS DRIVEWAY
- 24 EXISTING CONC PAD WITH ELECTRICAL (SCADA) CABINET AND PUBLIC ART INSTALLATION, PROTECT IN PLACE
- 25 PHOTOCELL LOCATION, SEE ELECTRICAL DWG
- 26 PLUMBING VENT, IN WALL



EXTERIOR FINISH SCHEDULE

SYM	MATERIAL	FINISH	COLOR	REF. MANUFACTURER
(CM1)	MASONRY	COMB-FACE, ANTI-GRAFFITI COATED	RCP - SAND ORCO - YELLOW 40	RCP BLOCK, OR EQUAL
(CM2)	MASONRY	PRECISION FACE WITH COBBLE VENEER	RCP - SAND ORCO - YELLOW 40	RCP BLOCK, OR EQUAL
(CV)	COBBLE VENEER	ANTI-GRAFFITI COATED	NATURAL COLORS	KRC ROCK, OR EQUAL
(CONC)	INTEGRAL COLOR CONCRETE	SMOOTH, ANTI-GRAFFITI COATED	SOMBRERO BUFF	SCOFIELD CHROMIX, OR EQUAL
(ST)	STRUCT STEEL	STAINLESS STEEL, 316	#4 / BRUSHED	N/A
(GB)	GLASS BLOCK	EXTERIOR FACE: SMOOTH INTERIOR FACE: STIPPLE	CLEAR, SOLID	VISTABRIK, OR EQUAL
(SS)	STAINLESS STEEL	TYPE 316, #4 FINISH	N/A	N/A
(FG)	FIBERGLASS DOOR	PAINTED	TO MATCH SEAFOAM GREEN	TIGER DOORS, LLC, OR EQUAL

NOTE: ALL EXPOSED MASONRY OR STONE TO BE FINISHED WITH ANTI-GRAFFITI COATING SYSTEM PER SPECIFICATION, ALL EXTERIOR SURFACES AND INTERIOR SURFACES INCLUDING CEILING



CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

MANUEL ONCINA ARCHITECTS INC.
ARCHITECTURE PLANNING INTERIORS
614 Pennsylvania Avenue
San Diego, CA 92103
619/295-4900 FAX
619/295-4955 FAX

SCALE: HORIZONTAL NO SCALE VERTICAL NO SCALE

CITY OF SAN DIEGO PUBLIC WORKS PROJECT

DATE: 2-28-13
REV: 1

WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

FUNDING CIP/SAP: _____ SPEC. NO. _____

PLANS FOR THE CONSTRUCTION OF:

PALISADES PARK COMFORT STATION

ELEVATIONS AND SECTIONS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 13 OF 46 SHEETS

W.B.S. 5-10026
W.O. _____

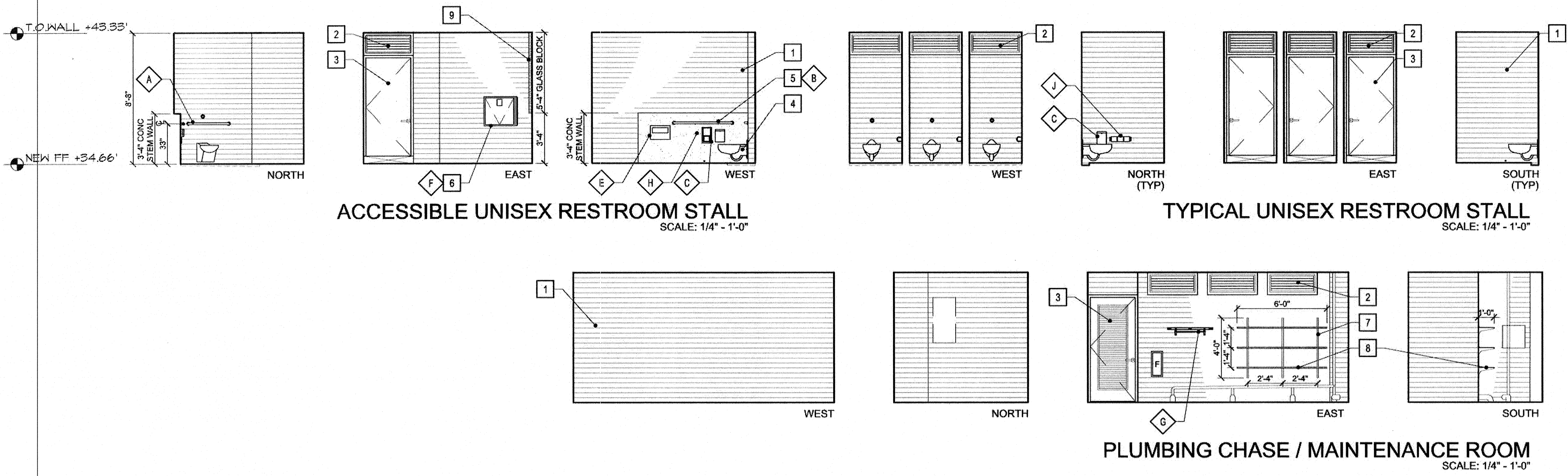
FOR CITY ENGINEER: _____ DATE: 6/18/13
SECTION HEAD: _____

DESCRIPTION BY APPROVED DATE FILED
FINAL MOA _____ 08/02/12 _____
PROJECT MANAGER: _____

AS-BUILTS
CONTRACTOR INSPECTOR: _____ DATE STARTED: _____ DATE COMPLETED: _____
CCS27 COORDINATE
CCS83 COORDINATE

36598-13-D

PALISADES PARK COMFORT STATION



- NOTES**
- MASONRY WALL, BLOCK SIZE PER PLAN, PRECISION FACE AT INTERIOR WALLS
 - FIBERGLASS LOUVER, INTEGRAL WITH DOOR FRAME, ALUM BIRD SCREEN
 - FIBERGLASS DOOR, PER SCHEDULE, UNDERCUT 6" AFG EXCEPT AT MAINTENANCE ROOM
 - WALL-HUNG ACCESSIBLE TOILET, PER PLUMBING DWG
 - TYPE 316 SS GRAB BARS, ANCHOR TO MASONRY PER 2/G-5
 - DIAPER CHANGING STATION, FOLD-UP, SS SHELL
 - SUPER HEAVY DUTY STANDARDS, 48" LENGTH ANCHORED TO MASONRY WALL
 - SUPER HEAVY DUTY STAINLESS STEEL BRACKETS WITH 12"D STAINLESS STEEL SHELVES
 - GLASS BLOCK, SOLID WITH STIPPLE PATTERN

RESTROOM ACCESSORY SCHEDULE

ITEM #	DESCRIPTION	MDL #	COM.	QTY
A	STRAIGHT GRAB BAR - 36"	B-6806 x 36	1	1
B	STRAIGHT GRAB BAR - 48"	B-6806 x 48	1	1
C	SM SANITARY NAPKIN DISPOSAL	B-270	1	4
D	HAND DRYER - STAINLESS STEEL - RECESSED (FASTAIRE MODEL HD-03)	1118-3	2	1
E	SM SEAT COVER DISPENSER	B-4221	1	2
F	SM STAINLESS FOLDING STEEL DIAPER CHANGING STATION	KB110-SSRE	3	1
G	UTILITY SHELF WITH MOP HOLDER/RAG HOOKS (MAINT. ROOM)	B-224x36	1	1
H	RECESS-MOUNT MULTI-ROLL TOILET TISSUE DISPENSER	B-4388	1	1
J	TOILET TISSUE DISPENSER (2 PIECE, 3 ROLL, WITH NEOPRENE SLEEVE)	TPD0350SP-SS	4	3

- ACCESSORY SCHEDULE COMMENTS**
- AS MANUFACTURED BY 'BOBRICK WASHROOM EQUIPMENT, INC', OR APPROVED EQUAL
 - AS MANUFACTURED BY 'MURDOCK SUPER SECUR', OR APPROVED EQUAL
 - AS MANUFACTURED BY 'KOALA KARE PRODUCTS' A DIVISION OF BOBRICK, OR APPROVED EQUAL
 - AS MANUFACTURED BY 'ASLIN INDUSTRIES', OR APPROVED EQUAL

INTERIOR FINISH SCHEDULE

ROOM NAME	WALLS				BASE	FLOOR	CEILING	COMM.
	NORTH	EAST	SOUTH	WEST				
UNISEX RESTROOM 1	AG	AG	AG	AG	-	SCONC	AG	
UNISEX RESTROOM 2	AG	AG	AG	AG	-	SCONC	AG	
UNISEX RESTROOM 3	AG	AG	AG	AG	-	SCONC	AG	
UNISEX RESTROOM 4	AG	AG	AG	AG	-	SCONC	AG	
MAINTENANCE ROOM	SCMU	SCMU	SCMU	SCMU	-	SCONC	SCONC	

- FINISH SCHEDULE LEGEND**
- AG = ANTI-GRAFFITI COATING
 - SCMU = CMU AND CONC, SEALED
 - SCONC = SEALED CONC, WITH A COEFFICIENT OF FRICTION AT LEAST 0.6 PER ASTM C 1028 (FLOOR SURFACES)
ALL CONC FLOORS TREATED WITH PENETRATING HARDENER AND PENETRATING SEALER PER SPEC.

SIGNAGE SCHEDULE

SIGN #	LOCATION	SIGN TYPE	QTY	TEXT	DETAIL
1.0	EXTERIOR LATCH SIDE OF DOOR 101	TACTILE RESTROOM I.D.	1	UNISEX, WITH ISA	8/G-5
1.1	EXTERIOR CENTER OF DOOR 101	RESTROOM DOOR I.D.	1	UNISEX WITH PICTOGRAM	9/G-5
2.0	EXTERIOR LATCH SIDE OF DOOR 102	TACTILE RESTROOM I.D.	1	UNISEX, NO ISA	8/G-5
2.1	EXTERIOR CENTER OF DOOR 102	RESTROOM DOOR I.D.	1	UNISEX WITH PICTOGRAM	9/G-5
3.0	EXTERIOR LATCH SIDE OF DOOR 103	TACTILE RESTROOM I.D.	1	UNISEX, NO ISA	8/G-5
3.1	EXTERIOR CENTER OF DOOR 103	RESTROOM DOOR I.D.	1	UNISEX WITH PICTOGRAM	9/G-5
4.0	EXTERIOR LATCH SIDE OF DOOR 104	TACTILE RESTROOM I.D.	1	UNISEX, NO ISA	8/G-5
4.1	EXTERIOR CENTER OF DOOR 104	RESTROOM DOOR I.D.	1	UNISEX WITH PICTOGRAM	9/G-5
5.0	EXTERIOR HINGE SIDE OF DOOR 105	TACTILE ROOM I.D.	3	MAINTENANCE ROOM	10/G-5
6.0	ACCESSIBLE PARKING SIGNAGE	ACCESSIBLE PARKING	2	(SEE DETAIL FOR COPY)	3/A5

NOTE: SIGNAGE TO COMPLY WITH CBC SECTION 1117B.5

SIGNAGE SYMBOL LEGEND

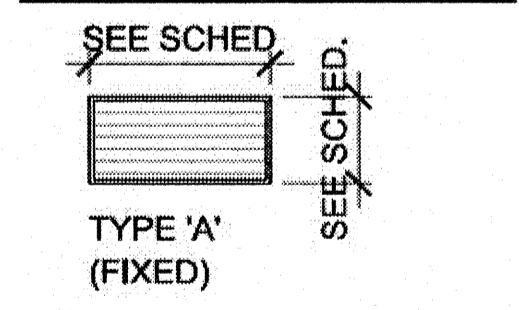
- 1.0 WALL / DOOR MOUNTED SIGNS, AS INDICATED

LOUVER SCHEDULE

NO	WIDTH	HEIGHT	SILL A.F.F.	TYPE	FRAME		DETAILS (/ A8)			COMMENTS
					MAT'L	FIN	HEAD	JAMB	SILL	
A	3'-4"	1'-6"	7'-2"	A	FG	PTD	INT	INT	INT	1
B	2'-8"	1'-6"	7'-2"	A	FG	PTD	INT	INT	INT	1
C	2'-8"	1'-6"	7'-2"	A	FG	PTD	INT	INT	INT	1
D	2'-8"	1'-6"	7'-2"	A	FG	PTD	INT	INT	INT	1
E	3'-8"	1'-6"	7'-2"	A	FG	PTD	10	7	10	1
F	3'-6"	1'-6"	7'-2"	A	FG	PTD	10	7	10	1
G	3'-6"	1'-6"	7'-2"	A	FG	PTD	10	7	10	1
H	3'-6"	1'-6"	7'-2"	A	FG	PTD	10	7	10	1

- SCHEDULE COMMENTS**
- 'INT' LOUVER INSTALLATION AND ANCHORAGE IS INTEGRAL WITH DOOR FRAME.
 - 1. FIELD MEASURE ROUGH OPENING BEFORE ORDERING

LOUVER LEGEND



SCHEDULE LEGEND

- FG = FIBERGLASS
- PTD = PAINTED
- SS = STAINLESS STEEL

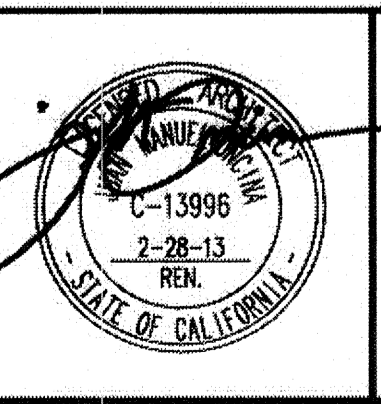
CONSTRUCTION CHANGE / ADDENDUM

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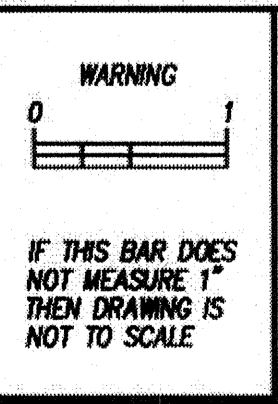
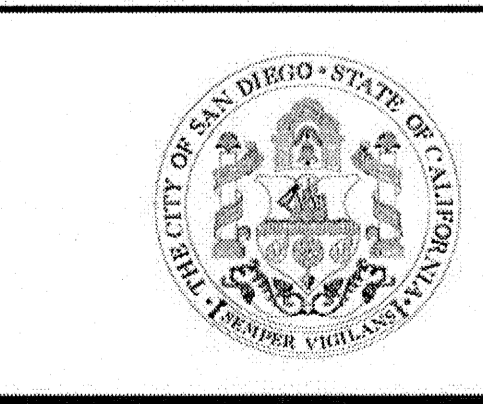
CONSULTANT

MANUEL ONCINA ARCHITECTS INC. ARCHITECTURE PLANNING INTERIORS
514 Pennsylvania Ave., San Diego, CA 92103
619/295-4000 FAX 619/295-4055 FAX

SCALE: HORIZONTAL NO SCALE VERTICAL NO SCALE



CITY OF SAN DIEGO PUBLIC WORKS PROJECT



WARNING
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FUNDING CIP/SAP: _____ SPEC. NO.: _____

PLANS FOR THE CONSTRUCTION OF:

PALISADES PARK COMFORT STATION

INTERIOR ELEVATIONS / SCHEDULES

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 14 OF 46 SHEETS

W.B.S. S-10026
W.D. _____

FOR CITY ENGINEER: _____ DATE: 6/18/13

DESCRIPTION	BY	APPROVED	DATE	FILED
FINAL	MOA		08/02/12	

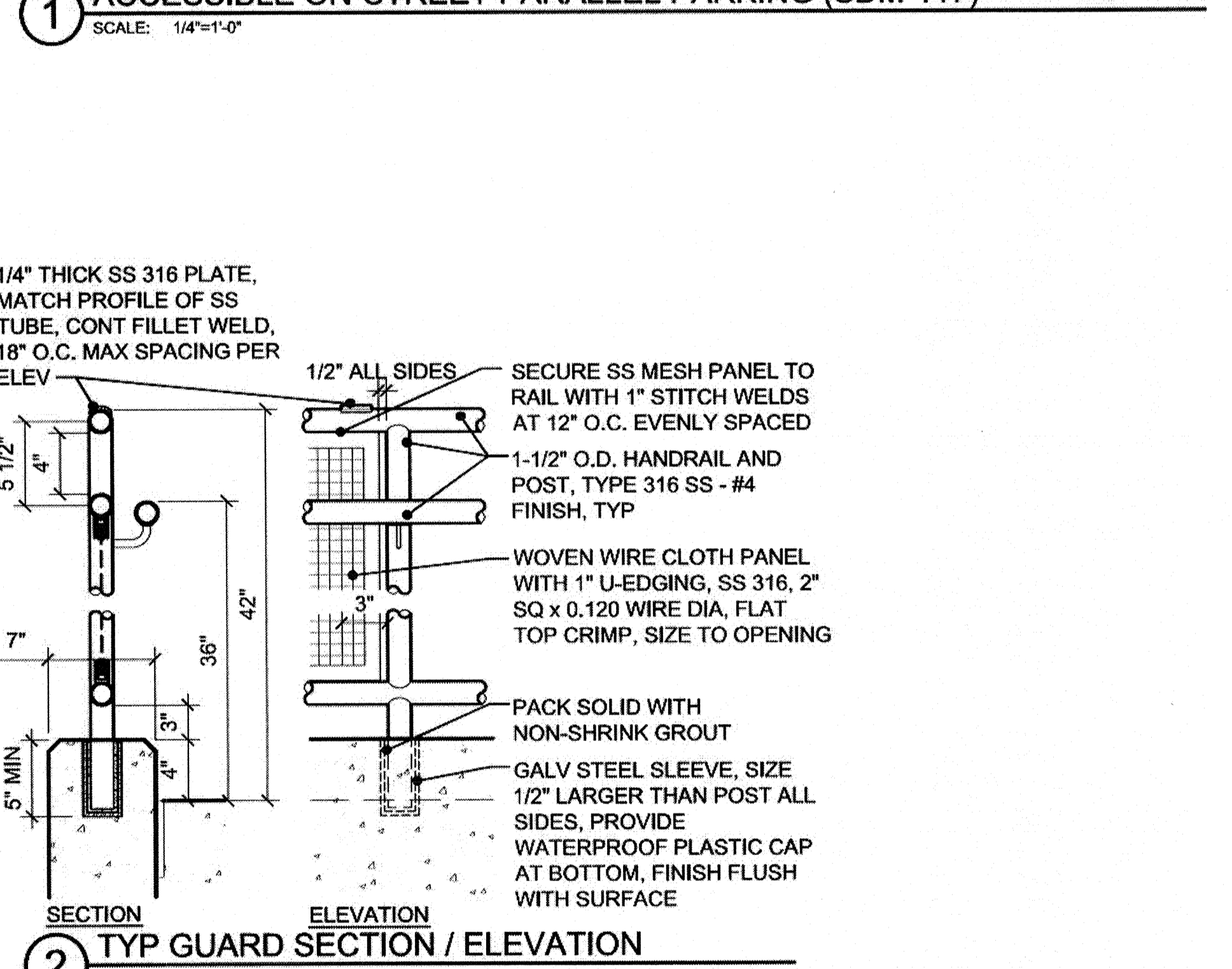
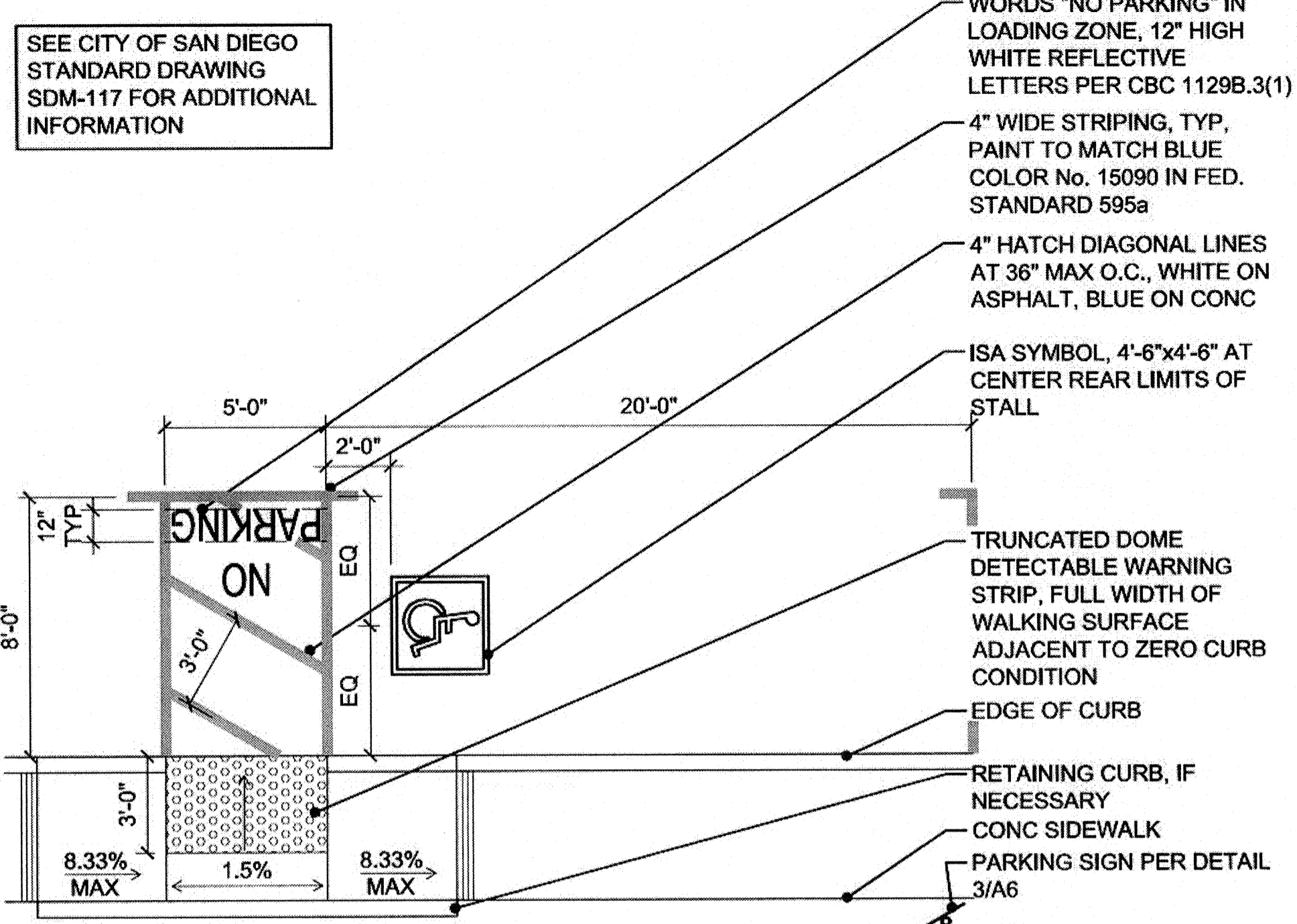
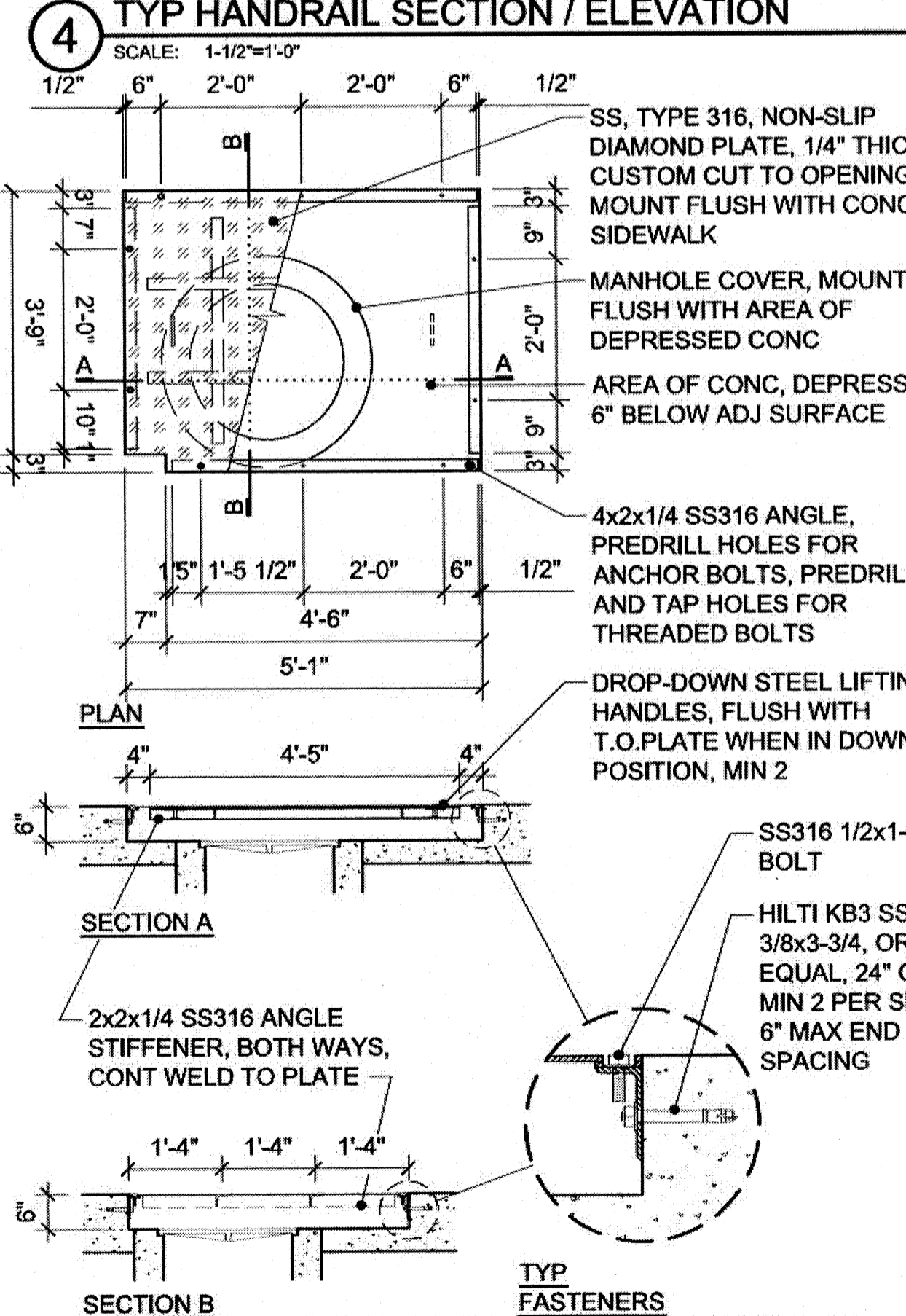
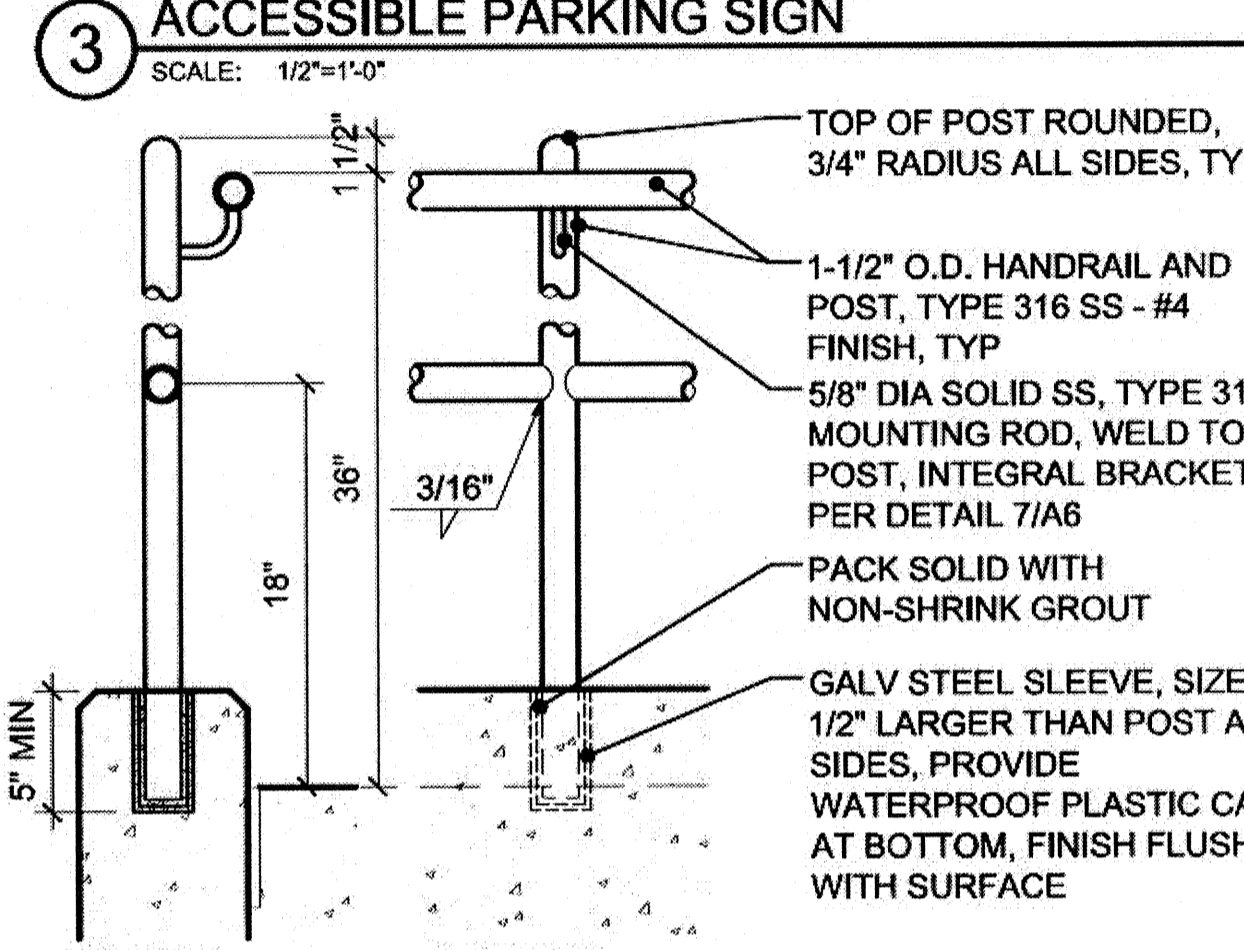
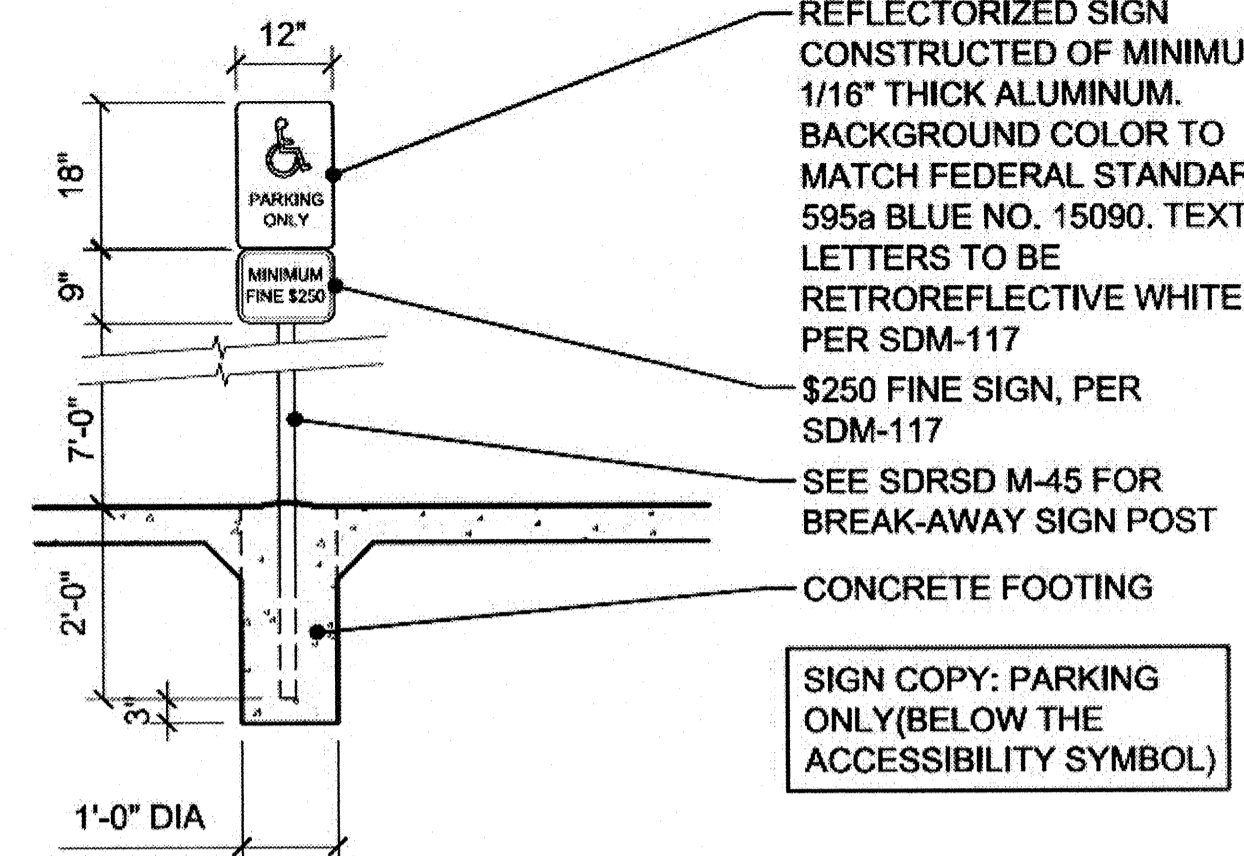
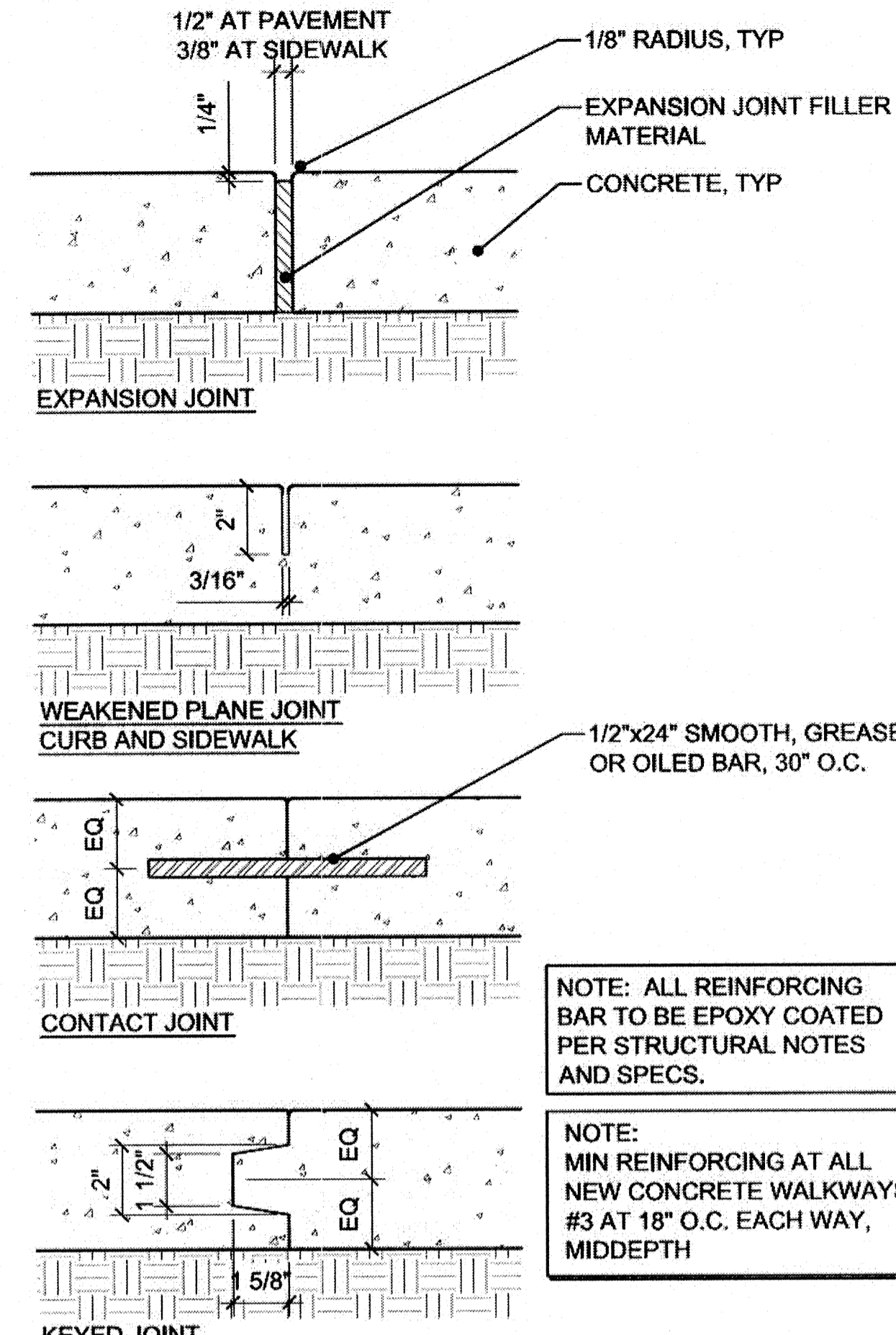
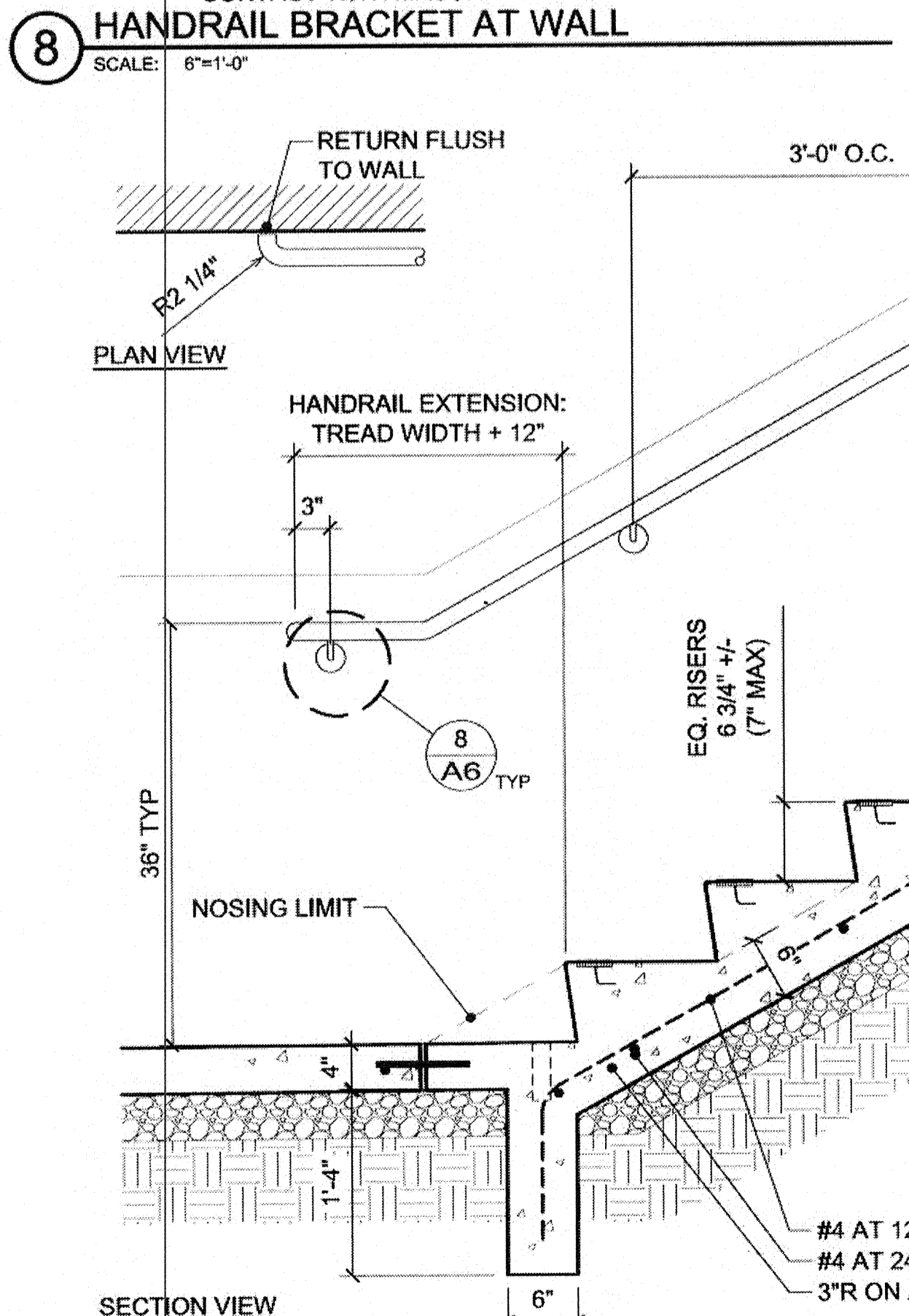
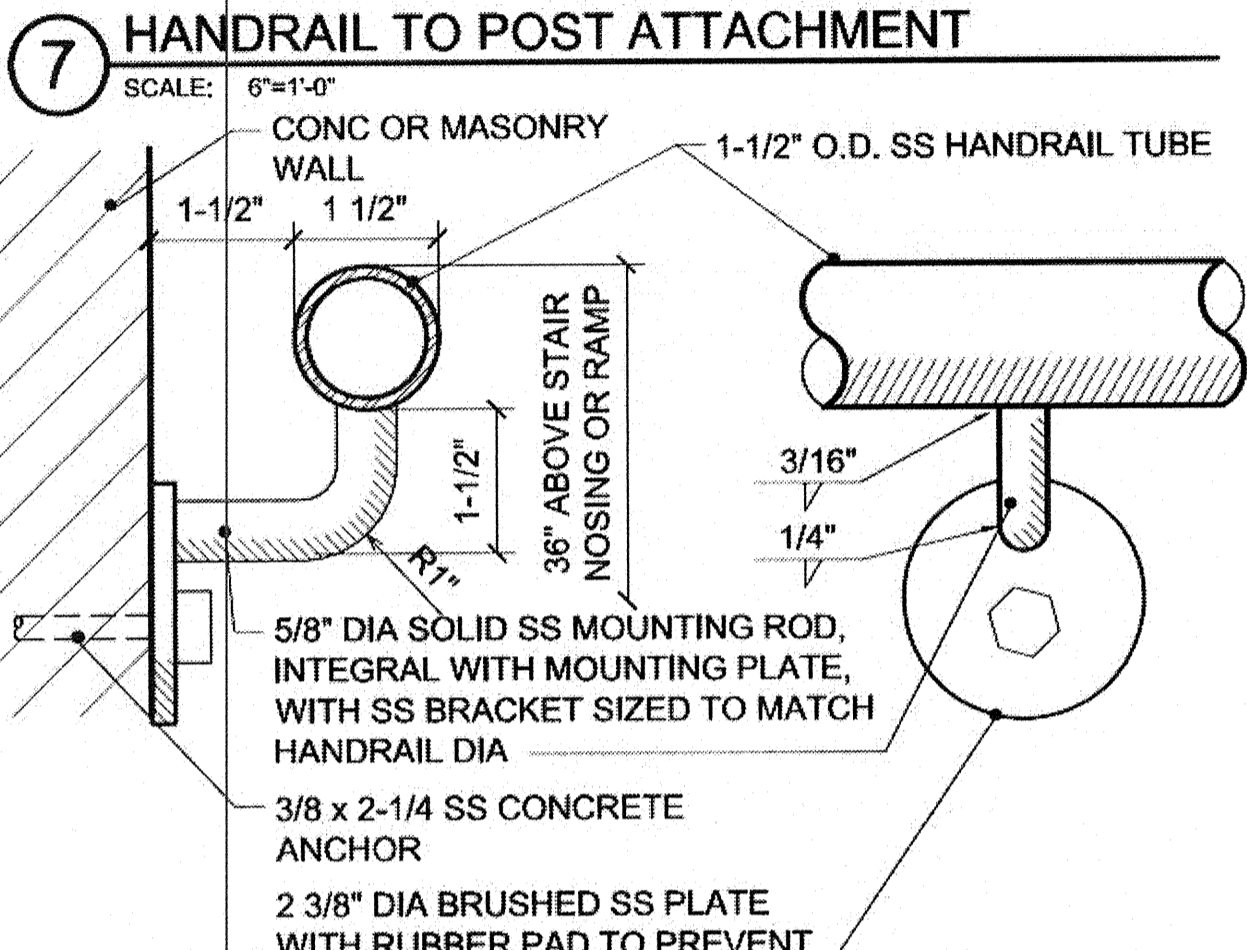
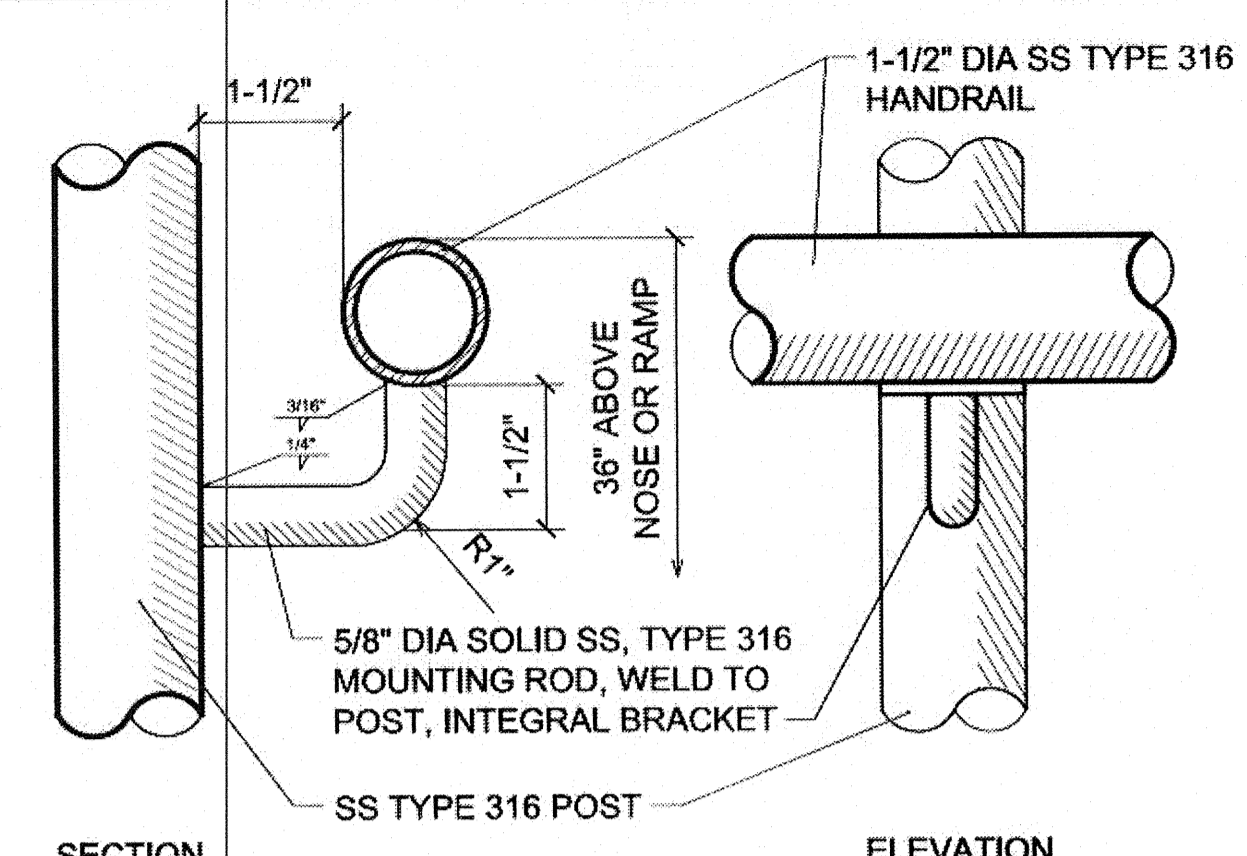
SECTION HEAD: _____
PROJECT MANAGER: _____
CCS27 COORDINATE: _____
CCS83 COORDINATE: _____

AS-BUILTS

CONTRACTOR INSPECTOR: _____ DATE STARTED: _____ DATE COMPLETED: _____

36598-14-D

PALISADES PARK COMFORT STATION



CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

MANUEL ONCINA ARCHITECTS INC., ARCHITECTURE PLANNING INTERIORS
514 Breaux Canyon Ave., San Diego, CA 92103
619/225-4900 FAX 619/225-4955 TX
www.oncina.com

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

CITY OF SAN DIEGO PUBLIC WORKS PROJECT

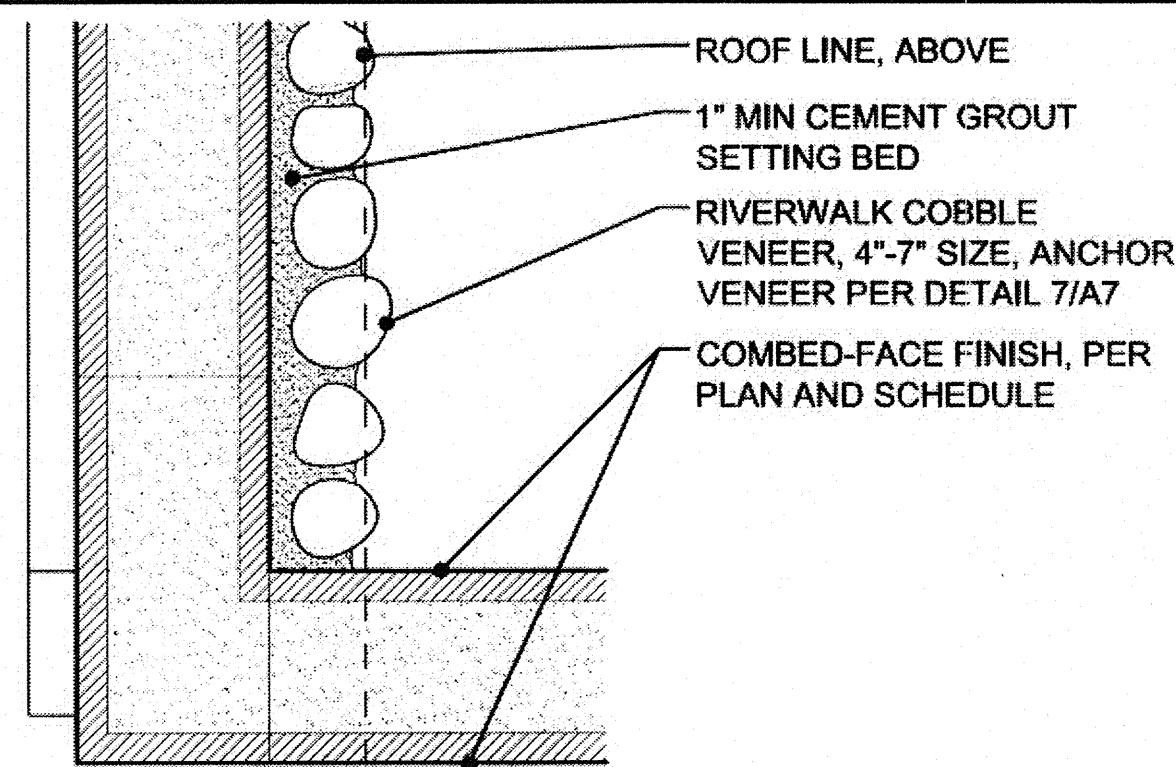
Seal of the City of San Diego, State of California.

WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

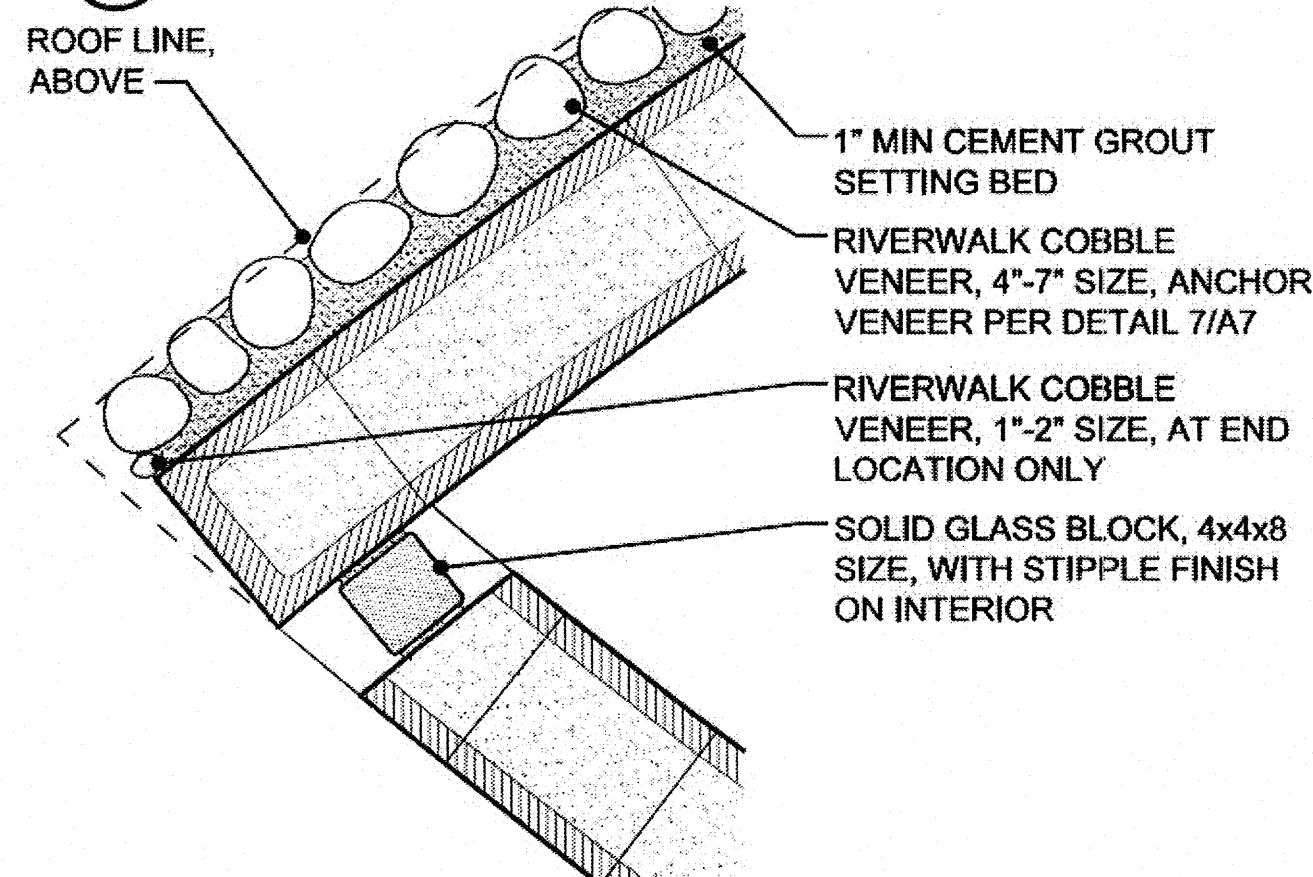
FUNDING CIP/SAP	SPEC. NO.	A6
PLANS FOR THE CONSTRUCTION OF:		
PALISADES PARK COMFORT STATION		
DETAILS		
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 15 OF 46 SHEETS		W.B.S. S-10026 W.O.
FOR CITY ENGINEER	DATE 5/18/13	SECTION HEAD
DESCRIPTION BY APPROVED DATE FILMED	FINAL MDA 08/02/12	PROJECT MANAGER
AS-BUILTS		CCS27 COORDINATE
CONTRACTOR	DATE STARTED	CCS83 COORDINATE
INSPECTOR	DATE COMPLETED	36598-15-D

PALISADES PARK COMFORT STATION



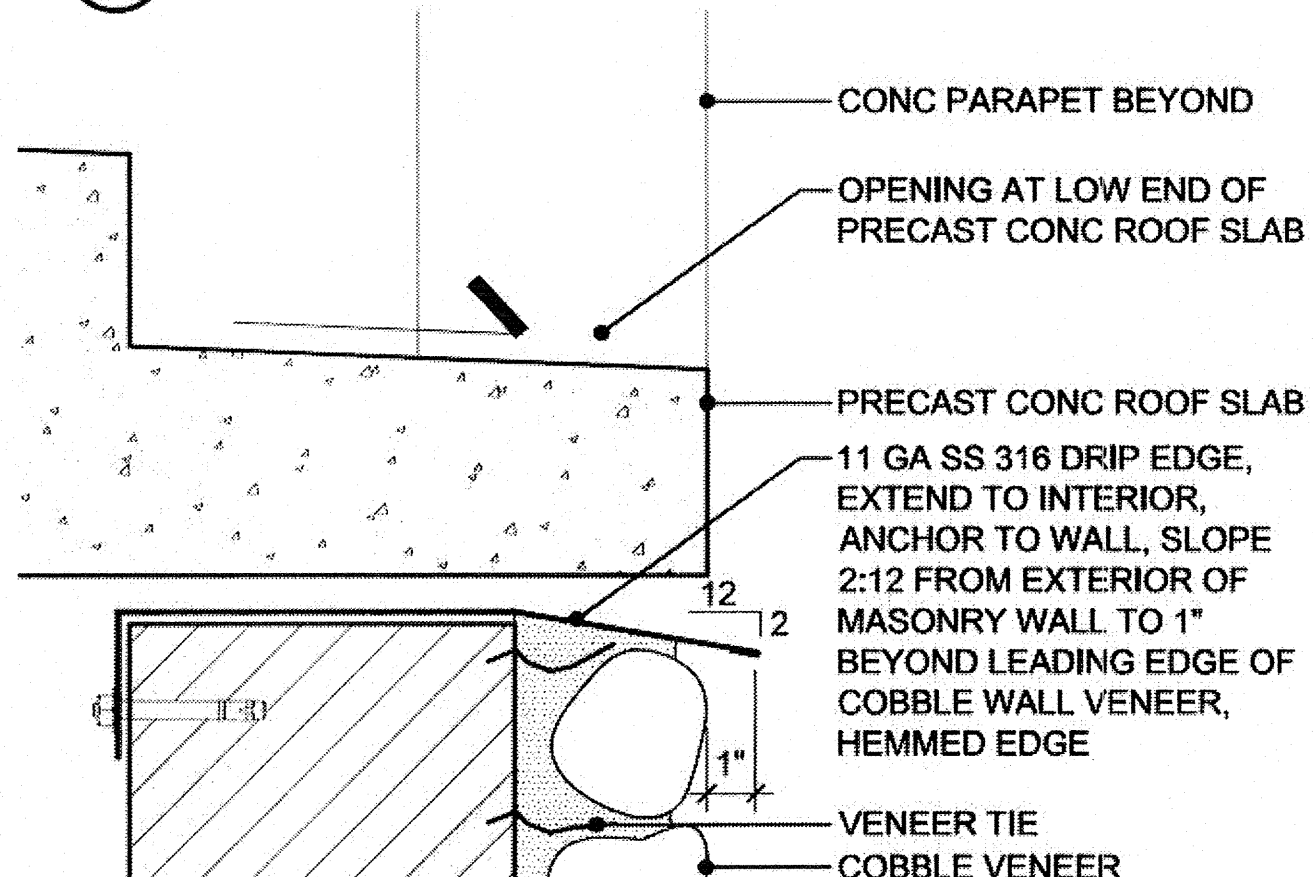
9 ENLARGED PLAN DETAIL

SCALE: 1-1/2"=1'-0"



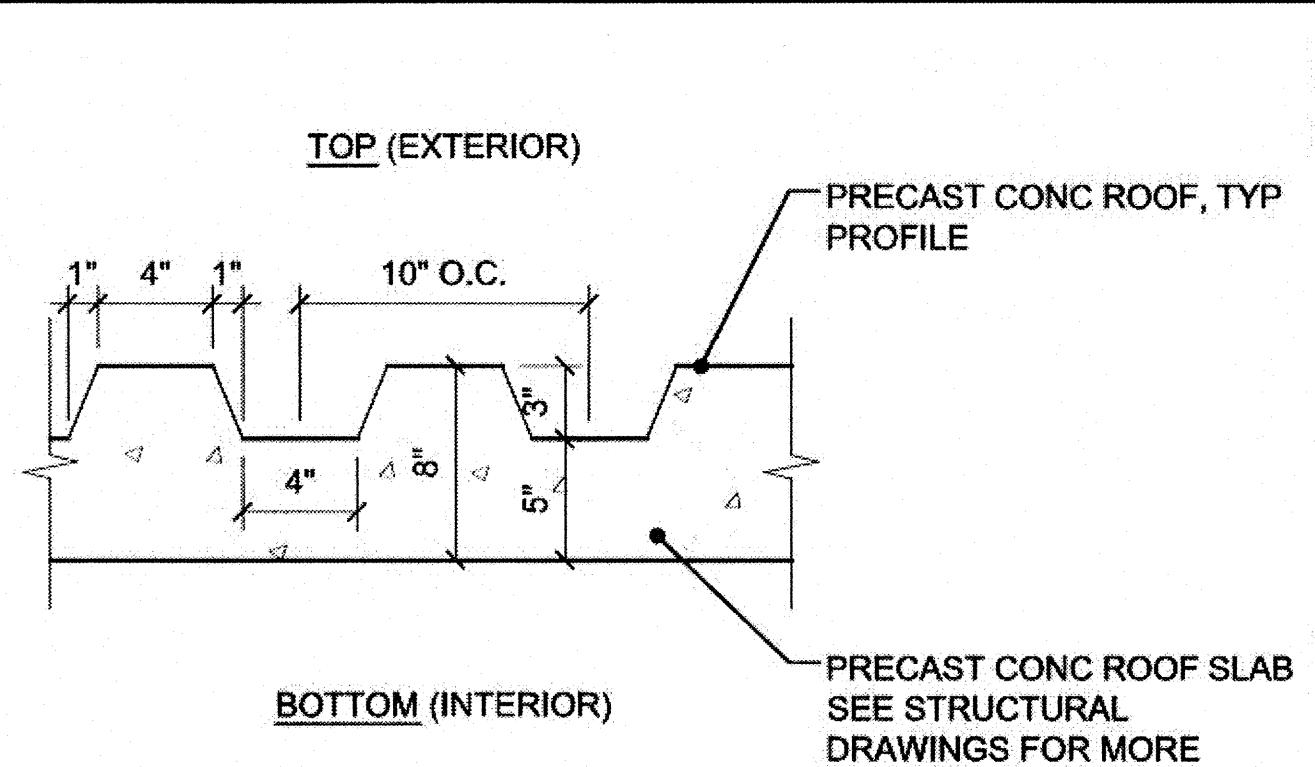
10 ENLARGED PLAN DETAIL

SCALE: 1-1/2"=1'-0"



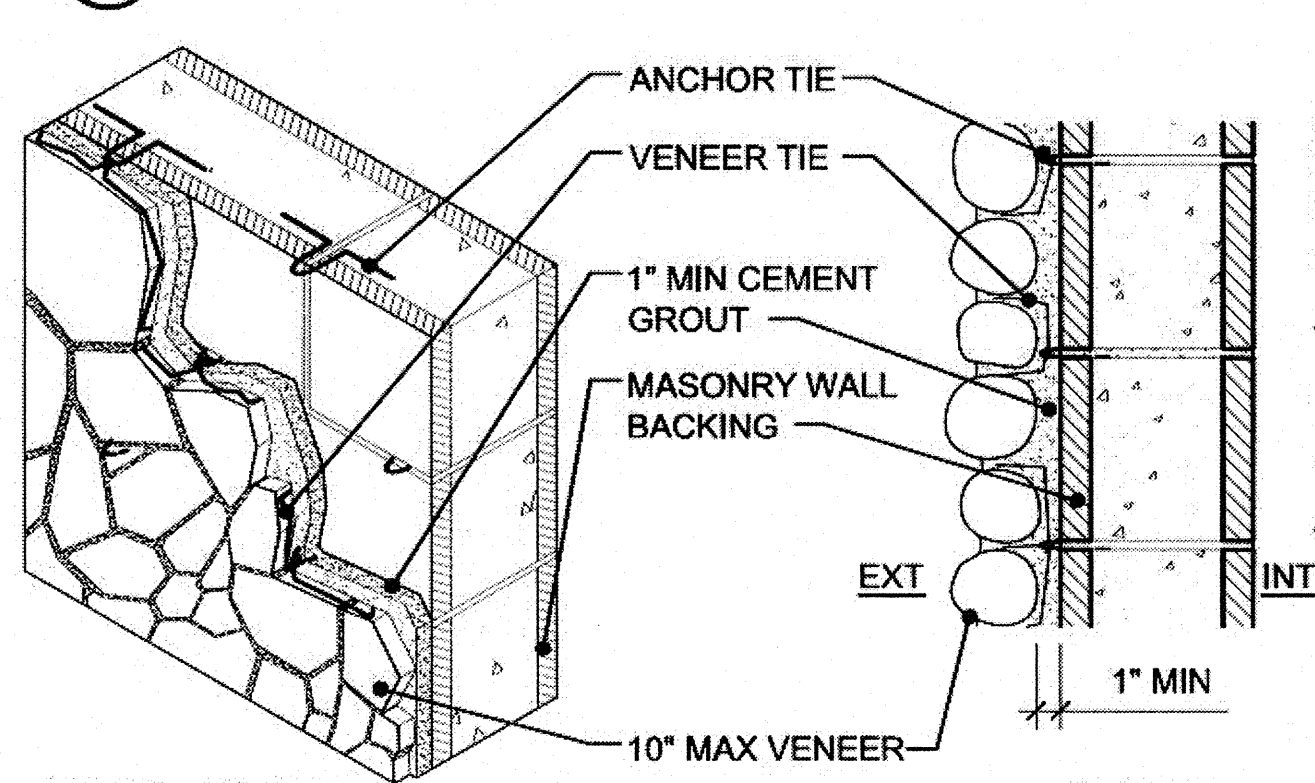
11 SS DRIP EDGE FLASHING

SCALE: 3"=1'-0"



6 ROOF SLAB - TYP PROFILE

SCALE: 1-1/2"=1'-0"



7 COBBLE VENEER ON MASONRY WALL*, TYP

SCALE: 1-1/2"=1'-0"

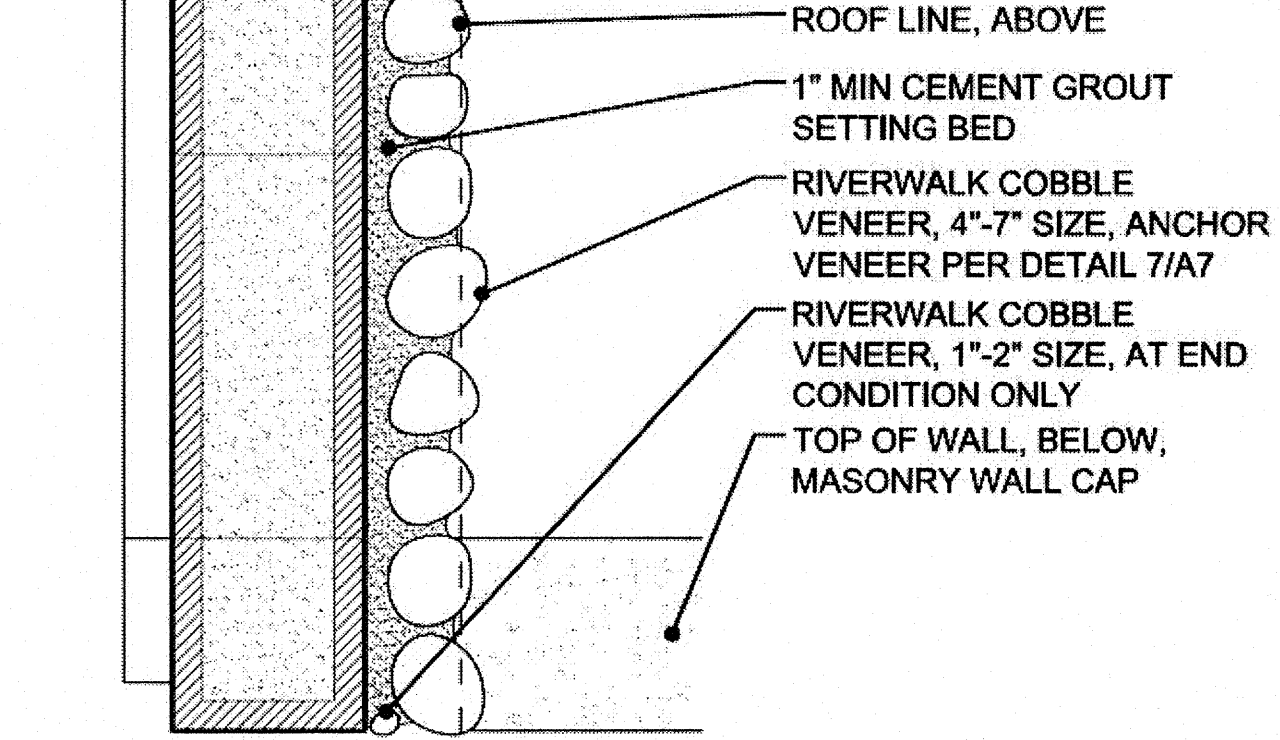
ANCHOR TIE: CORROSION RESISTANT WIRE, MIN 0.1055", FORMED AS EXPOSED EYE EXTENDING BEYOND FACE OF BACKING. LEGS OF THE TIE SHALL BE NOT LESS THAN 6 INCHES IN LENGTH BENT AT RIGHT ANGLES AND LAID IN MORTAR JOINT, SPACED 12" O.C. MAX IN BOTH DIRECTIONS.

VENEER TIE: CORROSION RESISTANT WIRE, MIN 0.1055" THREADED THROUGH THE EXPOSED LOOPS, NOT LESS THAN 1 PER EVERY 2 SF OF VENEER. TIE SHALL BE A LOOP HAVING LEGS NOT LESS THAN 15 INCHES IN LENGTH BENT SO THAT IT WILL LIE IN THE STONE VENEER MORTAR JOINT. THE LAST 2" OF EACH LEG SHALL HAVE A RIGHT-ANGLE BEND.

* WIRE-TIED SYSTEM AS DESCRIBED IN CBC 1405.7, ITEM 1; AND MASONRY INSTITUTE OF AMERICA (MIA) FIGURE 3.21 - ANCHORED SYSTEM WITH CONCRETE BACKUP

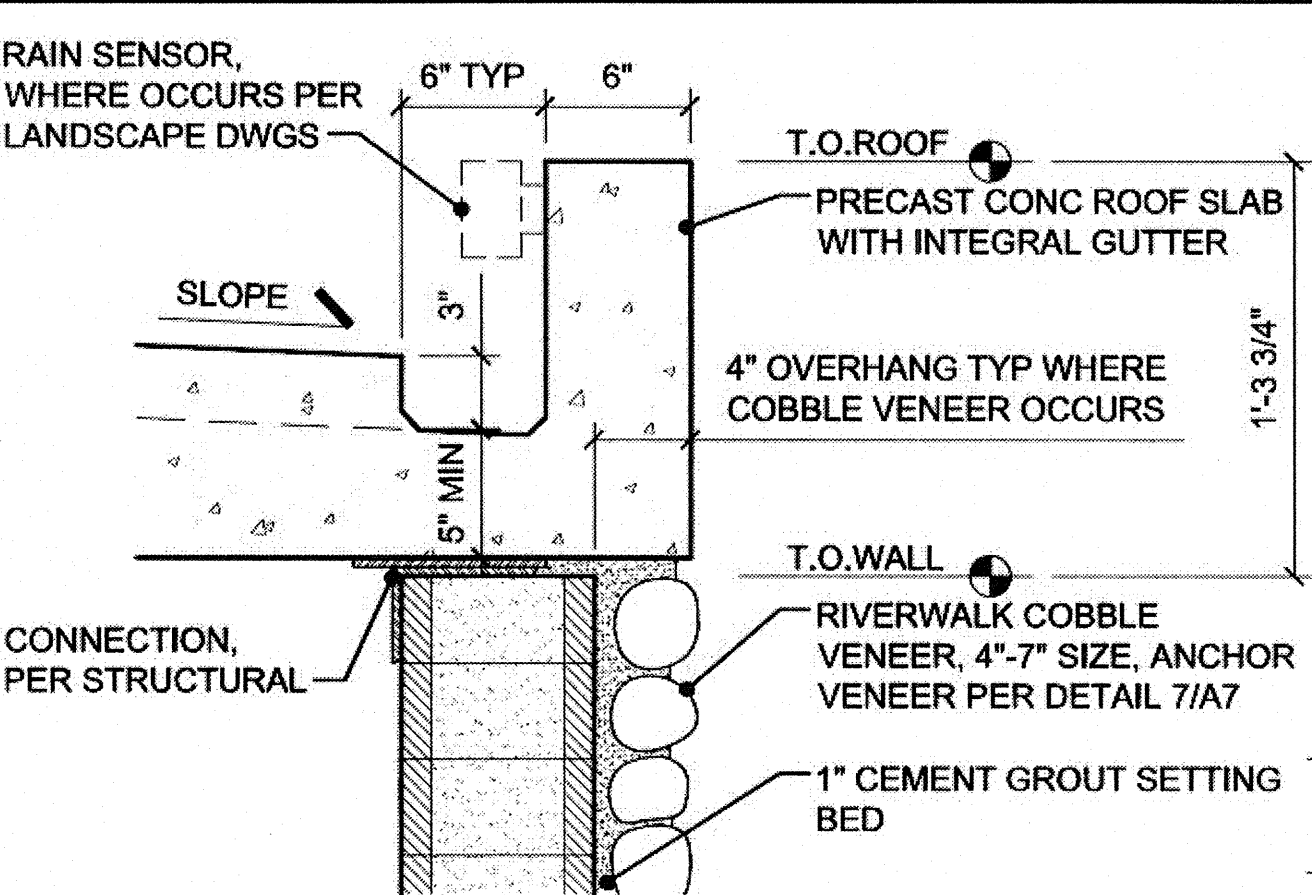
8 ENLARGED PLAN DETAIL

SCALE: 1-1/2"=1'-0"



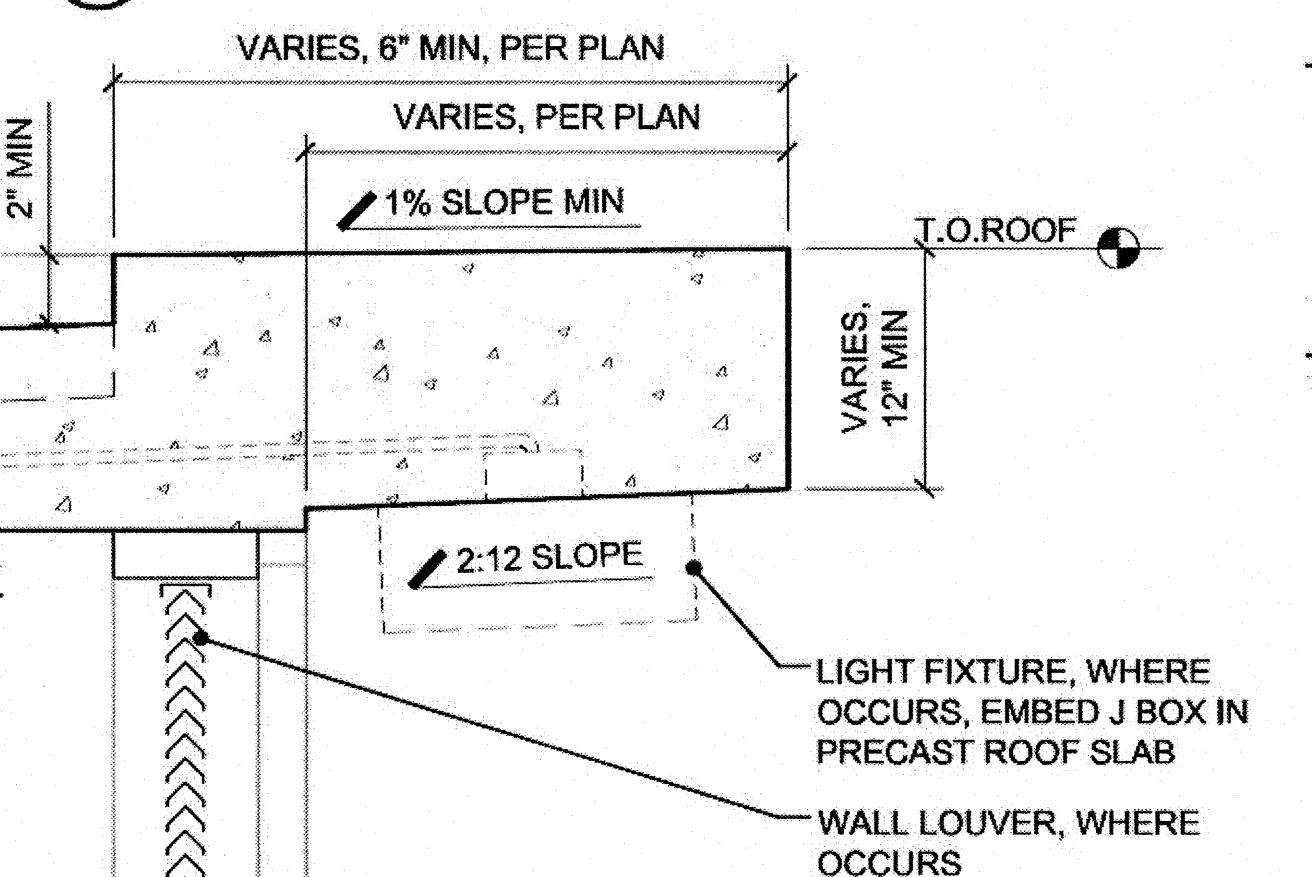
8 ENLARGED PLAN DETAIL

SCALE: 1-1/2"=1'-0"



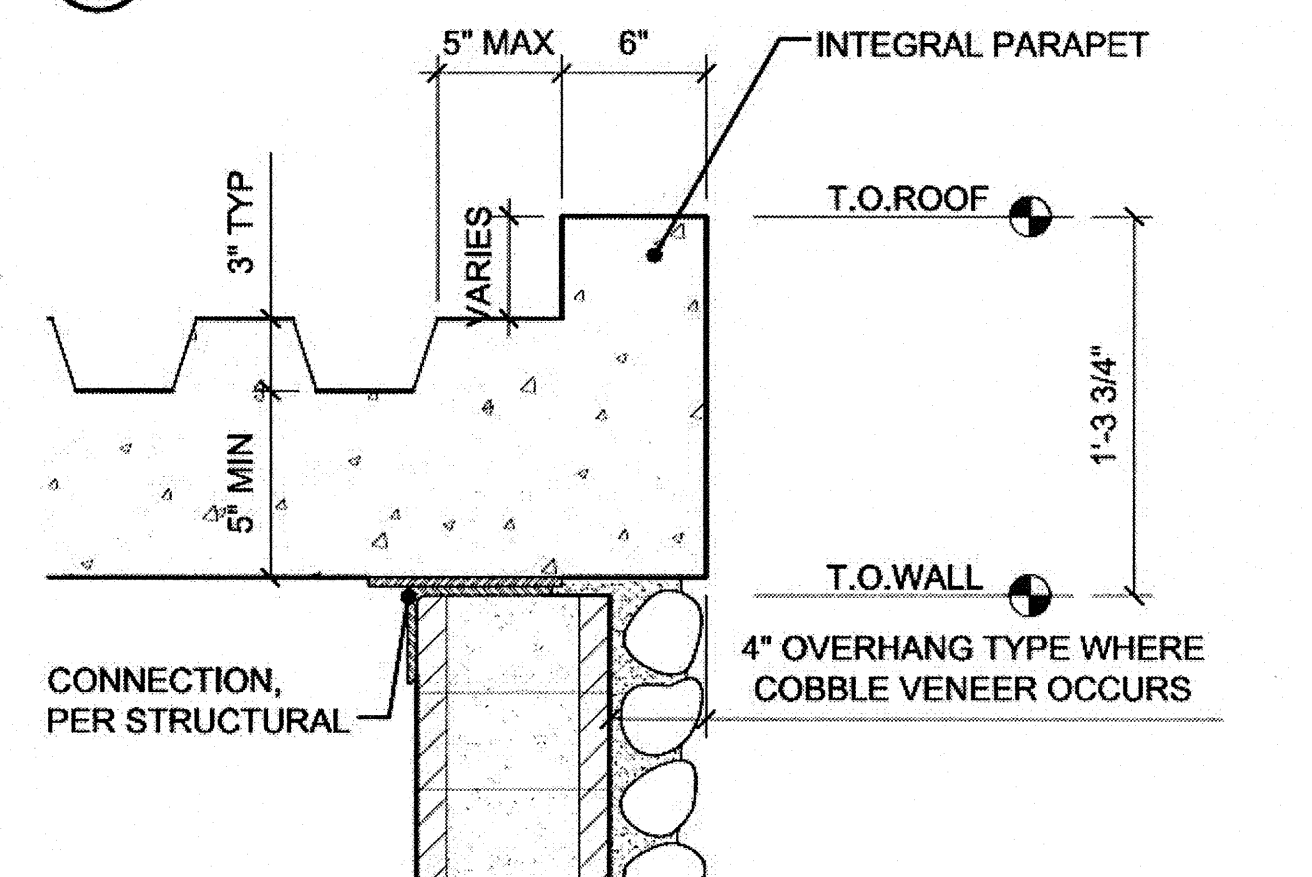
3 COBBLE VENEER WALL AT ROOF

SCALE: 1-1/2"=1'-0"



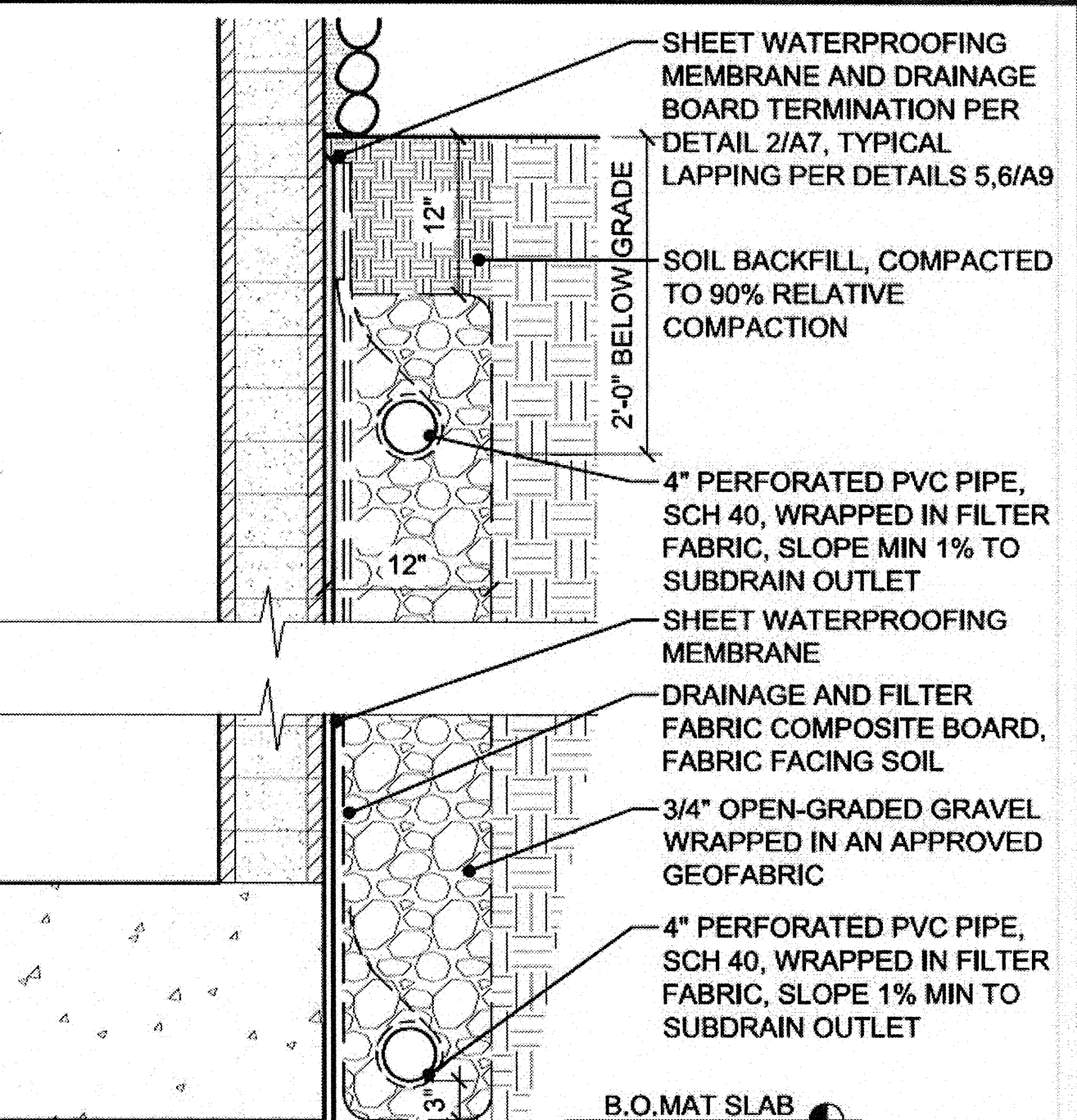
4 ROOF SLAB AT OVERHANG

SCALE: 1-1/2"=1'-0"



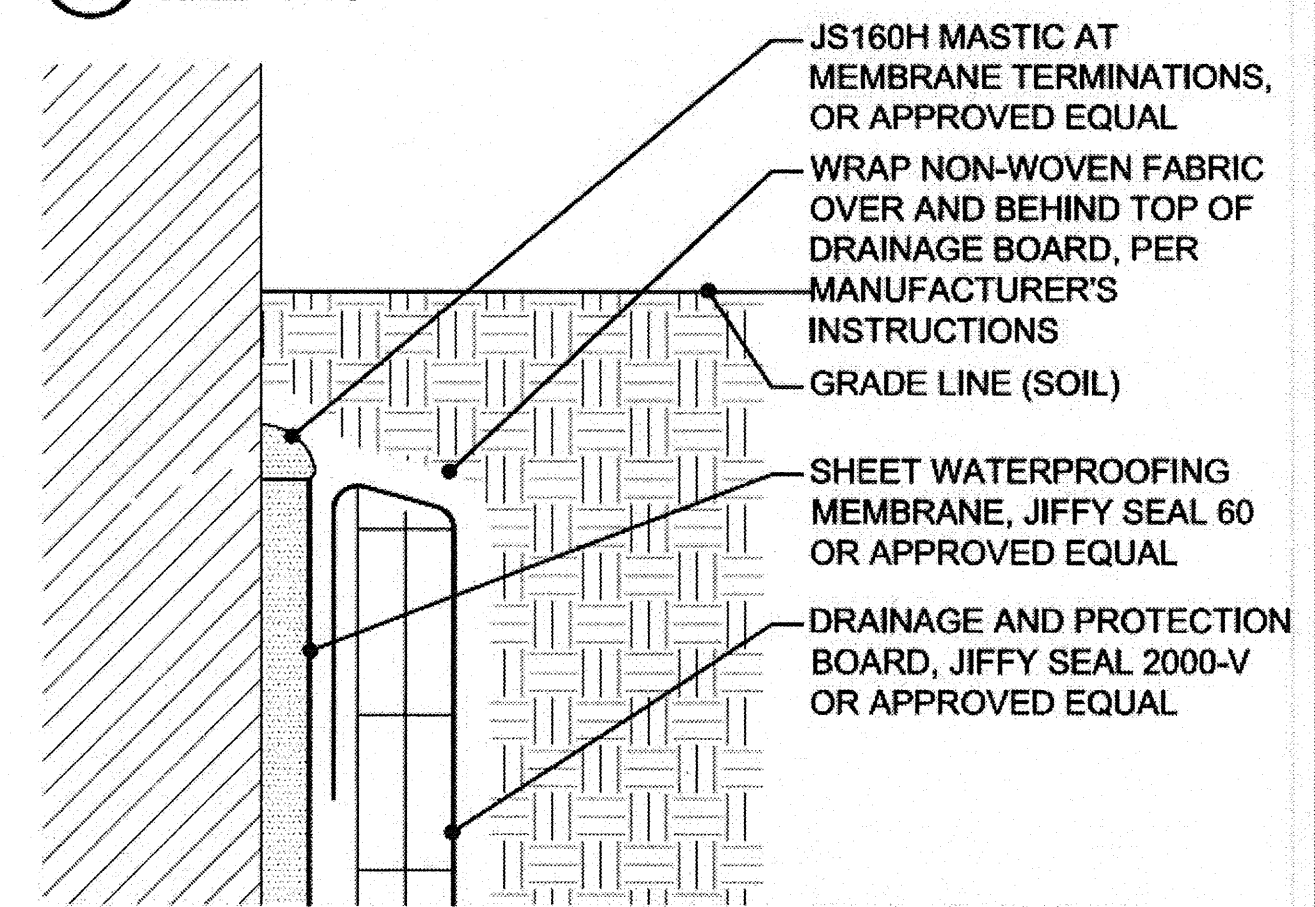
5 ROOF SLAB AT RAKE EDGE

SCALE: 1-1/2"=1'-0"



1 TYP WATERPROOFING AND SUBDRAIN

SCALE: 1"=1'-0"



2 SHEET WATERPROOFING TERMINATION

SCALE: FULL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT
 MANUEL ONCINA ARCHITECTS INC.
 ARCHITECTURE PLANNING INTERIORS
 614 Pennsylvania Ave.
 San Diego, CA 92103
 619-295-4900 FAX
 619-295-4900 WWW

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

CITY OF SAN DIEGO PUBLIC WORKS PROJECT

1-13996
 2-28-13
 REN.

STATE OF CALIFORNIA

WARNING
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FUNDING CIP/SAP: _____ SPEC. NO.: _____ A7

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

DETAILS

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 10 OF 46 SHEETS

W.B.S. S-10026
 W.O. _____

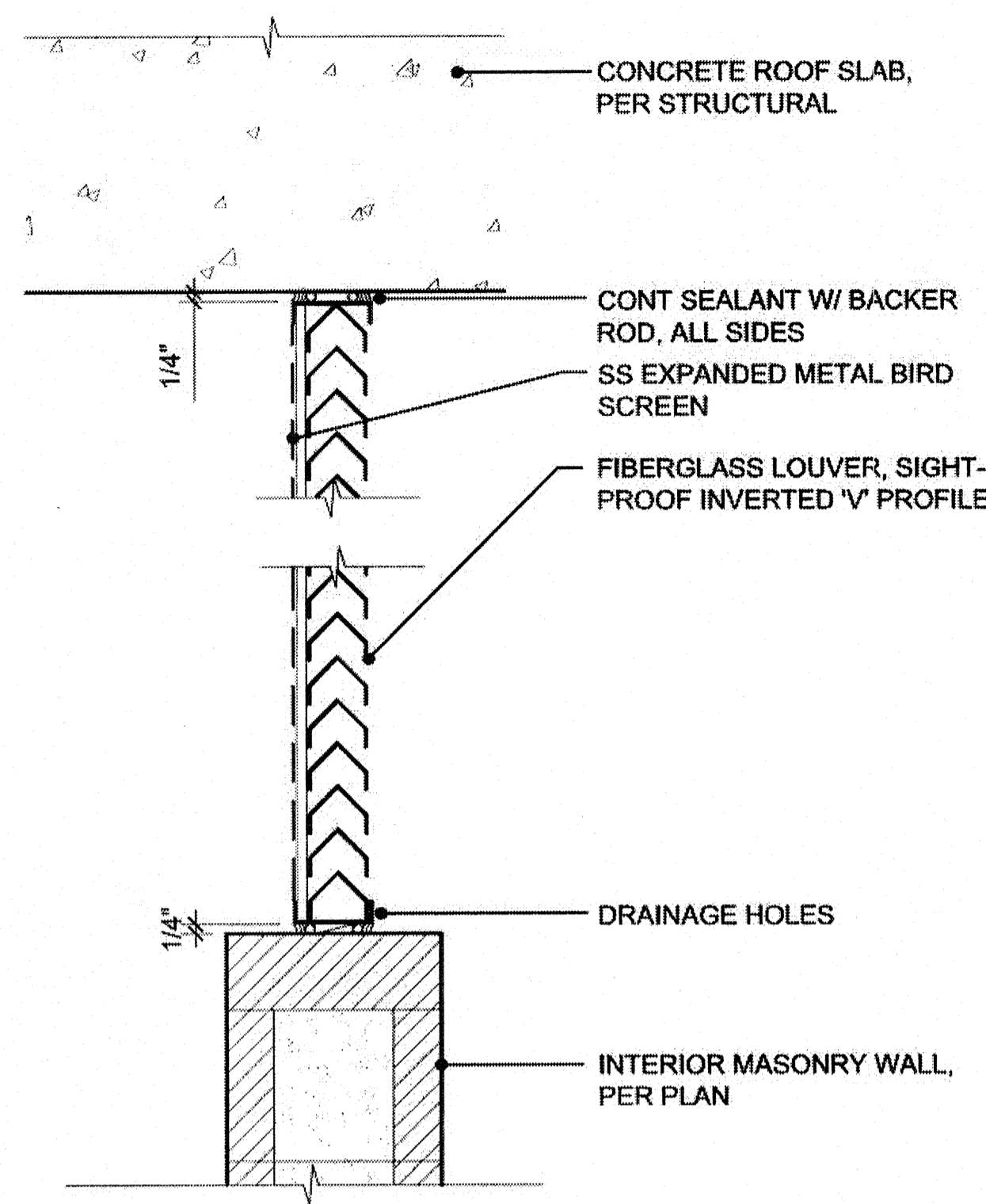
DESCRIPTION	BY	APPROVED	DATE	FILMED
FOR CITY ENGINEER			6/18/13	
FINAL	MOA		08/02/12	

SECTION HEAD: _____
 PROJECT MANAGER: _____
 CCS27 COORDINATE: _____
 CCS83 COORDINATE: _____

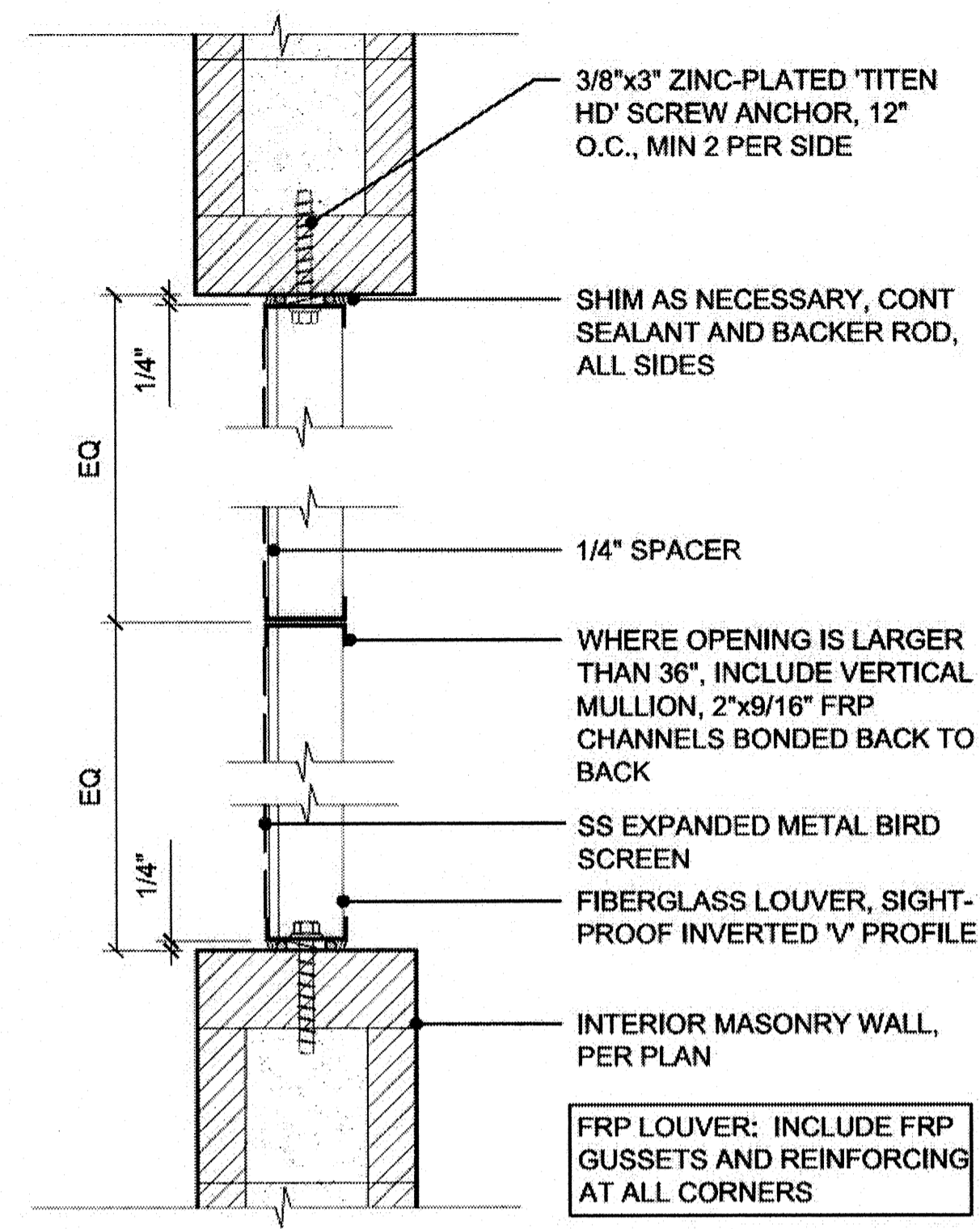
AS-BUILTS: _____
 CONTRACTOR: _____ DATE STARTED: _____
 INSPECTOR: _____ DATE COMPLETED: _____

36598-16-D

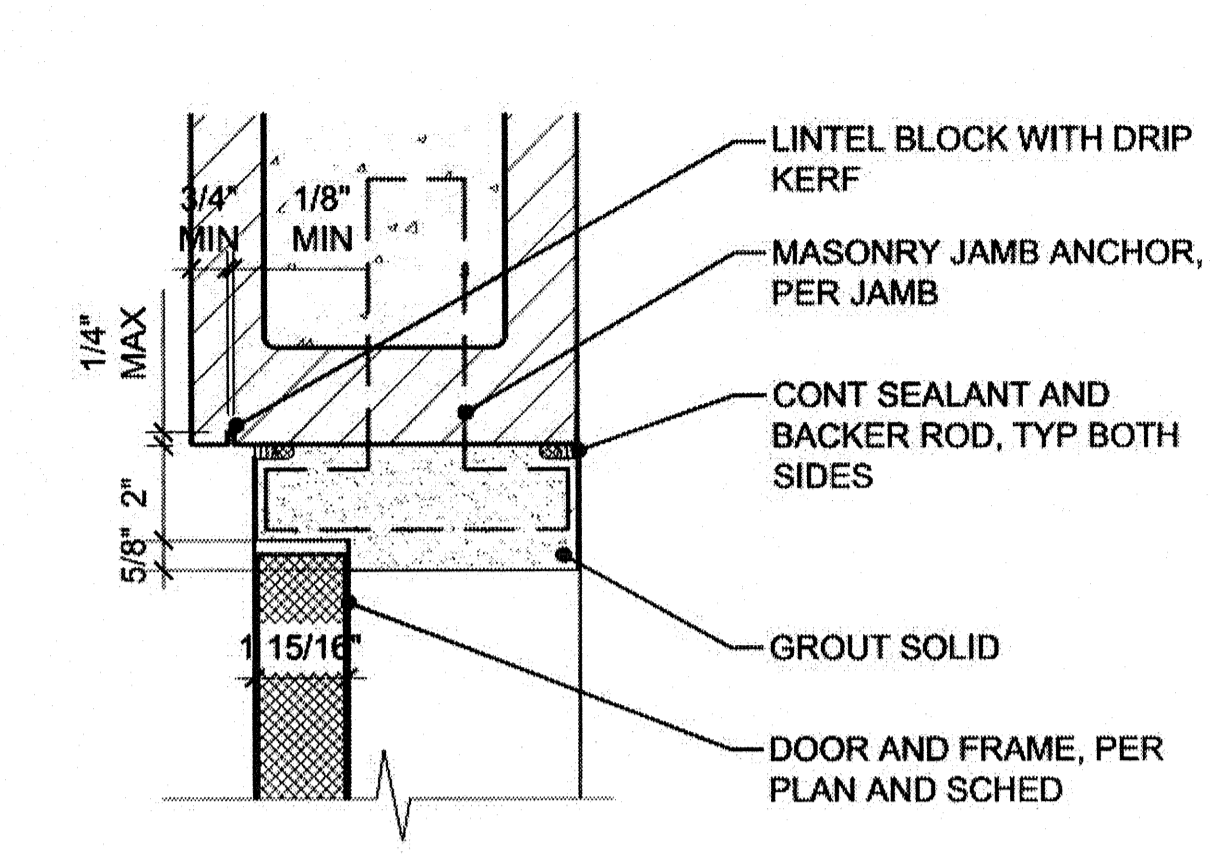
PALISADES PARK COMFORT STATION



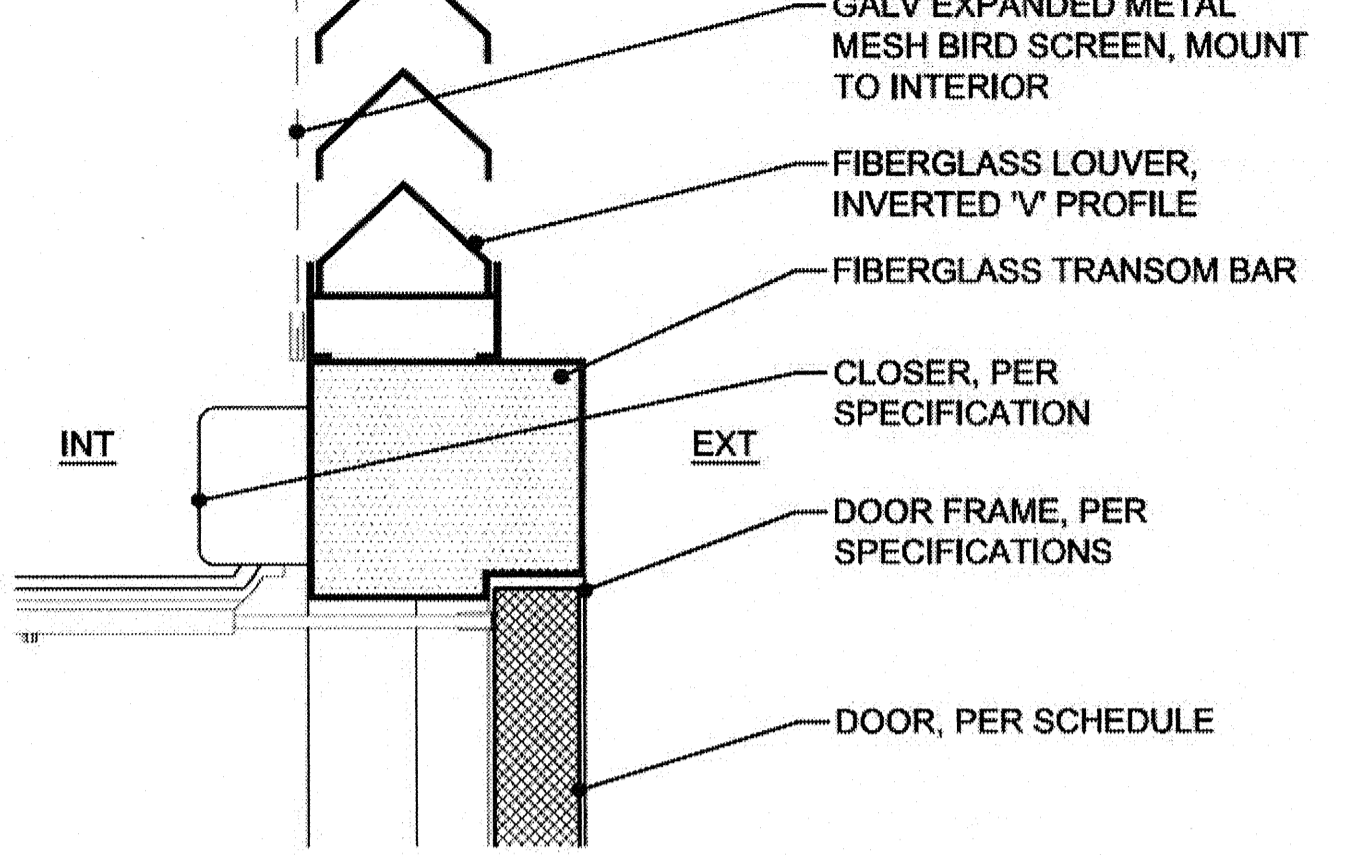
10 LOUVER HEAD / SILL (JAMB SIM)
SCALE: 3"=1'-0"



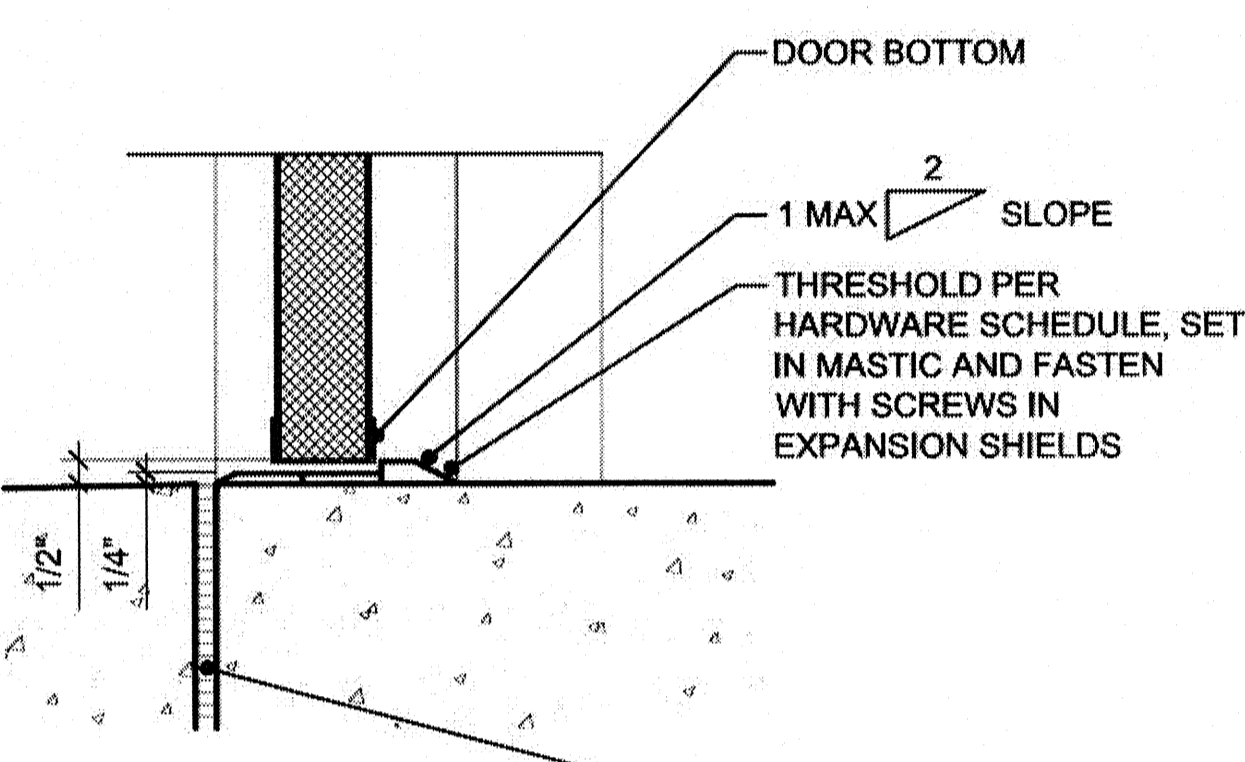
7 LOUVER JAMB
SCALE: 3"=1'-0"



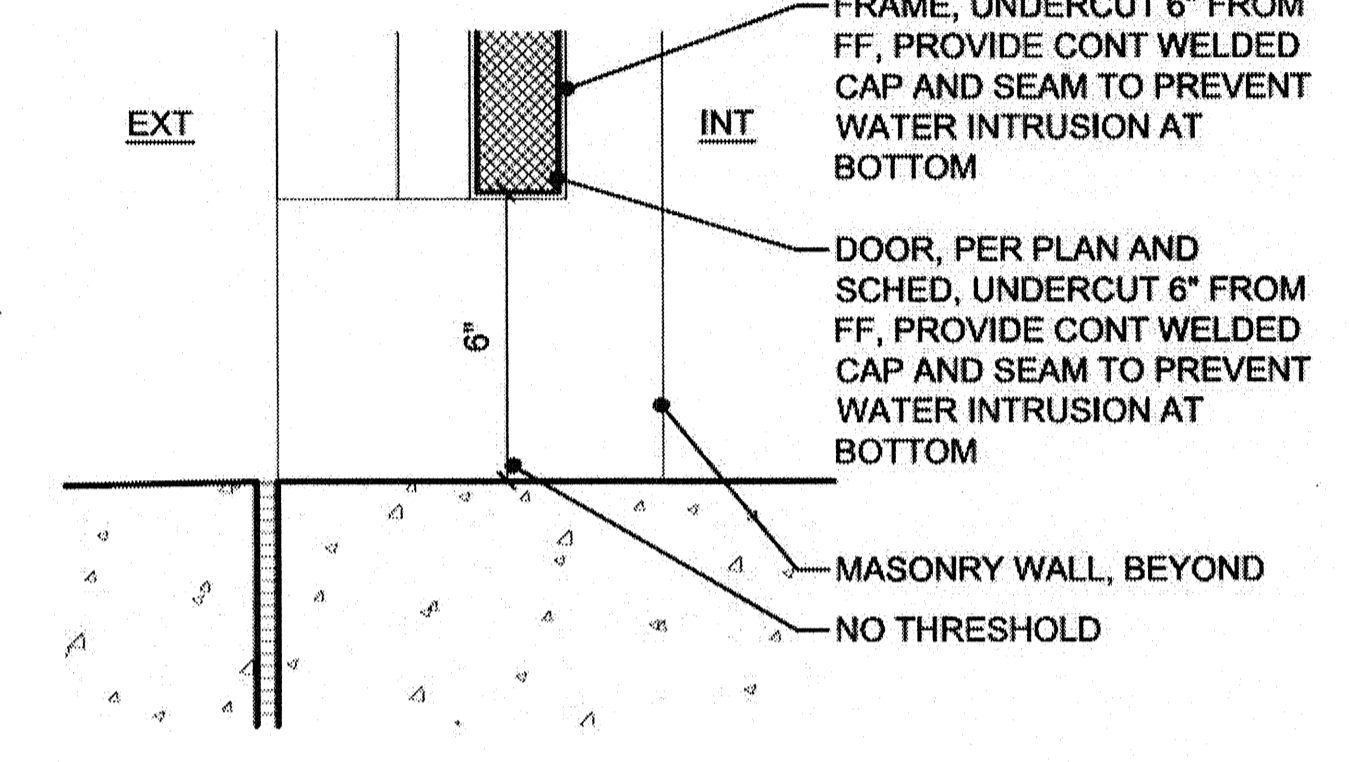
4 DOOR FRAME (HEAD)
SCALE: 3"=1'-0"



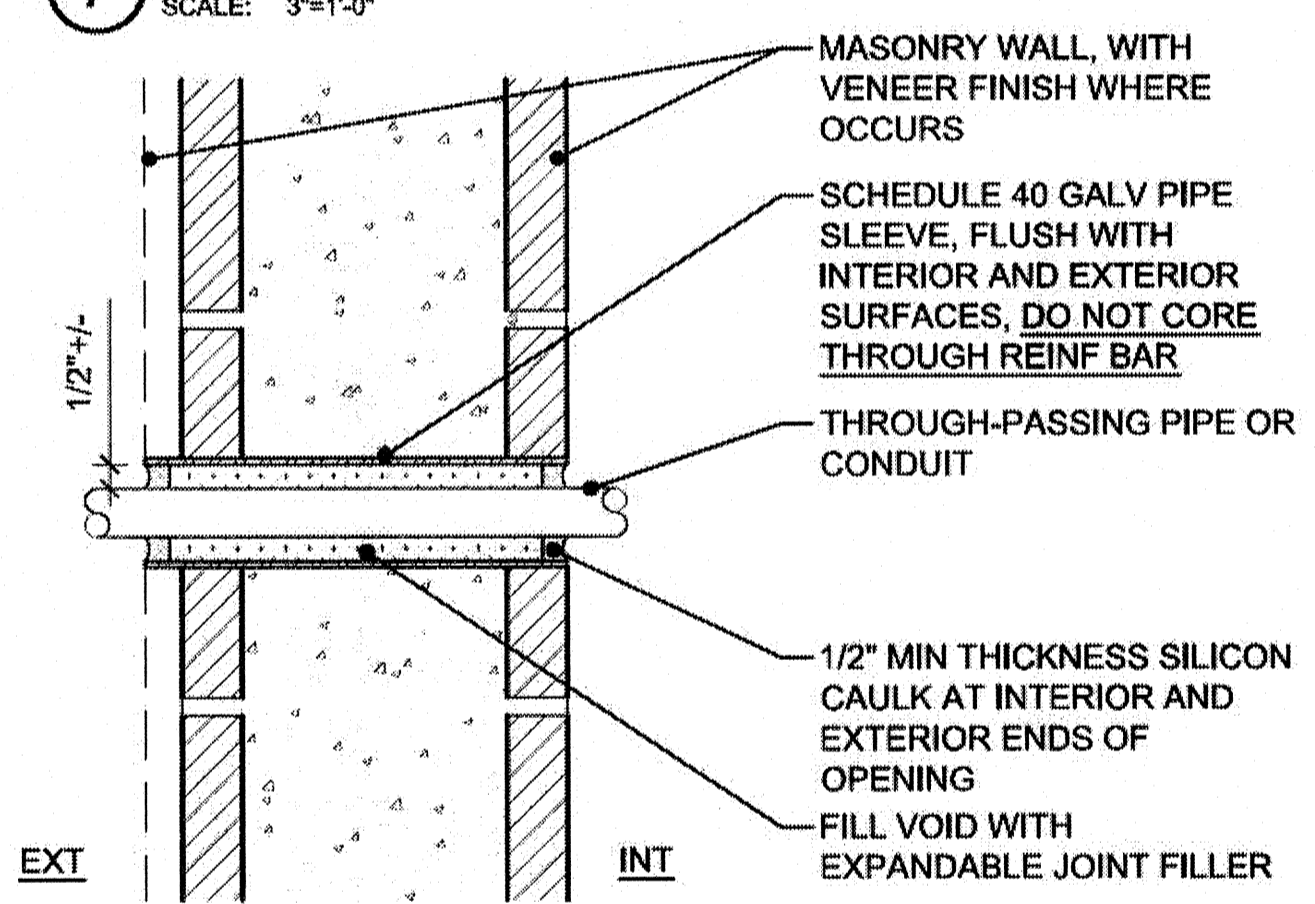
1 DOOR HEAD AT LOUVER SILL
SCALE: 3"=1'-0"



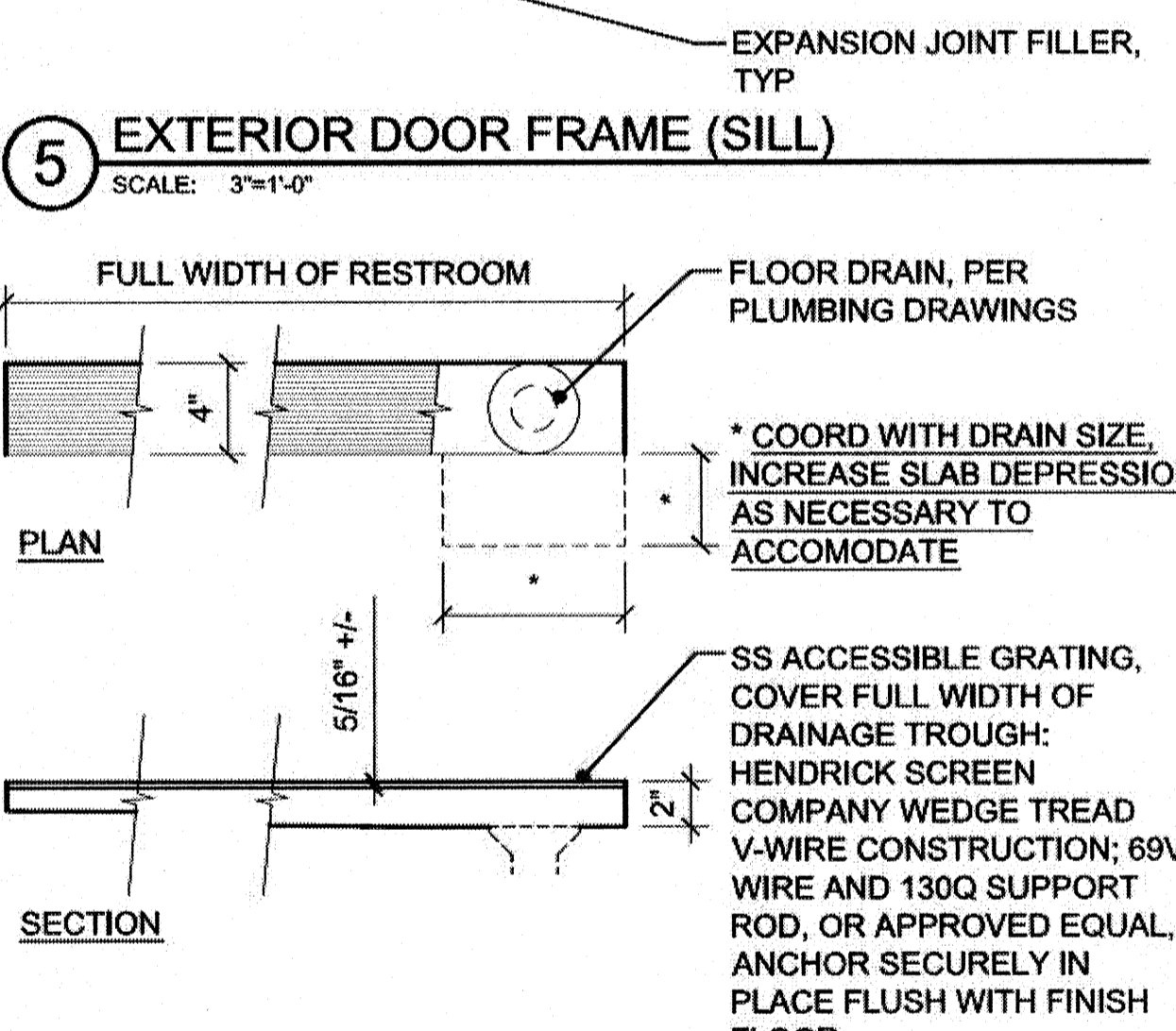
5 EXTERIOR DOOR FRAME (SILL)
SCALE: 3"=1'-0"



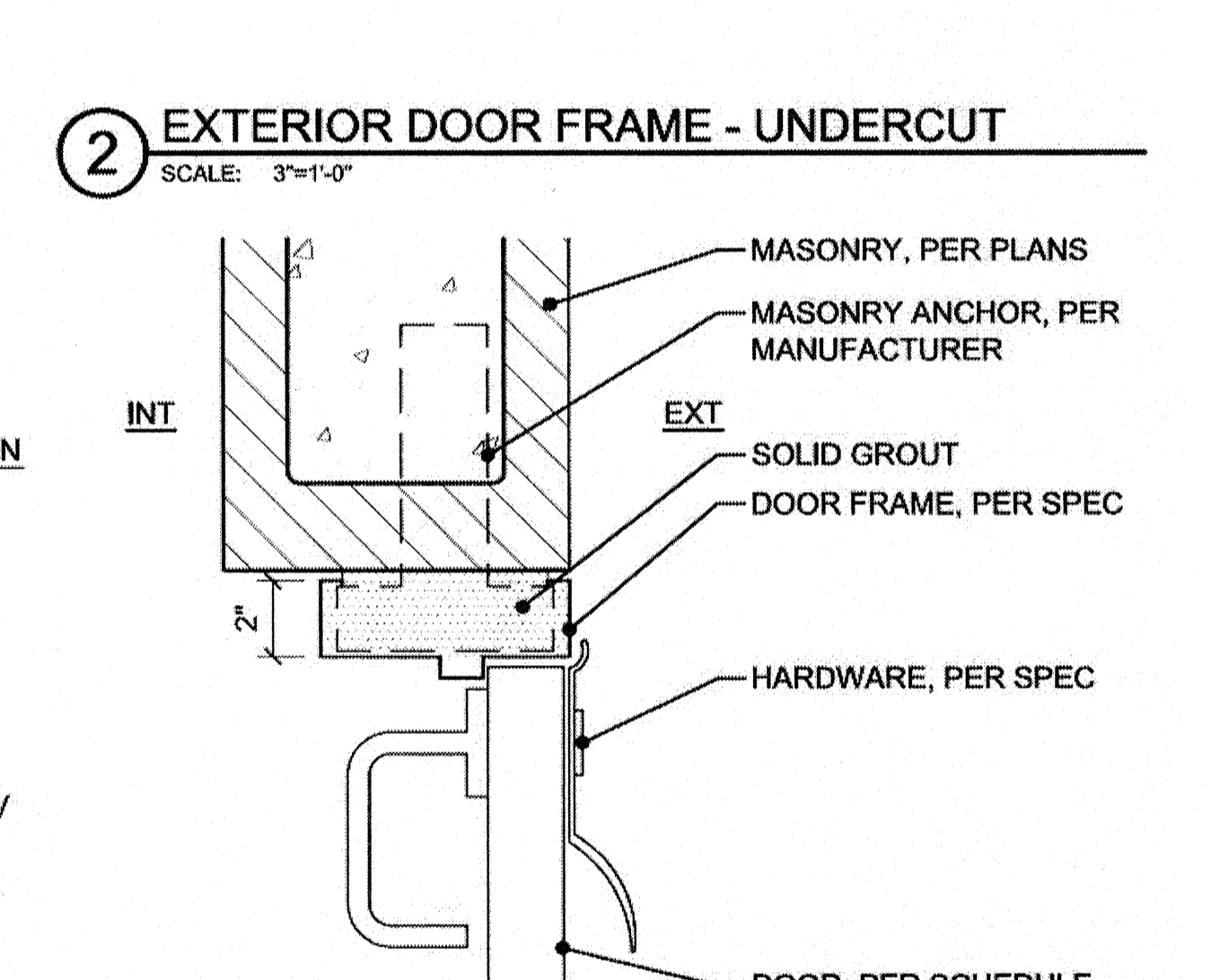
2 EXTERIOR DOOR FRAME - UNDERCUT
SCALE: 3"=1'-0"



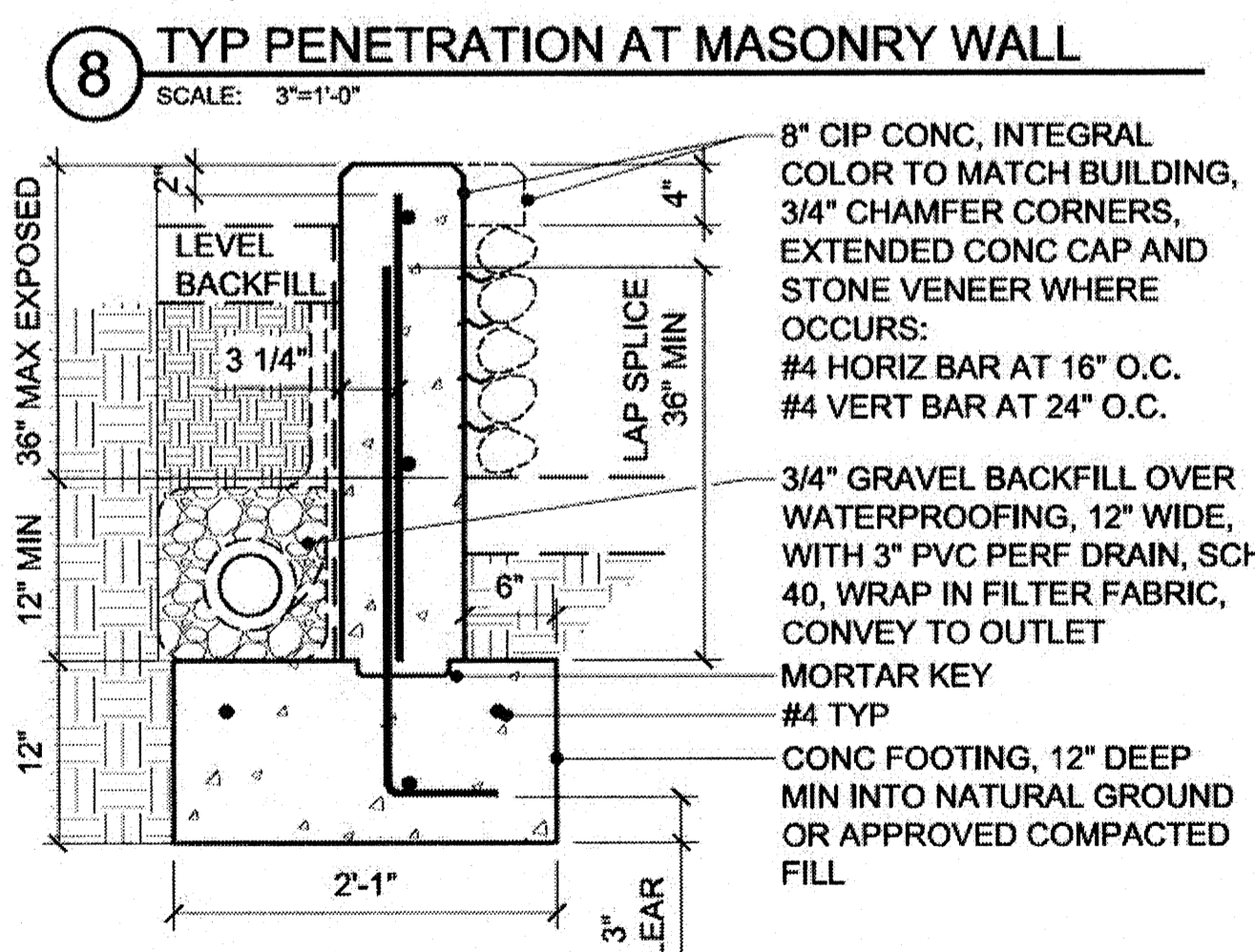
8 TYP PENETRATION AT MASONRY WALL
SCALE: 3"=1'-0"



6 DRAIN TROUGH AT RESTROOM
SCALE: 1-1/2"=1'-0"



3 DOOR JAMB AT MASONRY
SCALE: 3"=1'-0"

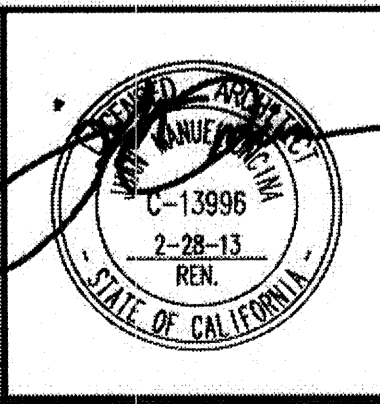


9 SITE RETAINING WALL - LEVEL BACKFILL
SCALE: 1"=1'-0"

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT
MANUEL OJICINA ARCHITECTS INC.
 ARCHITECTURE
 PLANNING
 INTERIORS
 514 Pennsylvania Ave.
 San Diego, CA 92103
 619/295-4923 FAX
 619/295-4956 TX
 www.mojic.com

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



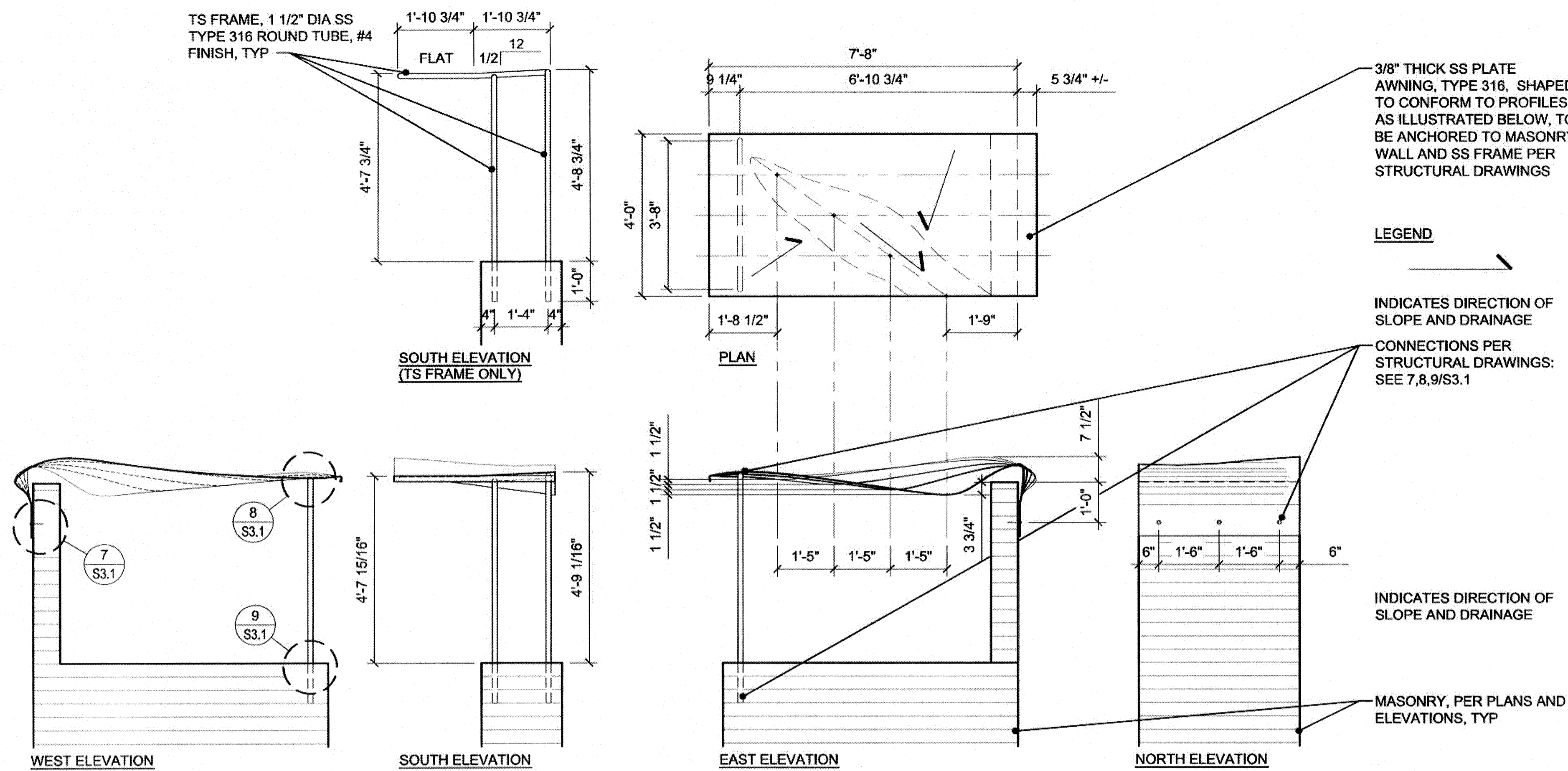
CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT



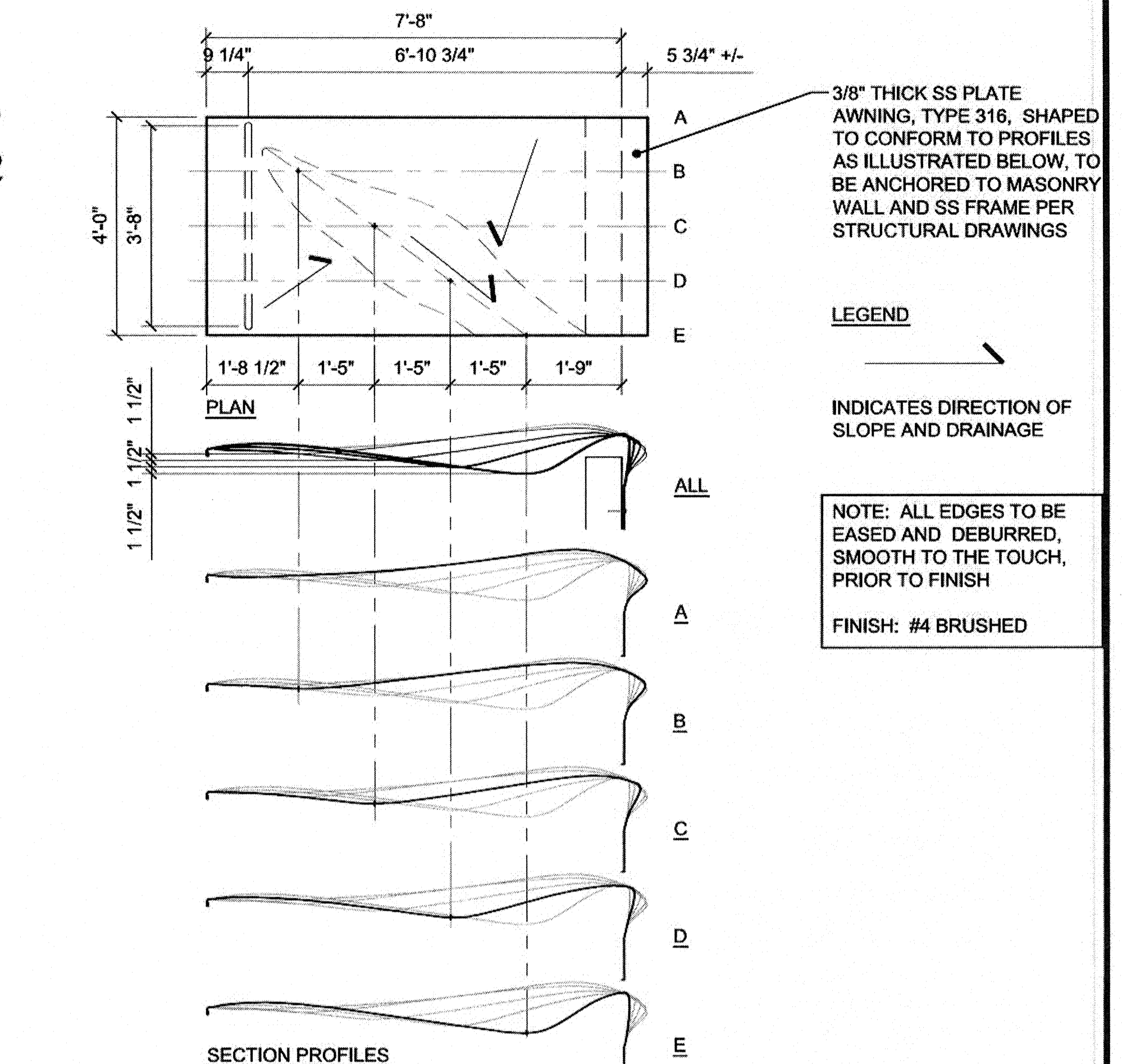
WARNING
 IF THIS BAR DOES NOT MEASURE 1\"/>

FUNDING CIP/SAP	SPEC. NO.	A8
PLANS FOR THE CONSTRUCTION OF:		
PALISADES PARK COMFORT STATION		
DETAILS		
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 17 OF 46 SHEETS		W.B.S. S-10026 W.O.
FOR CITY ENGINEER	DATE 2/15/13	SECTION HEAD
DESCRIPTION	BY	APPROVED
FINAL	MOA	08/02/12
AS-BUILTS		
CONTRACTOR INSPECTOR	DATE STARTED	DATE COMPLETED
		36598-17-D

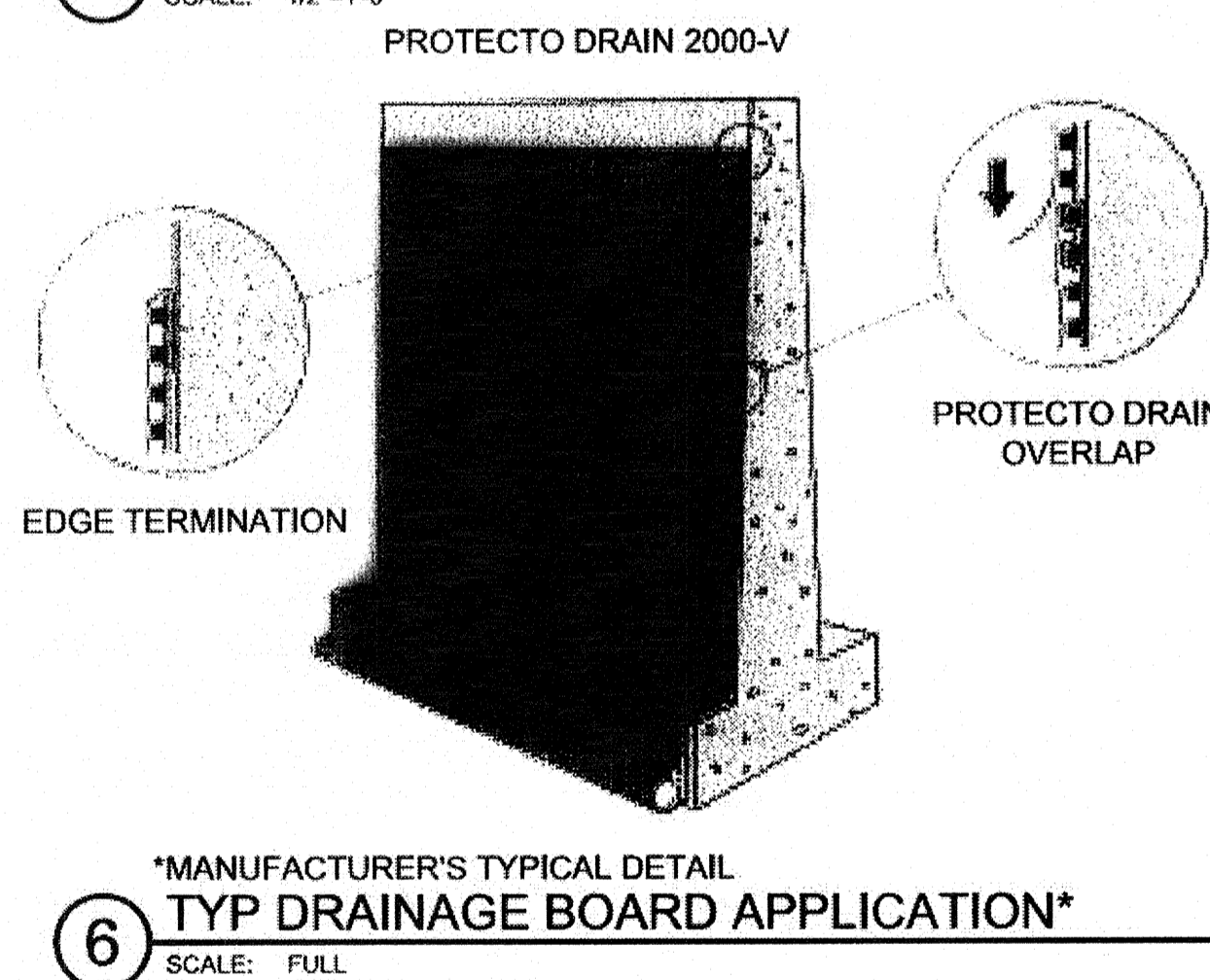
PALISADES PARK COMFORT STATION



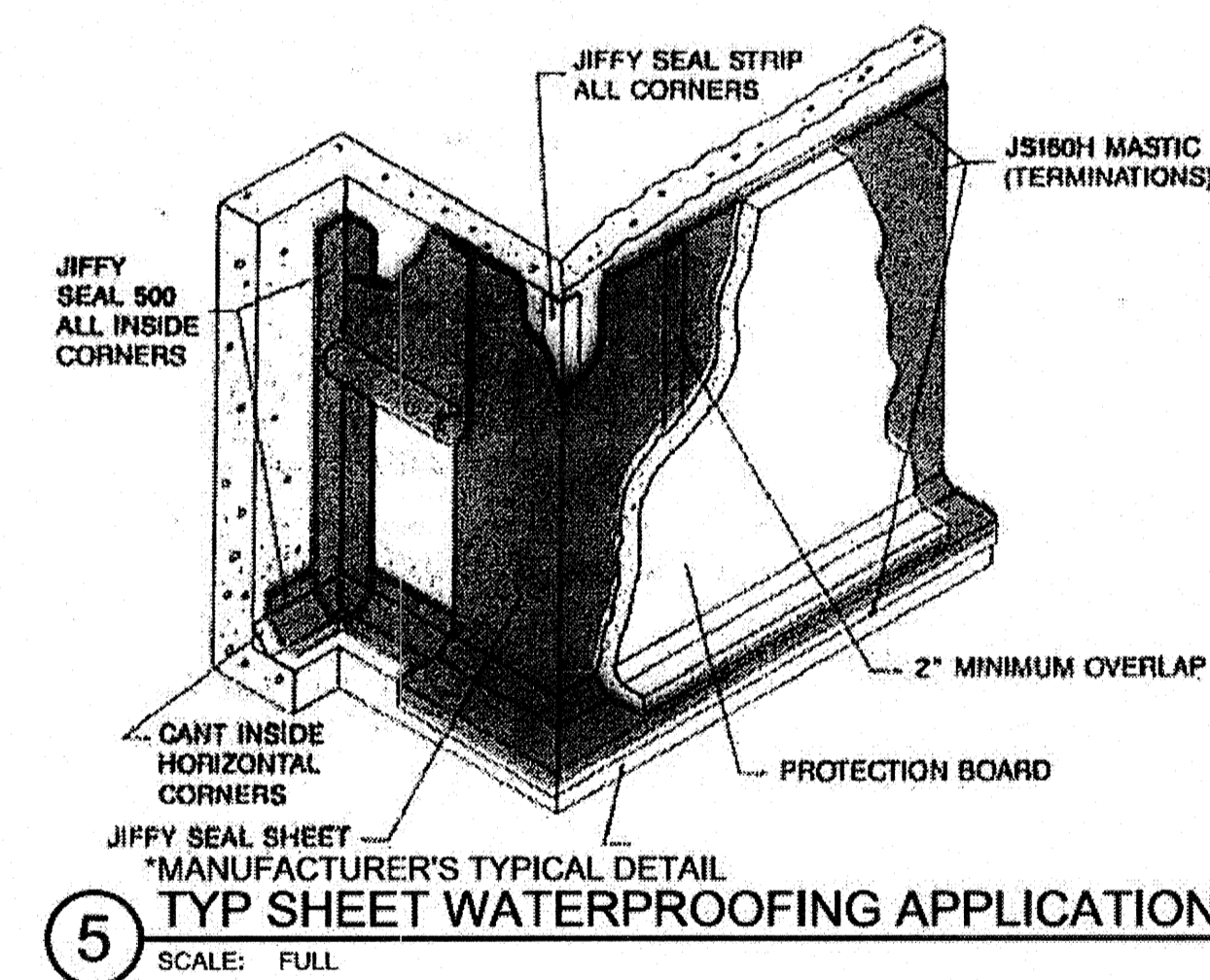
3 SS CANOPY ENLARGED PLAN AND ELEVATIONS
SCALE: 1/2"=1'-0"



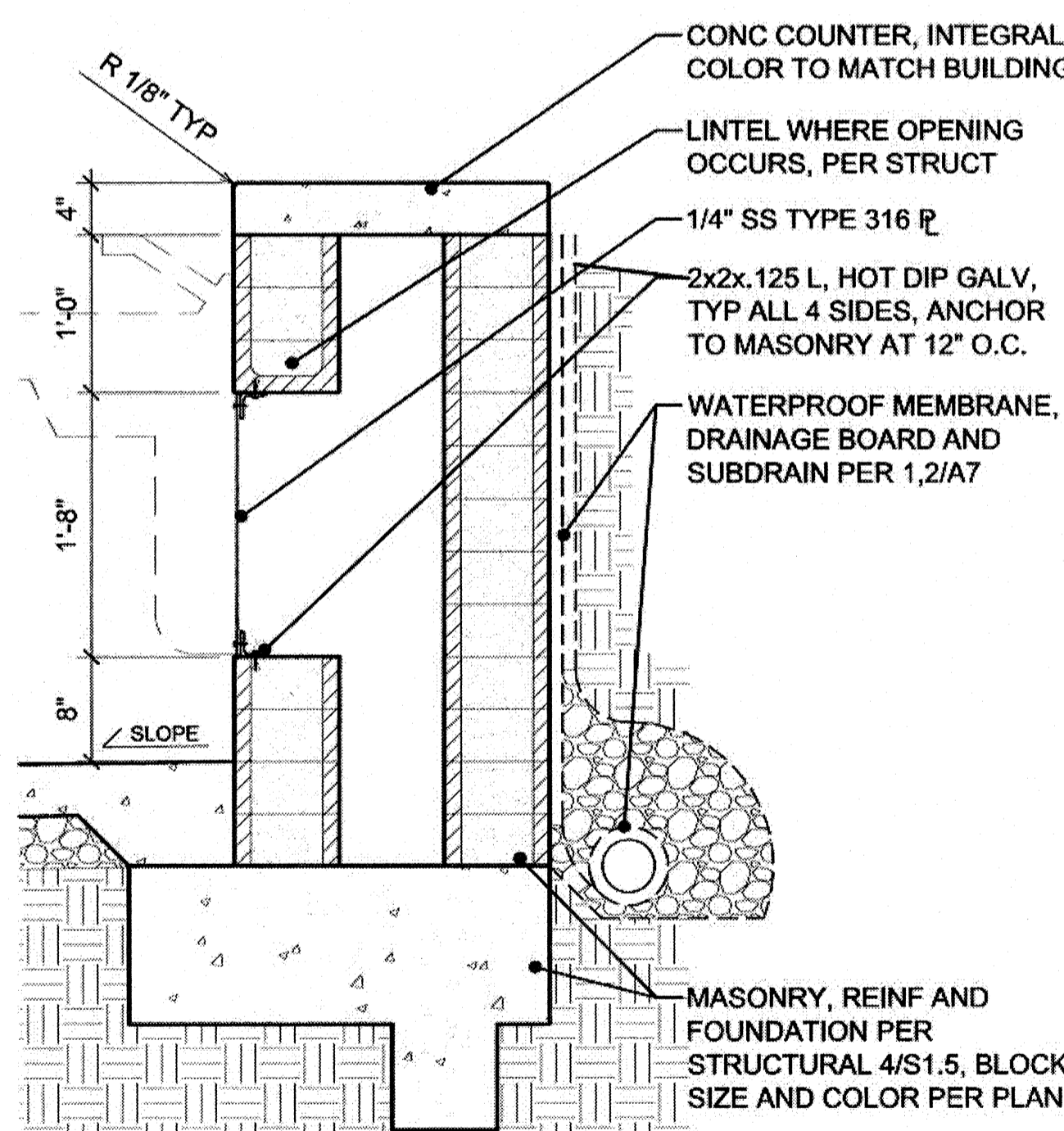
1 SS CANOPY PROFILES
SCALE: 1/2"=1'-0"



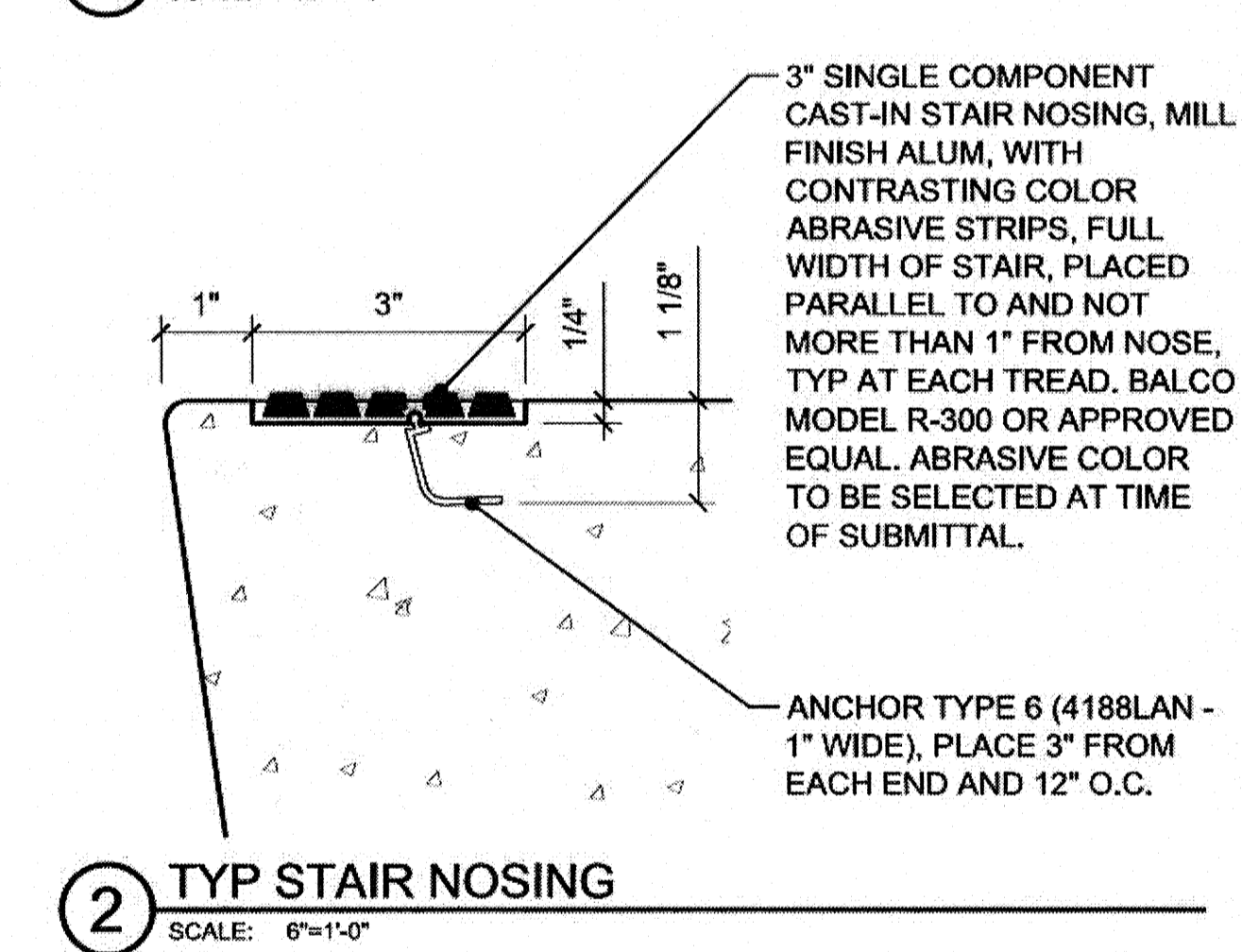
6 TYP DRAINAGE BOARD APPLICATION*
SCALE: FULL



5 TYP SHEET WATERPROOFING APPLICATION*
SCALE: FULL



4 SECTION AT LAVATORY CHASE
SCALE: 1"=1'-0"

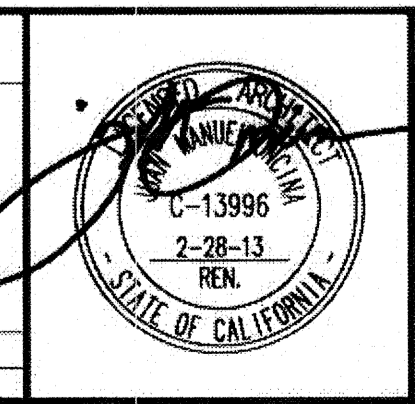


2 TYP STAIR NOSING
SCALE: 6"=1'-0"

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT
MANUEL ONCINA ARCHITECTS INC.
ARCHITECTURE PLANNING INTERIORS
514 Bannockburn Ave.
San Diego, CA 92103
619/295-4900 FAX
619/295-4955 FAX
www.oncina.com

SCALE: HORIZONTAL NO SCALE VERTICAL NO SCALE



CITY OF SAN DIEGO PUBLIC WORKS PROJECT

WARNING
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FUNDING CIP/SAP		SPEC. NO.		A9
PLANS FOR THE CONSTRUCTION OF:				
PALISADES PARK COMFORT STATION				
DETAILS				
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 18 OF 46 SHEETS				W.B.S. S-10026 W.O. _____
FOR CITY ENGINEER DATE: 6/18/13				SECTION HEAD
DESCRIPTION	BY	APPROVED	DATE	FILMED
FINAL	MDA		08/02/12	
AS-BUILTS				PROJECT MANAGER
CONTRACTOR INSPECTOR				CCS27 COORDINATE CCS83 COORDINATE
DATE STARTED				DATE COMPLETED
				36598-18-D

PALISADES PARK COMFORT STATION

REINFORCING STEEL:

- ALL REINFORCING STEEL SHALL BE PLACED IN CONFORMANCE WITH THE C.B.C., AND THE "MANUAL OF STANDARD PRACTICE" BY THE C.R.S.I. OR AS MODIFIED BY THE CONSTRUCTION DOCUMENTS.
- REINFORCING BARS SHALL CONFORM TO A.S.T.M. A-615, DEFORMED GRADE 60. REINFORCING BARS THAT ARE TO BE WELDED SHALL CONFORM TO A.S.T.M. A-706, DEFORMED GRADE 60.
- WELDING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH A.S.T.M. A-706 WITH LOW HYDROGEN ELECTRODES AND SHALL CONFORM TO U.B.C. STANDARD 1921.2.6 AND STRUCTURAL WELDING CODE REINFORCING STEEL BY A.N.S.I. / A.W.S. D1.4. MINIMUM TENSILE STRENGTH OF WELD METAL SHALL BE 90 K.S.I. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
- ALL REINFORCING BAR BENDS SHALL BE MADE COLD, UNLESS OTHERWISE PERMITTED BY THE BUILDING OFFICIAL.
- WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT SHALL CONFORM TO A.S.T.M. A-185, AND SHALL BE LAPPED 1 SPACE AND 12" MINIMUM.
- DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE LAPPED WITH THE SAME GRADE, SIZE, SPACING AND NUMBER AS THE VERTICAL REINFORCEMENT, RESPECTIVELY.
- REINFORCING SPLICES SHALL BE MADE AS INDICATED ON THE DRAWINGS.
- ALL VERTICAL REINFORCING SHALL BE CONTINUOUS BETWEEN TWO LEVELS, UNLESS NOTED OTHERWISE.
- SLAB ON GRADE REINFORCING SHALL BE POSITIONED AT MID-DEPTH, UNLESS NOTED OTHERWISE.
- PROVIDE #3 SPACER TIES AT 2'-6" ON CENTER IN ALL BEAMS AND FOOTINGS TO SECURE REINFORCING BARS IN PLACE, U.N.O.
- ALL REBAR SIZES ON THESE DRAWINGS ARE IN POUND - INCH UNITS. SEE TABLE FOR METRIC EQUIVALENT.
- PIPING AND CONDUIT SHALL BE SO FABRICATED AND INSTALLED, THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED. A.C.I. #6.3.12.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED PER A.S.T.M. A-934.

POUND - INCH BAR SIZE DESIGNATION	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14	#18
METRIC BAR SIZE DESIGNATION	#10	#13	#16	#19	#22	#25	#29	#32	#36	#43	#57

CONCRETE:

- ALL CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF 2010 C.B.C. AND A.C.I. 318-95 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", EXCEPT AS MODIFIED BY THE SUPPLEMENTAL REQUIREMENTS CONTAINED HEREIN OR SHOWN ON THE DRAWINGS.
- ALL CONCRETE SHALL BE 150 P.C.F. HARDROCK, MIXED PER A.S.T.M. C-94, AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 P.S.I. AT 28 DAYS.
- THE MAXIMUM SIZE AGGREGATE IN FOUNDATION AND MASS CONCRETE WORK SHALL BE 1 INCH. THE MAXIMUM SIZE AGGREGATE IN SLABS ON GRADE, WALLS, AND ALL OTHER CONCRETE SHALL BE 3/4" INCH.
- CEMENT SHALL CONFORM TO A.S.T.M. C-150, TYPE V, LOW ALKALI. AGGREGATES FOR NORMAL WEIGHT SHALL CONFORM TO A.S.T.M. C-33.
- ADMIXTURES AND COLORS (EXCEPT AS NOTED HEREIN) SHALL NOT BE USED UNLESS SUBSTANTIATING DATA IS SUBMITTED TO AND ACCEPTED BY THE ENGINEER AND ARCHITECT OF RECORD.
- CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY. THE MIX DESIGNS SHALL CONFORM TO C.B.C. SEC. 1905. UNLESS NOTED OTHERWISE.
- NON-STRUCTURAL STEEL EMBEDDED IN CONCRETE SHALL BE GALVANIZED OR PAINTED. ALL DAMAGED GALVANIZED AREAS SHALL BE REPAIRED PRIOR TO EMBEDMENT.
- PROVIDE 2- #5 DIAGONAL BARS AT CORNERS OF WALL, FLOOR, AND ROOF OPENINGS AND INSIDE CORNERS OF FLOORS.
- READY MIXED CONCRETE SHALL CONFORM TO (A.S.T.M. C-94).
- PLACEMENT OF CONCRETE SHALL CONFORM THE 2010 C.B.C. AND A.C.I. 304. CLEAN AND ROUGHEN BY REMOVING THE ENTIRE SURFACE AND EXPOSING CLEAN AGGREGATE SOLIDLY EMBEDDED IN THE MORTAR MATRIX.
- ALL EXPOSED CONCRETE SHALL HAVE A SMOOTH FORM FINISH USING B-B PLYFORM, CLASS I, EXT-A.P.A. PLYWOOD.
- ALL SLABS SHALL HAVE A TROWELED FINISH EXCEPT AS NOTED ON THE DRAWINGS.
- ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS AND INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
- IF THE CONTRACTOR DESIRES TO MAKE ANY CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON THESE DRAWINGS. HE SHALL SUBMIT DETAILS OF CHANGES TO THE ENGINEER OF RECORD FOR REVIEW AND THE ENGINEER OF RECORD SHALL SUBMIT THE CHANGES TO THE D.S.A. FOR APPROVAL, PRIOR TO STARTING OF WORK.
- NO BRICK OR POROUS MATERIAL SHALL BE USED TO SUPPORT FOUNDATION STEEL OFF THE GROUND.
- PROVIDE 3/4 INCH CHAMFER ON ALL EXPOSED CONCRETE CORNERS, U.N.O.
- SLEEVE PLUMBING OPENINGS IN SLABS WITH NON-CORROSIVE SLEEVE BEFORE PLACING CONCRETE AND BEND REINFORCING AROUND SLEEVES.
- ALL REINFORCING BARS SHALL BE PROVIDED WITH THE FOLLOWING CONCRETE MINIMUM COVER:
 FOOTINGS CAST AGAINST EARTH 3"
 FORMED CONCRETE EXPOSED TO EARTH OR WEATHER 2"
 BEAMS AND GIRDERS 1 1/2"
 WALLS 1 1/2"
 COLUMN TIES 1 1/2"
 SLABS (#11 AND SMALLER) 1 1/2"
- CONCRETE CURING: TYPICALLY REQUIRED FOR 10 DAYS TO ACHIEVE A MINIMUM OF 60% OF THE SPECIFIED 28 DAYS STRENGTH PRIOR TO INSTALLATION OF OTHER MAJOR STRUCTURAL COMPONENTS.
- A LOW SLUMP CONCRETE (4" MAX.) SHOULD BE USED. PER SOILS REPORT.
- W/C RATIO: NOT TO BE EXCEED 0.5

GENERAL NOTES:

- THE PROJECT SPECIFICATIONS SHALL BE PART OF THE CONTRACT DOCUMENTS.
- THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS.
- THE CONTRACTOR SHALL REVIEW EXISTING CONDITIONS ON THE SITE DURING THE BIDDING. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING WORK. THE RESIDENT ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES PRIOR TO PROCEEDING.
- UNLESS OTHERWISE SHOWN OR NOTED, ALL PHASES OF WORK ARE TO CONFORM TO THE MINIMUM STANDARDS OF THE 2007 C.B.C. (CALIFORNIA BUILDING CODE), AND ANY A.S.T.M. SPECIFICATIONS ON WHICH THESE STANDARDS ARE BASED. WHERE CONFLICT BETWEEN BUILDING CODES AND SPECIFICATIONS OCCURS, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
- ALL A.S.T.M. DESIGNATIONS REFERRED TO ON THESE DRAWINGS SHALL BE THE LATEST ADOPTED OR REVISED SPECIFICATION, AS OF THE DATE OF THESE DRAWINGS.
- ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS, SECTIONS AND DETAILS. DRAWINGS SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES.
- NOTES AND DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- THE STRUCTURAL DRAWINGS SHOW ONLY THE BASIC STRUCTURAL REQUIREMENTS. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR NON-STRUCTURAL ITEMS, SUCH AS:
 A. SIZE AND LOCATION OF ALL OPENINGS.
 B. SIZE AND LOCATION OF ALL NON-BEARING WALLS.
 C. SIZE AND LOCATION OF ALL CONCRETE CURBS, WALKS, ROOF AND FLOOR DRAINS, SLOPES, DEPRESSED SLAB AREAS, ETC.
 D. FLOOR, ROOF AND WALL FINISHES.
 E. DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
- THE STRUCTURAL CONTRACT DOCUMENTS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE INDICATED, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.
- NEITHER THE ARCHITECT OR STRUCTURAL ENGINEER WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE SAFETY ITEMS.
- CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED ROOF. LOAD SHALL NOT EXCEED DESIGN LIVE LOAD. WHEN WEIGHT OF MATERIALS OR EQUIPMENT MAY EXCEED DESIGN LOAD, STRUCTURAL SYSTEMS SHALL BE SHORED.
- WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF THE WORK, THE DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.

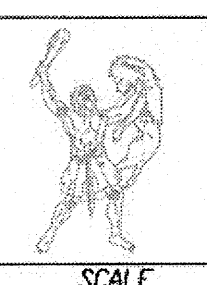
DESIGN BASIS:

CODE: 2010 C.B.C. (CALIFORNIA BUILDING CODE CCR, TITLE 24, PART 2)
 GRAVITY LOADS:
 1. FLAT ROOF LIVE LOAD 20 P.S.F. (REDUCIBLE)
 LATERAL LOADS:
 1. SITE CLASS C
 S_s = 1.556
 S₁ = 0.504
 F_a = 1.0
 I = 1.0
 R = 5 (SPECIAL REINFORCED CMU WALL)
 OCCUPANCY CATEGORY = II
 S_{0s} = 1.037
 S₀₁ = 0.523
 SEISMIC DESIGN CATEGORY = D
 ANALYSIS METHOD = EQUIVALENT LATERAL FORCE ANALYSIS.
 SEISMIC BASE SHEAR:
 C_s = 0.145W
 2. BASIC WIND SPEED & EXPOSURE:
 85 M.P.H.
 EXPOSURE "D"
 K_{z1} = 1.0
 I = 1.0
 FLOOD HAZARD: DESIGN DOES NOT ACCOUNT FOR FLOOD HAZARD.

S1.1

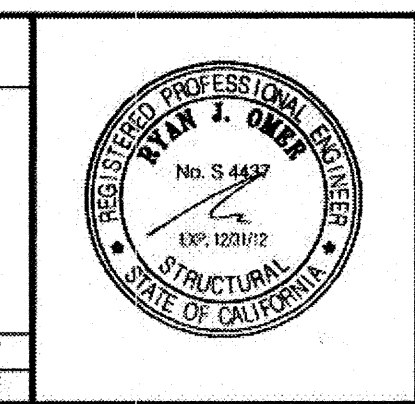
CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT




ORION
Structural Engineering, Inc.
12257 OLD POMERADO ROAD, SUITE A
POWAY, CA 92064
PHONE (650) 678-1074
FAX (650) 678-1075

SCALE
HORIZONTAL NO SCALE
VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW



WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

GENERAL NOTES

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 19 OF 48 SHEETS

APPROVED BY: [Signature] DATE: 6/18/13
FOR CITY ENGINEER

CHECKED BY: [Signature] DATE: 08-02-12
CONSTRUCTION ENGINEER

CHECKED BY: [Signature]
INSPECTOR

SECTION HEAD: [Signature]
PROJECT MANAGER: [Signature]
CCS27 COORDINATE
CCS83 COORDINATE

CONTRACTOR: [Signature] DATE STARTED: []
INSPECTOR: [Signature] DATE COMPLETED: []

36598-19-D

PALISADES PARK COMFORT STATION

STEEL:

- FABRICATION AND ERECTION TO CONFORM TO A.I.S.C. LATEST EDITION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS" AND "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" EXCEPT AS OTHERWISE SHOWN OR SPECIFIED.
- QUALIFIED AND CERTIFIED WELDERS SHALL BE USED FOR ALL WELDING. WELDING TO BE PERFORMED IN THE SHOP OF A STATE LICENSED FABRICATOR. ALL WELDING TO CONFORM TO THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE A.W.S. D1.6.
- MATERIALS:

MISCELLANEOUS PLATES	AA.S.T.M. A-314
WELDING ELECTRODES	A.S.T.M. A-307
STAINLESS STEEL	A.S.T.M. A-316, GRADE 30
- BURNING OF HOLES IS NOT ALLOWED.
- INSPECTION OF WELDING SHALL CONFORM TO C.B.C. REQUIREMENTS (CHAPTER 17).
- THE STRUCTURAL STEEL FABRICATOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
- STRUCTURAL STEEL SHALL BE DELIVERED TO THE JOB SITE FREE OF EXCESSIVE RUST, MILL SCALE, GREASE, ETC.
- OPENINGS SHALL NOT BE PLACED IN STEEL MEMBERS UNLESS SPECIFICALLY DETAILED.

WELDING:

- ALL WELDING SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICAN WELDING SOCIETY CODE D1.6. (LATEST EDITION).
- ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS.
- ALL WELDING SHALL BE DONE BY THE SHIELDED ARC PROCESS USING APPROVED ELECTRODES PER A.W.S. SPECIFICATIONS E70XX (LOW HYDROGEN ELECTRODES).
- ALL WELDS SHALL HAVE A WELD CONTROLLED SEQUENCE AND TECHNIQUE IN ORDER TO MINIMIZE SHRINKAGE, STRESSES AND DISTORTION.
- ALL ELECTRODES FILLER MATERIAL SHALL BE A MINIMUM OF 70 K.S.I.
- SPECIAL INSPECTION IS REQUIRED FOR ALL FIELD WELDING.

FOUNDATION:

- ATTACH ONE COPY OF SOILS REPORT TO THE APPROVED SET OF CONSTRUCTION DOCUMENTS. SOILS REPORT SHALL BE PART OF THESE NOTES. PRIOR TO THE POURING OF CONCRETE AND PRIOR TO THE CONTRACTOR REQUESTING A BUILDING DEPARTMENT FOUNDATION INSPECTION, THE GEOTECHNICAL ENGINEER SHALL INSPECT AND APPROVE THE FOOTING EXCAVATIONS. HE SHALL POST NOTICE ON THE JOB SITE AND ADVISE THE BUILDING INSPECTOR IN WRITING THAT THE WORK SO INSPECTED MEETS THE CONDITIONS OF THE REPORT. A WRITTEN CERTIFICATION TO VERIFY THAT:
 - THE BUILDING PAD WAS PREPARED IN ACCORDANCE WITH THE SOIL REPORT.
 - THE UTILITY TRENCHES HAVE BEEN PROPERLY BACKFILLED AND COMPACTED, AND
 - THE FOUNDATION EXCAVATIONS COMPLY WITH THE INTENT OF THE SOILS REPORT.
- SOILS REPORT PREPARED BY:
NINYO & MOORE
PROJECT NO. 106886001. DATED SEPTEMBER 23, 2010
UPDATED LETTER DATED JULY 28, 2011
- SOIL REMOVAL AND RECOMPACTION SHALL BE DONE PER SOILS REPORT RECOMMENDATIONS UNDER THE GEOTECHNICAL ENGINEER'S SUPERVISION AND INSPECTION.
- TYPE OF FOOTING:
 - SHALLOW FOOTING SYSTEM MINIMUM EMBEDMENT 18" BELOW LOWEST ADJACENT GRADE.
 DESIGN SOIL PRESSURE:

FOOTING TYPE	STATIC BEARING PRESSURE
SPREAD FOOTING	2,500 P.S.F.
CONTINUOUS FOOTING	2,500 P.S.F.
- SLAB BASE AND COMPACTION TO BE IN ACCORDANCE WITH SOILS REPORT.
- NO PIPES OR DUCTS SHALL BE PLACED IN SLABS OR WALLS UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE ENGINEER.
- FOR ALL DIMENSIONS, CURBS, SLAB DEPRESSIONS, STEPS, FLOOR DRAINS, FLOOR SINKS, TRENCHES, UNDERFLOOR DUCTS AND CONDUITS, SEE ARCHITECTURAL, MECHANICAL, REFRIGERATION, AIR CONDITIONING, PLUMBING, ELECTRICAL, AND FOODSERVICE DRAWINGS, TRENCH BACKFILL AS PER SOILS REPORT REQUIREMENTS.
- ALL ABANDONED FOOTINGS, UTILITIES, ETC., THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
- THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN AREAS TO BE EXCAVATED BEFORE BEGINNING EXCAVATION. EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING. DAMAGE CAUSED AS A RESULT OF FAILING TO EXACTLY LOCATE AND PRESERVE ALL EXISTING UNDERGROUND UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL PROVIDE FOR THE DESIGN, APPROVALS, PERMITS, INSTALLATION AND MONITORING OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED TO SAFELY RETAIN TEMPORARY EXCAVATIONS.
- ALL PLANTERS IN CLOSE PROXIMITY TO THE STRUCTURE SHALL HAVE ADEQUATE DRAINAGE OF SURFACE WATER TO PREVENT SATURATION OF SOIL UNDER FOUNDATION.
- THE SOIL EXPANSION INDEX IS LOW PER SOIL REPORT.
- 2010 C.B.C. SEISMIC SITE CLASS C

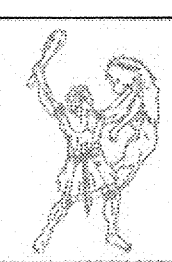
MASONRY:

- MASONRY UNITS SHALL BE TYPE II, GRADE N-1 MEDIUM WEIGHT, SLUMP BLOCK IN ACCORDANCE WITH A.S.T.M. SPECIFICATION C-90, F'm = 1,500 P.S.I., USE OPEN END UNITS AT VERTICAL REINFORCING.
- ALL VERTICAL CELLS SHALL BE GROUTED SOLID IN LIFTS NOT EXCEEDING 4'-0" IN HEIGHT.
- VERTICAL BARS IN MASONRY UNITS SHALL BE TIED OR OTHERWISE FIXED IN POSITION AT INTERVALS OF NOT LESS THAN 4'-0" AND AT TOP AND BOTTOM.
- PROVIDE INSPECTION AND CLEANOUT HOLES AT BASE OF VERTICAL CELL GROUT LIFTS.
- WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE POUR OF GROUT 1 1/2" BELOW THE TOP OF THE UPPERMOST MASONRY UNITS.
- MORTAR SHALL BE TYPE S PER CALIFORNIA BUILDING CODE TABLE 21-A WITH A 28 DAYS COMPRESSIVE STRENGTH OF 2,000 P.S.I.
- NO FIELD WELDING OF REINFORCING BARS, U.N.O.
- ALL HEAD JOINTS SHALL BE FULL BUTTERED OR OPEN END MASONRY UNITS SHALL BE USED.
- GROUT SHALL CONFORM TO CBC TABLE 21-B. A MIXTURE OF CEMENT, SAND, PEA GRAVEL AND WATER WHICH WILL COMPLETELY FILL ALL VOIDS IN THE WALL AND DEVELOP A 28 DAY COMPRESSIVE STRENGTH OF 2,500 P.S.I.
- SPLICE IN REINFORCEMENT SHALL BE LAPPED 72 DIAMETERS MIN.
- ALL VERTICAL WALL REINFORCEMENT SHALL BE DOWELED TO THE FOUNDATION WITH THE SAME SIZE AND NUMBER OF BARS AS SHOWN IN THE WALLS.
- PROVIDE ONE INCH MINIMUM GROUT COVER ON ALL BOLTS AND PLATES.
- HORIZONTAL REINFORCING SHALL BE PLACED IN BOND BEAM UNITS.
- NO PIPES OR DUCTS SHALL BE PLACED IN MASONRY WALLS UNLESS SPECIFICALLY NOTED OR DETAILED.

S1.2

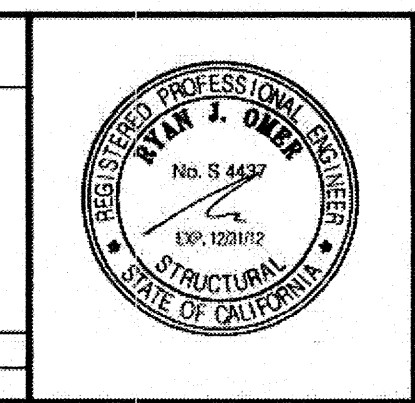
CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

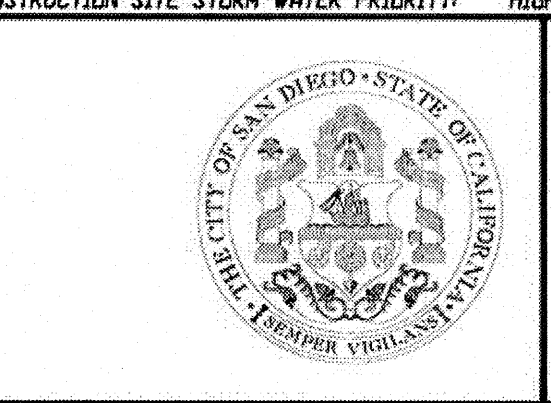


ORION
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SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY: [Signature]
FOR CITY ENGINEER
CHECKED BY: [Signature]
CONSTRUCTION ENGINEER
CHECKED BY: [Signature]
INSPECTOR

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

GENERAL NOTES

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 20 OF 48 SHEETS

V.B.S. S-10026
V.O. _____

APPROVED: [Signature] 6/18/13 DATE
FOR CITY ENGINEER

DESCRIPTION	BY	APPROVED	DATE	FILMED
FINAL	MJA		08-02-12	

SECTION HEAD: [Signature]
PROJECT MANAGER: [Signature]
CCS27 COORDINATE
CCS83 COORDINATE

AS-BUILTS
CONTRACTOR DATE STARTED
INSPECTOR DATE COMPLETED

36598-20-D

PALISADES PARK COMFORT STATION

ABBREVIATIONS:

& AND
 @ AT
 C CENTER LINE
 PLATE, PROPERTY LINE
 R. ANCHOR BOLT
 A.B. ADJACENT
 A.F.F. ABOVE FINISH FLOOR
 ARCH'L ARCHITECTURAL
 BD BOARD
 BLD'G BUILDING
 BLK BLOCK
 BLK'G BLOCKING
 BLW BELOW
 BM BEAM
 B.N. BOUNDARY NAIL
 BOT. BOTTOM
 BRG BEARING
 B.S. BOTH SIDE
 BTWN BETWEEN
 C.B. CARRIAGE BOLT
 C.F. CUBIC FOOT
 CHAM CHAMFER
 C.I. CAST-IRON
 C.I.P. CAST-IN-PLACE
 C.J. CONTROL JOINT
 CLG CEILING
 CLK CAULK
 CLK'G CAULKING
 CLR. CLEAR
 C.M.U. CONCRETE MASONRY UNIT
 CNTR CENTER
 COL COLUMN
 CONC CONCRETE
 CONN CONNECTION
 CONT CONTINUOUS
 CNTRSINK COUNTERSINK
 d PENNY
 DBL DOUBLE
 DEP DEPRESSED
 DET DETAIL
 D.F. DOUGLAS FIR
 D.F.L. DOUGLAS FIR/LARCH
 DIA DIAMETER
 DIAG DIAGONAL
 DIAM. DIMENSION
 D.L. DEAD LOAD
 DN DOWN
 DIV DIVISION
 DR DOOR
 DWG DRAWING
 DWL DOWEL
 EA EACH
 E.F. EACH FACE
 EL ELEVATION
 ELEV. ELEVATION / ELEVATOR
 EMBED EMBEDMENT
 E.N. EDGE NAIL
 EQ. EQUAL
 EQUIP EQUIPMENT
 E.S. EACH SIDE
 E.W. EACH WAY
 EXIST'G EXISTING
 EXP EXPANSION
 EXT EXTERIOR
 F.D. FLOOR DRAIN
 FDN FOUNDATION
 F.F. FINISH FLOOR
 FIN. FINISH
 FLR. FLOOR
 F.N. FIELD NAIL
 F.O. FACE OF
 FRM'G FRAMING
 F.S. FAR SIDE
 FT FEET / FOOT
 FTG FOOTING
 GA GAUGE
 GALV GALVANIZED
 G.I. GALVANIZED IRON
 GLB GLU-LAMINATED BEAM
 GRD GRADE
 GYP GYPSUM
 H.D. HOLDOWN
 HDR HEADER
 HGR HANGER
 HORIZ HORIZONTAL
 HRD HARD
 H.S.B. HIGH STRENGTH BOLT
 HT. HEIGHT
 HVAC HEATING, VENTILATION, & AIR CONDITIONING
 IN. INCH
 INSP. INSPECTION / INSPECTOR
 INT. INTERIOR
 JST JOIST
 JT JOINT

KIPS KILOPOUNDS (1,000 POUNDS)
 K.O. KNOCK OUT
 LB POUND
 L.B. LAG BOLT
 L.F. LINEAR FOOT
 LG LONG
 L.L. LIVE LOAD
 L.L.H. LONG LEG HORIZONTAL
 L.L.V. LONG LEG VERTICAL
 L.S. LAG SCREW
 LT. LIGHT
 MAS MASONRY
 MAT. MATERIAL
 MAX. MAXIMUM
 M.B. MACHINE BOLT
 MECH'L MECHANICAL
 MEZZ. MEZZANINE
 MIN. MINIMUM
 M.H. MANHOLE
 MANUF. MANUFACTURER
 MTL. METAL
 N.S. NEAR SIDE
 N.I.C. NOT IN CONTRACT
 NOM. NOMINAL
 N.T.S. NOT TO SCALE
 O.C. ON CENTER
 O.D. OUTSIDE DIAMETER
 O.H. OPPOSITE HAND
 OPN'G OPENING
 OPPOS. OPPOSITE
 O.W.J. OPEN WEB JOIST
 P.C. PRECAST
 PERP. PERPENDICULAR
 PLYWD PLYWOOD
 PNL PANEL
 PREFAB PREFABRICATED
 P.S.F. POUNDS PER SQUARE FOOT
 P.S.I. POUNDS PER SQUARE INCHES
 PT. POINT
 P.T. PRESSURE TREATED
 P.V.C. POLYVINYL CHLORIDE
 RAD. RADIUS
 R.D. ROOF DRAIN
 REF. REFERENCE
 REINF. REINFORCED / REINFORCING
 REQ'D REQUIRED
 REV. REVISION
 RF ROOF
 RFTR RAFTER
 R.H. ROOF HATCH
 RM ROOM
 R.O. ROUGH OPENING
 R.S. ROUGH SAWN
 SCHED. SCHEDULE
 SECT. SECTION
 S.F. SQUARE FOOT
 SHT SHEET
 SHT'G SHEETING
 SIM. SIMILAR
 S.M.S. SHEET METAL SCREW
 SPEC. SPECIFICATION
 SQ. SQUARE
 S.S. STAINLESS STEEL
 STAGG. STAGGERED
 STD STANDARD
 STIFF. STIFFENER
 STL. STEEL
 STRUCT'L STRUCTURAL
 S.T.S. SELF TAPPING SCREW
 SYM SYMMETRICAL
 SYS SYSTEM
 T & B TOP AND BOTTOM
 T & G TONGUE AND GROOVE
 TEMP. TEMPORARY
 THK THINK
 THKN'D THICKENED
 THRU THROUGH
 T.L. TOTAL LOAD
 T.O. TOP OF
 T.S.G. TAPERED STEEL GIRDER
 TYP. TYPICAL
 U.N.O. UNLESS NOTED OTHERWISE
 U.T. ULTRASONIC TESTING
 VERT. VERTICAL
 W/ WITH
 W/O WITHOUT
 WD WOOD
 WIN WINDOW
 W.P. WATERPROOF / WORK POINT
 W.P.J. WEAKENED PLANE JOINT
 WT. WEIGHT
 W.W.F. WELDED WIRE FABRIC
 W.W.M. WELDED WIRE MESH

Summary of Special Inspection

DESCRIPTION OF TYPE OF INSPECTION REQUIRED, LOCATION, REMARKS, ETC.	Design Strength
CONCRETE (ALL CONCRETE, U.N.O.)	F _c = 3,000 P.S.I.
EMBEDS SET IN CONCRETE	
STRUCTURAL MASONRY	F _m = 1,500 P.S.I.
SOIL ENGINEER TO VERIFY CONDITIONS AND DEPTH OF FOUNDATIONS AND PROVIDE COMPACTION REPORT	2,500 P.S.F.
SOILS REPORT BY NINYO AND MOORE	
ALL WELDING	E-316L-XX

SPECIAL INSPECTION - GENERAL NOTES:

- The special inspections listed are in addition to the called inspections required by CBC Chapter 1, Division II, Section 110. Special inspection is not a substitute for inspections required by a City Inspector.
- Continuous inspection is always required during the performance of the work unless otherwise specified. When work in more than one category of work requiring special inspection is to be performed simultaneously, or the geographic location of the work is such that it cannot be continuously observed in as defined in CBC Section 1702, it is the agent's responsibility to employ a sufficient number of inspectors to assure that all the work is inspected in accordance with those provisions.
- The special inspectors must be certified by the City of San Diego Development Services to perform the type of inspection specified.

Exceptions:

 - Soils inspections by the Soils engineer of record.
 - Smoke Control System, by the Mechanical engineer of record.
 - When waived by the Building Official.
- The construction materials testing laboratory must be registered and approved by the City of San Diego Development Services for testing of materials, systems, components and equipment.
- It is the responsibility of the contractor to notify the special inspector or inspection agency at least one working day prior to performing any work that requires special inspection.
- Work requiring special inspection that is installed or covered without the approval of the City Inspector is subject to removal or exposure at no cost to the Owner.
- Fabricator shall submit an "Application to perform Off-Site Fabrication" to the Inspection Services Division for approval prior to commencement of fabrication.
- Fabricator shall submit a "Certificate of Compliance for Off-Site Fabrication" to the Inspection Services Division prior to erection of fabricated items and assemblies.
- Special inspection is required for fabrication of members and assemblies done in a shop of a fabricator which is not approved by Inspection Services. An application to Perform Off-site Fabrication must be submitted to and approved by Inspection Services.
- Special inspector shall verify that fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and fabricator's ability to conform to approved construction documents and referenced standards. The special inspector shall review the procedures for completeness and adequacy relative to the code requirements for fabricator's scope of work.
- Fabrication of members and assemblies done in a fabricator's shop approved by Inspection Services need not have continuous or periodic special inspection. At completion of fabrication, the approved fabricator shall submit the "Certificate of Compliance" form to Inspection Services. (Section 1704.2.2, B.N.L. 17-6)

STRUCTURAL OBSERVATION:

- PER C.B.C. CHAPTER 17 SECTION 1702. THE OWNER SHALL EMPLOY A LICENSED ENGINEER OR ARCHITECT RESPONSIBLE FOR THE STRUCTURAL DESIGN, OR HIS DESIGNATED ENGINEER OR ARCHITECT TO MAKE SITE VISITS TO OBSERVE GENERAL COMPLIANCE WITH THE APPROVED STRUCTURAL PLANS, SPECIFICATIONS AND CHANGE ORDERS. FOR THE FOLLOWING:
 - PRIOR TO PLACEMENT OF CONCRETE IN FOUNDATION AND POURING OF SLAB.
 - SUBSEQUENT TO THE INSTALLATION OF THE ROOF SLAB, PRIOR TO COVERING OF THE CONNECTIONS.
- THE ENGINEER OR ARCHITECT SHALL SUBMIT A STATEMENT IN WRITING TO THE BUILDING OFFICIAL STATING THAT THE SITE VISIT HAS BEEN MADE AND THAT TO THE BEST OF THE ENGINEER'S OR ARCHITECT'S KNOWLEDGE, ANY DEFICIENCIES NOTED HAVE BEEN CORRECTED.

THE ENGINEER MUST BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO EACH INDIVIDUAL CONCRETE PLACEMENT (POUR) OF THE CONCRETE FOUNDATION.

NOTICE TO THE APPLICANT / OWNER / OWNER'S AGENT / ARCHITECT OR ENGINEER OF RECORD:

By using this permitted construction drawings for construction/installation of the work specified herein, you agree to comply with the requirements of City of San Diego for special inspections, structural observations, construction material testing and off-site fabrication of building components, contained in the statement of special inspections and, as required by the California construction codes.

NOTICE TO THE CONTRACTOR / BUILDER / INSTALLER / SUB-CONTRACTOR / OWNER-BUILDER:

By using this permitted construction drawings for construction/installation of the work specified herein, you acknowledge and are aware of, the requirements contained in the statement of special inspections. You agree to comply with the requirements of City of San Diego for special inspections, structural observations, construction material testing and off-site fabrication of building components, contained in the statement of special inspections and, as required by the California construction codes.

A PROPERTY OWNER'S FINAL REPORT FROM FOR WORK REQUIRED TO HAVE SPECIAL INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS MUST BE COMPLETED BY THE PROPERTY OWNER, PROPERTY OWNER'S AGENT OF RECORD, ARCHITECT OF RECORD, OR ENGINEER OF RECORD AND SUBMITTED TO THE INSPECTION SERVICES DIVISION.

S1.3

PLANS FOR THE CONSTRUCTION OF:

PALISADES PARK COMFORT STATION

GENERAL NOTES

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 21 OF 48 SHEETS

V.B.S. S-10026
 W.D. _____

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT



ORION
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 12257 OLD POMERADO ROAD, SUITE A
 POWAY, CA 92064
 PHONE (619) 679-1974
 FAX (619) 679-1975

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT




WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY:	FOR CITY ENGINEER	DATE	SECTION HEAD
CHECKED BY:	CONSTRUCTION ENGINEER	DATE	PROJECT MANAGER
CHECKED BY:	INSPECTOR	DATE	COORDINATOR
CHECKED BY:	INSPECTOR	DATE	COORDINATOR

DATE STARTED: _____ DATE COMPLETED: _____

36598-21-D

PALISADES PARK COMFORT STATION

THIS FORM IS ONLY A SUMMARY LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS REQUIRED FOR THIS PROJECT. THE ACTUAL TESTS AND INSPECTIONS MUST BE PERFORMED AS DETAILED ON THE APPROVED DOCUMENTS. THE PROJECT INSPECTOR IS RESPONSIBLE FOR PROVIDING INSPECTION OF ALL FACETS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, SPECIAL INSPECTIONS NOT LISTED ON THE FORM SUCH AS STRUCTURAL WOOD FRAMING, HIGH-LOAD WOOD DIAPHRAGMS, COLD-FORMED STEEL FRAMING, ANCHORAGE OF NON-STRUCTURAL COMPONENTS, ETC... PER TITLE 24, PART 2, CHAPTER 17.

REQUIRED	TEST OR SPECIAL INSPECTION	TESTING SCHEDULE	PERFORMED BY	CODE REFERENCE AND NOTES
SOILS				
1. GENERAL		Table 1704.7		
A.	Verify that: Site has prepared properly prior to placement of controlled fill and/or excavations for foundations. Foundation excavations are extended to proper depth and have reached proper material. Materials below footing are adequate to achieve the design bearing capacity.	Periodic	G.E.	By Geotechnical Engineer or their qualified representative.
2. COMPACTED FILLS		Table 1704.7		
A.	Perform qualification testing of fill materials.	Test	Lab.	Under the supervision of the Geotechnical Engineer.
B.	Verify use of proper materials and inspect lift thickness, placement, and compaction during placement of fill.	Continuous	G.E.	By Geotechnical Engineer or their qualified representative.
C.	Test compaction of fill	Test	Lab.	Under the supervision of the Geotechnical Engineer.
C.				
CONCRETE				
7. CAST-IN-PLACE CONCRETE		Table 1704.4		
Material Verification and Testing:				
A.	Verify use of required design mix.	Periodic	S.I.	By batch-plant Special Inspector.
B.	Test reinforcing steel and placement.	Test	Lab	1916.1.6 A.S.T.M. A-370. ACI 318: 3.5, 7.1-7.7
C.	Perform slump, temperature, and (where required) air content tests	Test	Lab	A.S.T.M. C-172, A.S.T.M. C-31
D.	Test concrete (compression).	Test	Lab	1905.6 A.S.T.M. C-39.
Inspection:				
F.	Inspect placement of formwork, reinforcing steel, embedded items and concrete. Inspect curing and form removal.	Continuous	S.I.	ACI 318: 6.1.1 ACI 318: 8.1.3, 21.2.8
G.	Welding of reinforcing steel.	Provide inspections per STEEL section		
H.	Verify in-situ concrete strength prior to removal of shores and forms from beams and structural slabs.	N/A	S.I.	Special inspector to verify concrete strength test reports prior to removal of shores or formwork.
9. PRECAST CONCRETE (In addition to Cast-in-place Concrete tests and inspections)				
A.	Inspect fabrication of precast concrete members.	Continuous	S.I.	
B.	Inspect erection of precast concrete members.	Continuous	S.I.	ACI 318: 18.20, 18.18.4
11. POST-INSTALLED ANCHORS				
A.	inspect installation of post-installed anchors.	Continuous	S.I.	Table 1704A.4
B.	Test post-installed anchors.	Test	Lab	1916A.7

MASONRY		Table 1704A.5.3		
13. STRUCTURAL MASONRY		f'm = 1,500 psi		
Material Verification and Testing:				
A.	Test reinforcing steel.	Test	Lab	2103.13, A.S.T.M. A-370.
B.	Test masonry units, mortar and grout (unit strength method).	Test	Lab	2105.2.2.1, A.S.T.M. C-140, A.S.T.M. C-1586 & A.S.T.M. C-1019
D.	Verify proportions of site-prepared, premixed or preblended mortar and grout.	Periodic	S.I.	1913.5, A.S.T.M. C-780
E.	Test core-drilled samples.	Test	Lab	2114.9.3
Inspection:				
G.	Verify size, location and condition of all dowels, construction supporting masonry, etc.	Periodic	S.I.	
H.	Verify specified size, grade, and type of reinforcement.	Periodic	S.I.	
I.	Welding of reinforcing steel.	Provide inspections per STEEL		
J.	Inspect placement of reinforcement, connectors, masonry units and construction of mortar joints.	Periodic	S.I.	
K.	Verify protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90°).	Periodic	S.I.	2104.3 and 2104.4
L.	Inspect type, size and location of anchors and all other items to be embedded in masonry including other details of anchorage of masonry to structural members, frames and other construction.	Continuous	S.I.	
M.	Inspect grout space prior to grouting and placement of grout.	Continuous	S.I.	
14. VENEER OR GLASS BLOCK		Table 1704.5.1		
A.	Verify proportions of site-prepared mortar and grout and/or verify certification of premixed mortar.	Periodic	S.I.	A.S.T.M. C-780
B.	Inspect placement of units and construction of mortar joints.	Periodic	S.I.	
C.	Inspect placement of reinforcement, connectors and anchors.	Periodic	S.I.	
D.	Inspect type, size and location of anchors and all other items to be embedded in masonry including details of anchorage of masonry to structural members, frames and other construction.	Continuous	S.I.	
E.	Verify protection of masonry during cold weather (temperature below 40° F) or hot weather (temperature above 90°).	Periodic	S.I.	2104.3 and 2104.4
F.	Test veneer bond strength.	Test	Lab	1409.2.1 (Field constructed mock-up laboratory tested in accordance with A.S.T.M. C-482)
15. POST-INSTALLED ANCHORS IN MASONRY		Table 1704.3		
A.	Inspect installation of post-installed anchors.	Continuous	S.I.	
C.	Test post-installed anchors	Test	Lab	1916.1.11 A.S.T.M. E-488

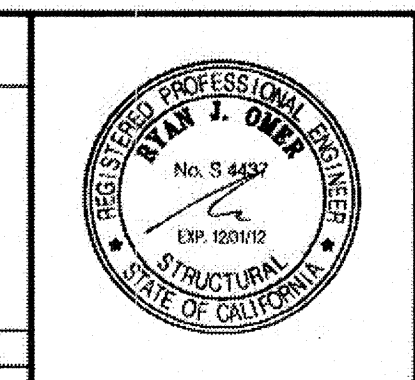
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CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

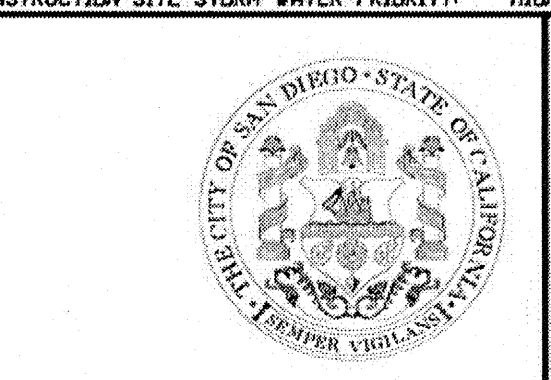
CONSULTANT

ORION
Structural Engineering, Inc.
12257 OLD POMERADO ROAD, SUITE A
POMONA, CA 92664
PHONE (951) 878-1974
FAX (951) 878-1975

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY: _____
FOR CITY ENGINEER

CHECKED BY: _____
CONSTRUCTION ENGINEER

CHECKED BY: _____
INSPECTOR

PLANS FOR THE CONSTRUCTION OF:

PALISADES PARK COMFORT STATION

GENERAL NOTES

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 22 OF 48 SHEETS

V.B.S. S-10026
V.I.R. _____

APPROVED: _____ DATE: 6/18/13
FOR CITY ENGINEER

SECTION HEAD: _____
PROJECT MANAGER: _____
COORDINATOR: _____
COORDINATOR: _____

AS-BUILTS: _____
CONTRACTOR: _____ DATE STARTED: _____
INSPECTOR: _____ DATE COMPLETED: _____

36598-22-D

PALISADES PARK COMFORT STATION

THIS FORM IS ONLY A SUMMARY LIST OF STRUCTURAL TESTS AND SPECIAL INSPECTIONS REQUIRED FOR THIS PROJECT. THE ACTUAL TESTS AND INSPECTIONS MUST BE PERFORMED AS DETAILED ON THE APPROVED DOCUMENTS. THE PROJECT INSPECTOR IS RESPONSIBLE FOR PROVIDING INSPECTION OF ALL FACETS OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO, SPECIAL INSPECTIONS NOT LISTED ON THE FORM SUCH AS STRUCTURAL WOOD FRAMING, HIGH-LOAD WOOD DIAPHRAGMS, COLD-FORMED STEEL FRAMING, ANCHORAGE OF NON-STRUCTURAL COMPONENTS, ETC... PER TITLE 24, PART 2, CHAPTER 17.

REQUIRED	TEST OR SPECIAL INSPECTION	TESTING SCHEDULE	PERFORMED BY	CODE REFERENCE AND NOTES
	STEEL	Table 1704.3		
	17. STRUCTURAL STEEL AND COLD-FORMED STEEL USED FOR STRUCTURAL PURPOSES.			
	Material Verification			
	A. Verify that all materials are appropriately marked and that: 1. Mill certificates indicate material properties that comply with requirements. 2. material sizes, types and grades comply with requirements.	Periodic		
	B. Test unidentified materials.	Test	Lab	Material A.S.T.M. standards, AISC 360 A3.3
	C. Examine seam welds of structural tubes and pipes.	Periodic	S.I.	
	Inspection			
	A. Verify member locations, bracing and all details constructed in the field.	Continuous	S.I.	
	B. Verify stiffener locations, connection tab locations and all construction details fabricated in the shop.	Periodic	S.I.	
	19. WELDING	A.W.S. D1.1, A.W.S. D1.3, AWS D1.4, AWS D1.6, AND A.W.S. D1.8.		
	Material Verification, Equipment, Welders, etc.			
	A. Verify weld filler material identification markings per A.W.S. designation listed on the approved documents and the W.P.S.	Periodic	S.I.	
	B. Verify weld filler material manufacturer's certificate of compliance.	Periodic	S.I.	
	C. Verify W.P.S., welder qualifications and equipment.	Periodic	S.I.	
	19.1 SHOP WELDING			
	A. Inspect groove, multi-pass, and fillet welds > 5/16"	Continuous	S.I.	A.I.S.C. 360 (A.I.S.C. 341, as applicable).
	B. Inspect single-pass fillet welds ≤ 5/16"	Periodic	S.I.	A.I.S.C. 360 (A.I.S.C. 341, as applicable).
	C. Inspect welding of stairs and railing systems.	Periodic	S.I.	1704.3.1, A.I.S.C. 360 (A.I.S.C. 341 as applicable)
	D. Verification of reinforcing steel weldability.	Periodic	S.I.	1704.4.1; verify carbon equivalent reported on mill certificates.
	E. Inspect welding of reinforcing steel.	Continuous	S.I.	1704.3.1.3, 1704A.3.1.4, Table 1704A.3 Item 5b. A.W.S. D1.4.
	19.2 FIELD WELDING			
	A. Inspect groove, multi-pass, and fillet welds > 5/16"	Continuous	S.I.	A.I.S.C. 360 (A.I.S.C. 341, as applicable).
	B. Inspect single-pass fillet welds ≤ 5/16"	Periodic	S.I.	A.I.S.C. 360 (A.I.S.C. 341, as applicable).
	C. Inspect end-welded studs (A.S.T.M. A-108) installation (including bend test).	Periodic	S.I.	A.I.S.C. 360 (A.I.S.C. 341, as applicable).
	D. Inspect floor and roof deck welds.	Periodic	S.I.	A.I.S.C. 360 (A.I.S.C. 341, as applicable).
	E. Inspect welding of structural cold-formed steel.	Periodic	S.I.	1704.3.1.2
	F. Inspect welding of stairs and railing systems.	Periodic	S.I.	1704.3.1.2
	G. Verification of reinforcing steel weldability.	Periodic	S.I.	1704.4.1; verify carbon equivalent reported on mill certificates.
	H. Inspect welding of reinforcing steel.	Continuous	S.I.	1704.3.1.3, A.W.S. D1.4.

G.E. - Indicates that the special inspection is to be performed by a registered Geotechnical Engineer or their authorized representative.
 Lab - Indicates that the test is to be performed by a testing laboratory accepted by and approved by the City of San Diego.
 S.I. - Indicates that the special inspection is to be performed by a Special Inspector.

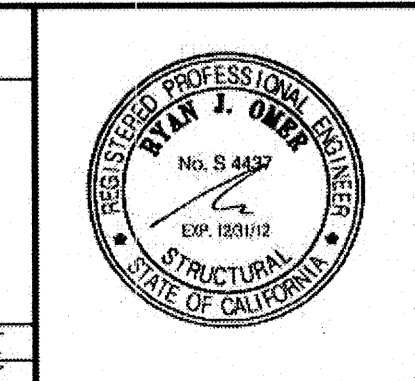
S1.5

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

ORION
Structural Engineering, Inc.
12287 OLD POMEREO ROAD, SUITE A
POWAY, CA 92064
PHONE (609) 879-1974
FAX (609) 879-1975

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY:	FOR CITY ENGINEER	DATE:	6/18/13
CHECKED BY:	CONSTRUCTION ENGINEER	DATE:	08-02-12
INSPECTOR:		DATE STARTED:	
		DATE COMPLETED:	

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

GENERAL NOTES

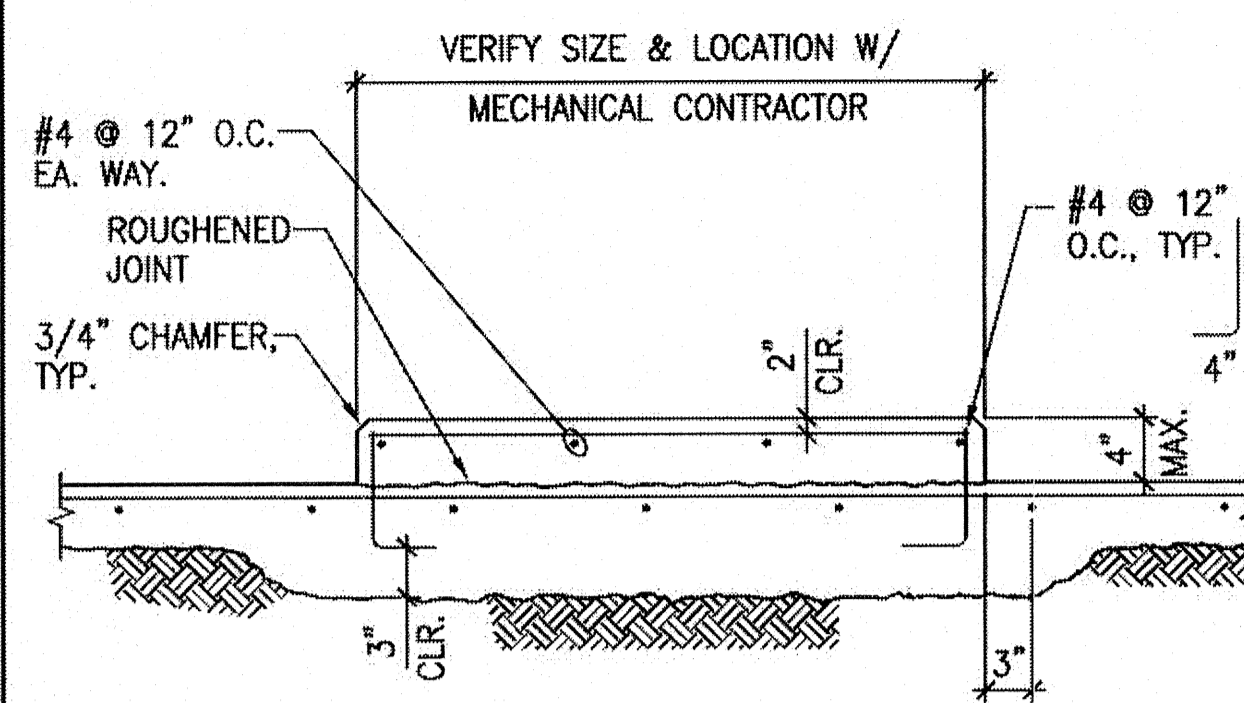
CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 23 OF 48 SHEETS

W.R.S. S-10026
V.D. _____

SECTION HEAD: _____
PROJECT MANAGER: _____
CCS27 COORDINATE: _____
CCS83 COORDINATE: _____

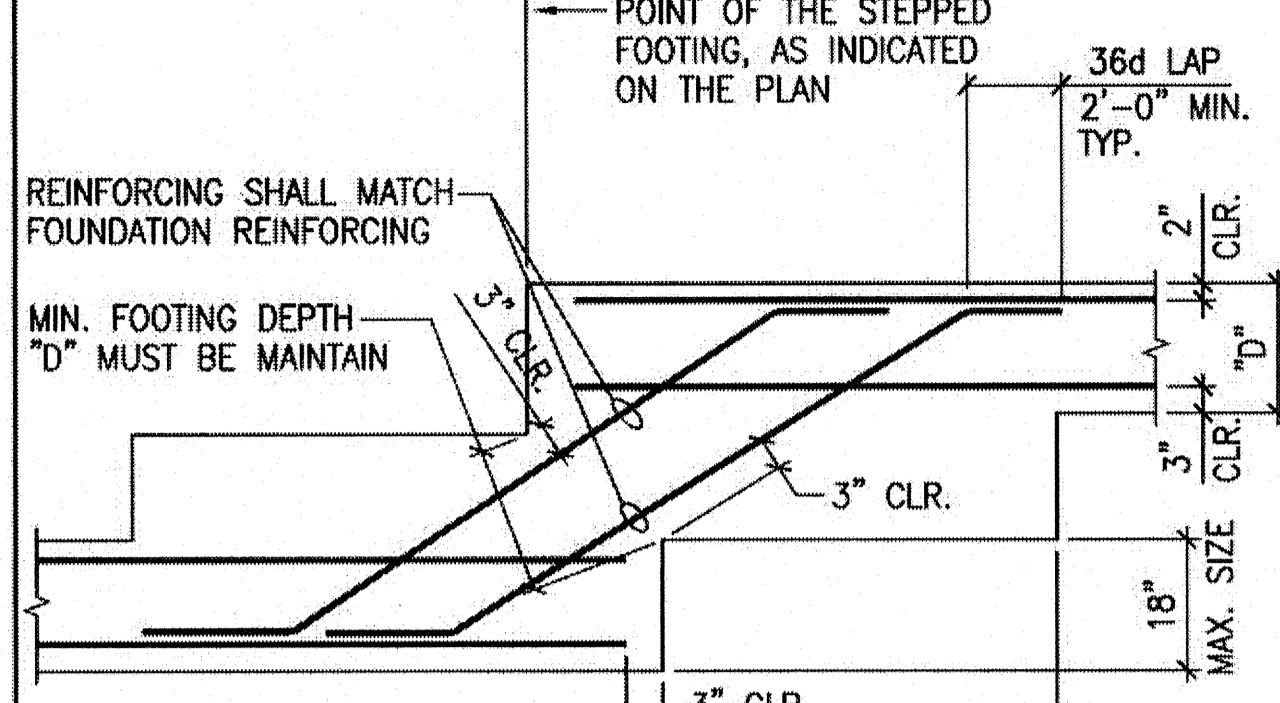
36598-23-D

PALISADES PARK COMFORT STATION



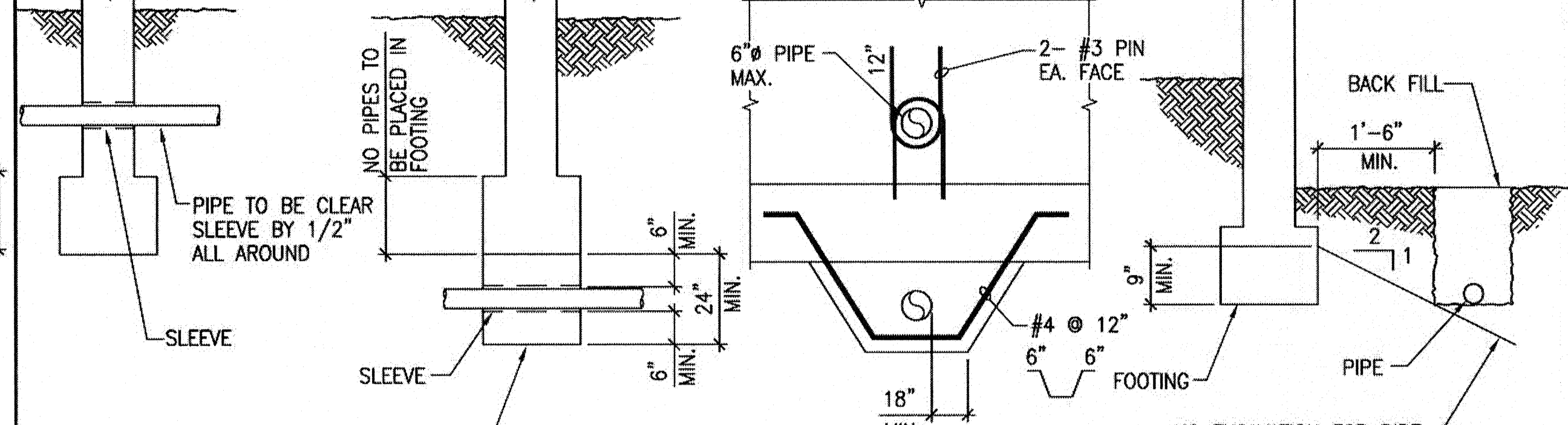
NOTES:
 1. CONTRACTOR SHALL POUR PADS SEPARATELY FROM FLOOR SLAB AT PADS ON STRUCTURAL FLOOR.
 2. EQUIPMENT ANCHORAGE EMBEDMENTS ARE UNIQUE TO EACH PIECE OF EQUIPMENT, AND ARE NOT SHOWN IN DETAIL ABOVE.

9 TYPICAL PAD ON SLAB



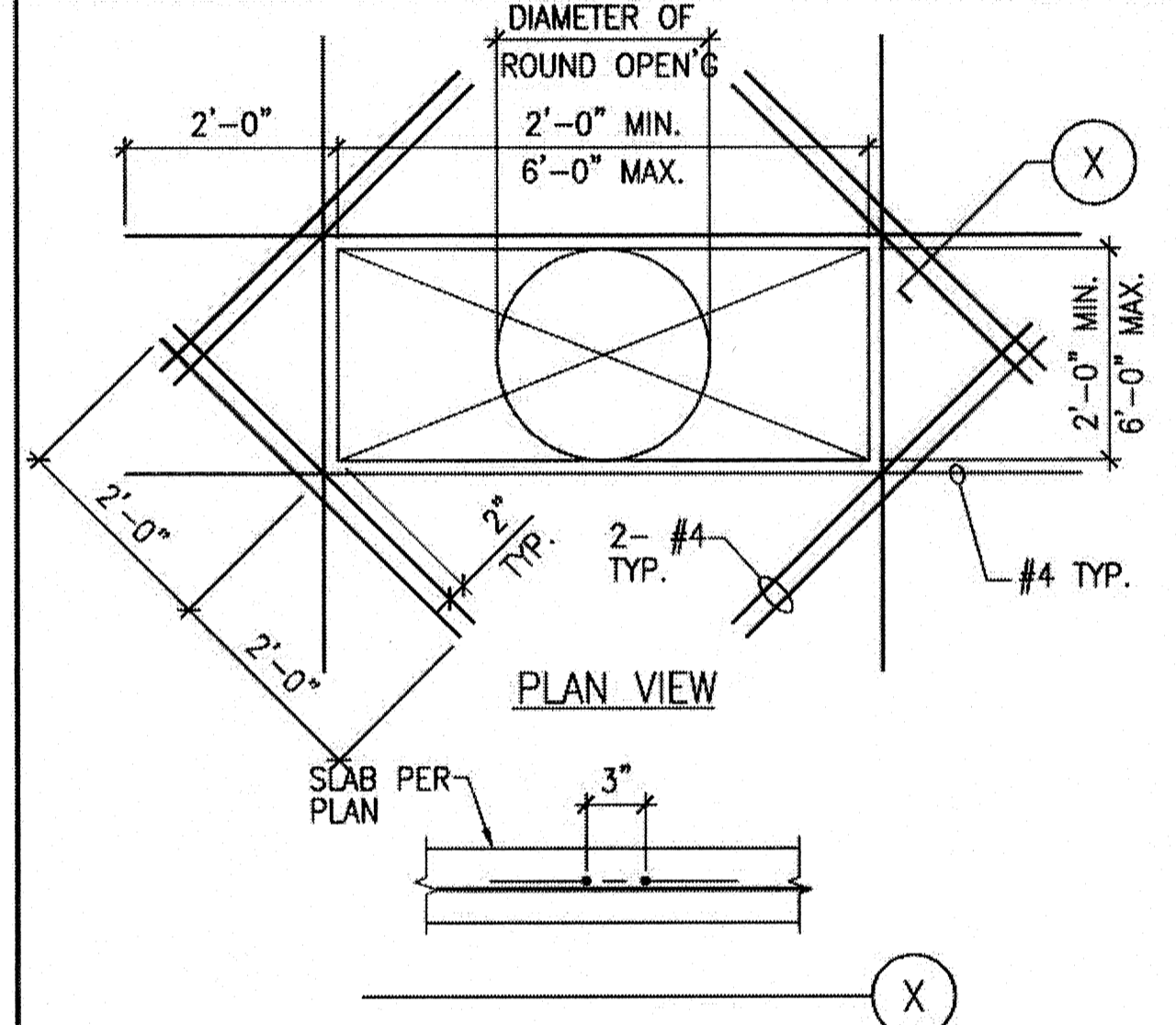
NOTES:
 1. STEP FOOTING WHERE SHOWN ON PLANS, AND AS REQUIRED TO MAINTAIN MINIMUM FOOTING DEPTH BELOW GRADE, AND AS REQUIRED TO ACCOMMODATE PIPES PER TYPICAL PIPE TRENCH DETAILS
 2. REINFORCING TO MATCH SIZE AND SPACING OF FOOTING REINFORCING.

6 TYPICAL STEPPED FOOTING

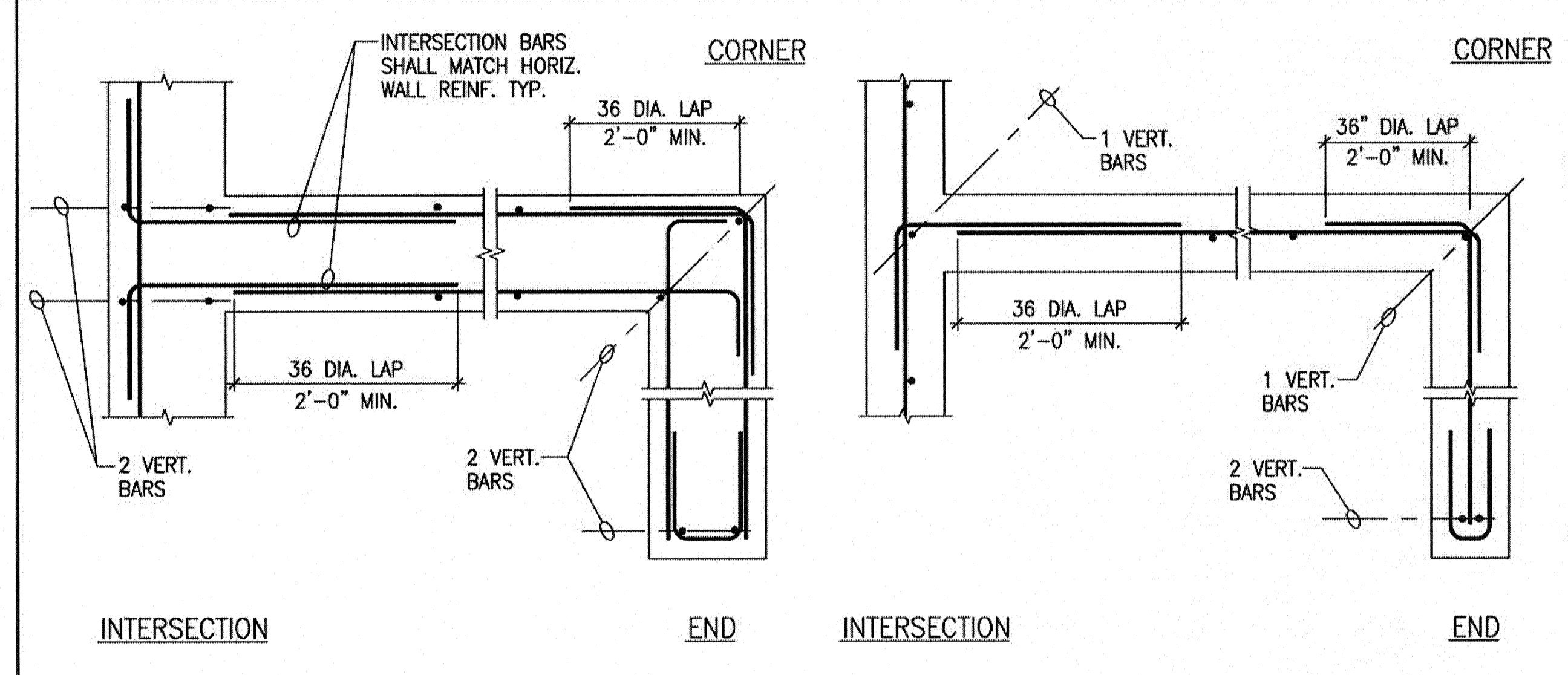


NOTES:
 1. INSIDE DIAMETER OF SLEEVE TO BE 1" LARGER THAN OUTSIDE DIAMETER OF PIPE
 2. SLEEVES SHALL BE NON-CORROSIVE, FILL VOID W/ OAKUM AT EA. END.
 3. IF PIPE IS IN PLACE PRIOR TO POURING CONC. WRAP PIPE WITH 1" GLASS WOOL INSULATION BEFORE POURING CONC. IN LIEU OF SLEEVE.

3 TYPICAL PIPE THRU FTG



7 TYP. OPEN'G IN SLAB-ON-GRADE



4 TYPICAL REBAR LAPS AT BEAM & FTG - PLAN VIEW

10

8

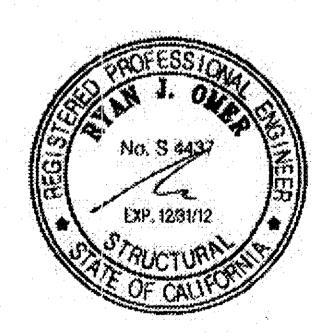
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CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

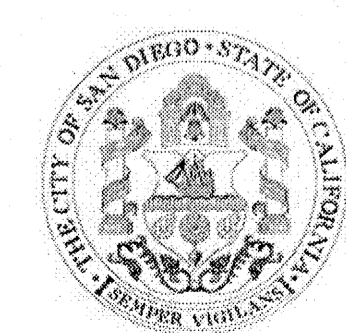
CONSULTANT

ORION
 Structural Engineering, Inc.
 12957 OLD POMERADO ROAD, SUITE A
 POWAY, CA 92064
 PHONE (619) 678-1874
 FAX (619) 678-1875

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



**CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT**



WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY: FOR CITY ENGINEER
 CHECKED BY: CONSTRUCTION ENGINEER
 INSPECTOR

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

TYPICAL DETAILS

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 24 OF 48 SHEETS

W.R.S. S-10026
 W.D. _____

APPROVED: [Signature] DATE: 6/18/13
 FOR CITY ENGINEER

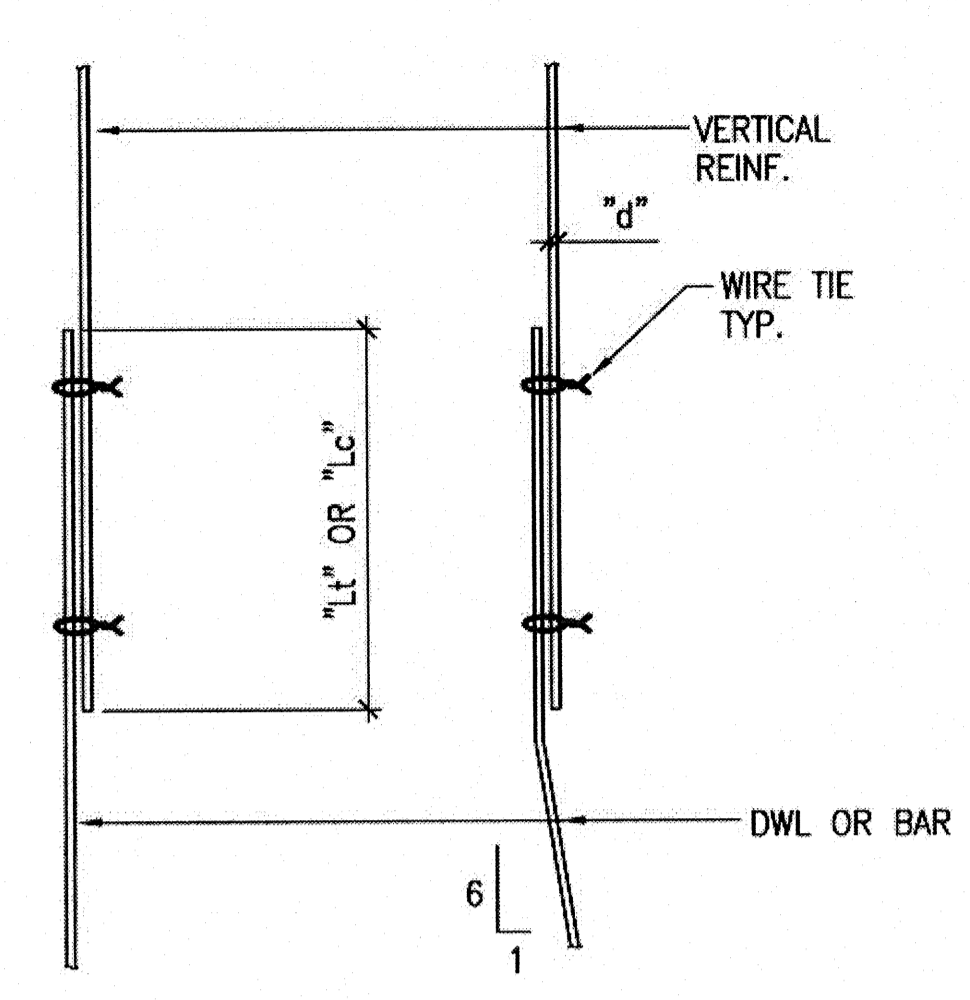
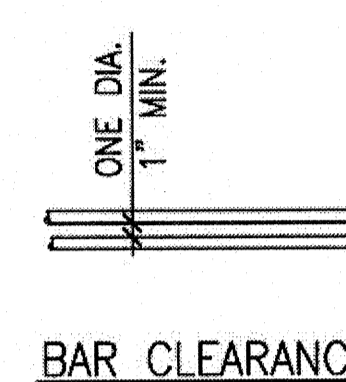
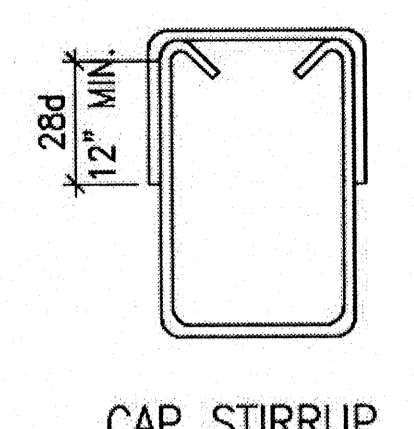
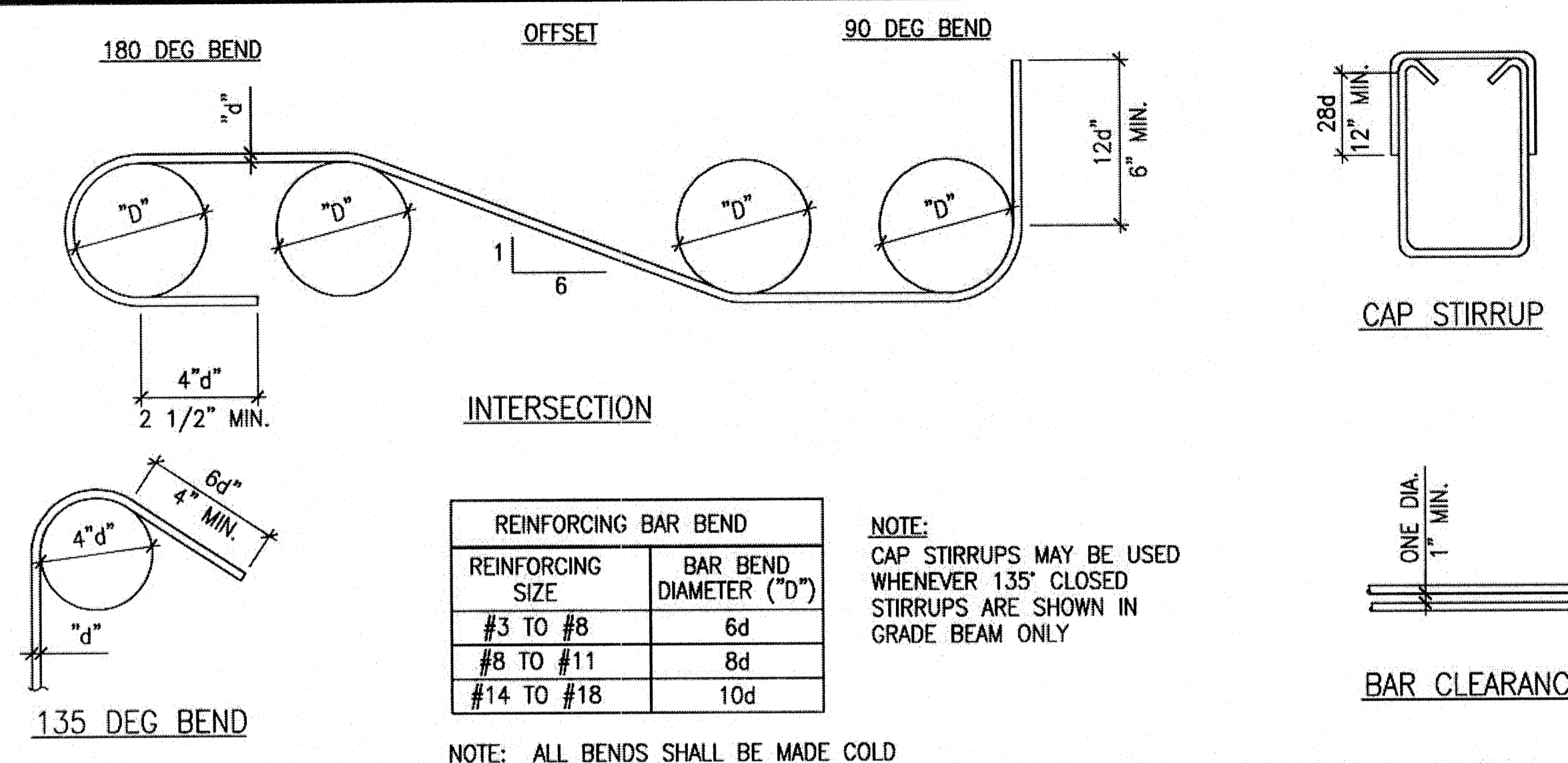
DESCRIPTION	BY	APPROVED	DATE	FILMED
FINAL	MJA		08-02-12	

SECTION HEAD: [Signature]
 PROJECT MANAGER: [Signature]
 CCS27 COORDINATE
 CCS83 COORDINATE

AS-BUILTS
 CONTRACTOR: _____ DATE STARTED: _____
 INSPECTOR: _____ DATE COMPLETED: _____

36598-24-D

PALISADES PARK COMFORT STATION



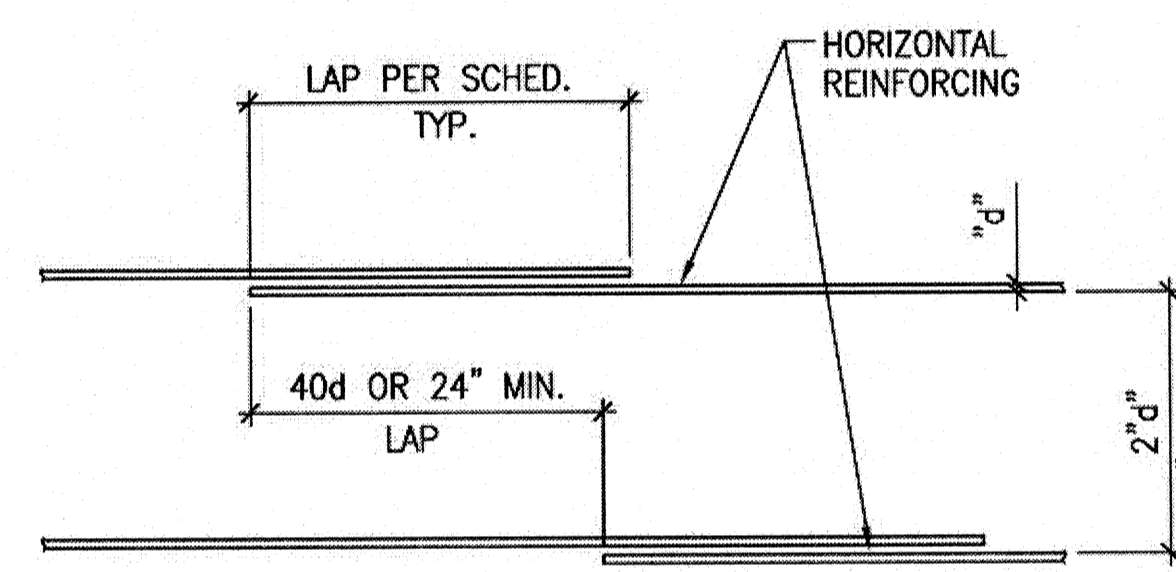
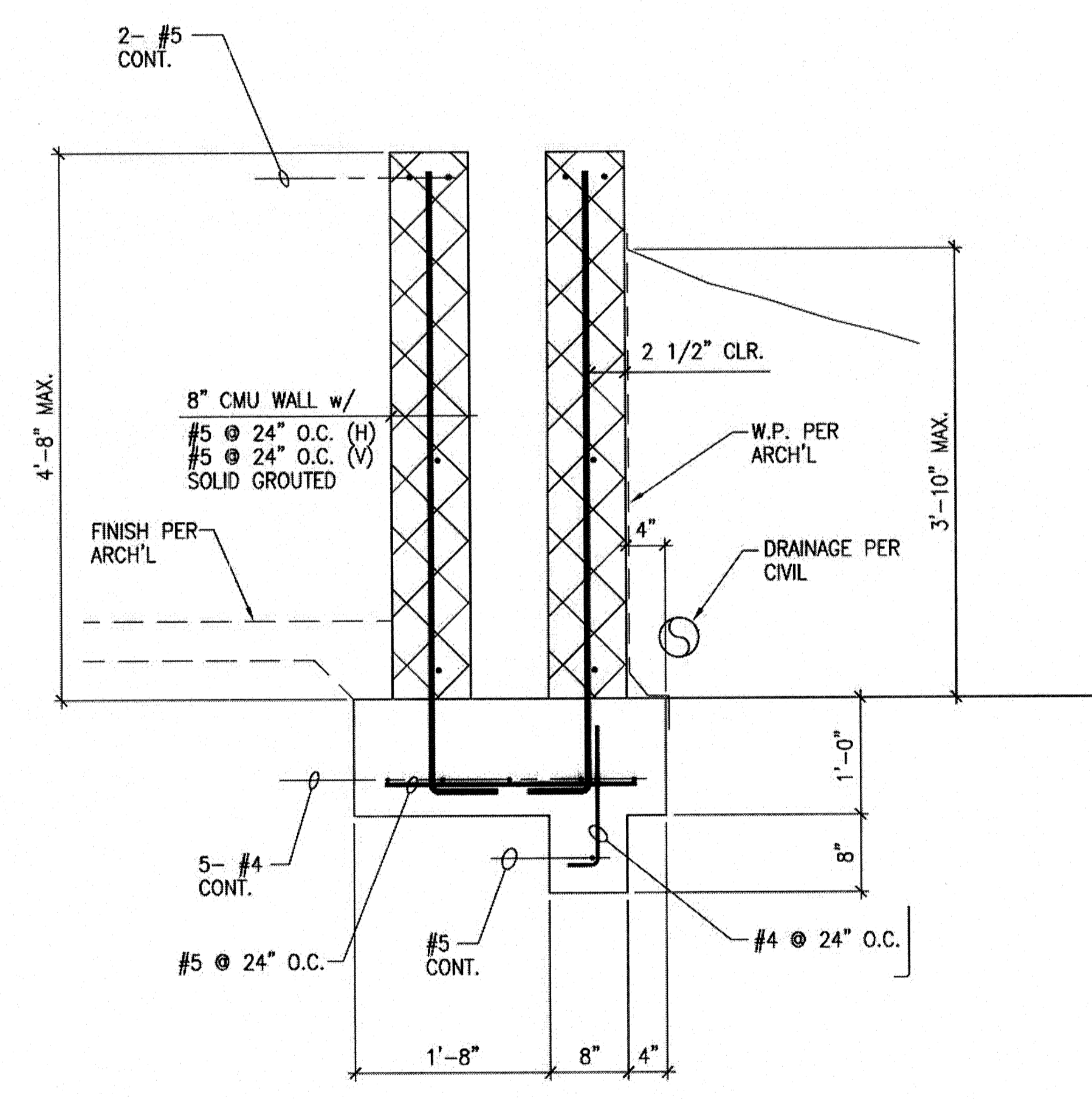
BAR SIZE	LAP SPICE "L" (IN.)
#3	31"
#4	38"
#5	47"
#6	56"

F_y = 60 K.S.I.

- NOTES:
- ALL VERTICAL REINFORCING FOR COLUMN, PIERS AND WALLS SHALL BE DOWELED AS SHOWN, UNLESS NOTED OTHERWISE.
 - DOWELS SHALL BE THE SAME GRADE, SIZE, QUANTITY AND/OR SPACING AS VERTICAL REINFORCING.
 - WHEN "Lc" OR "Lt" IS NOT SPECIFIED ON DRAWING, USE TENSION LAP "Lt"
 - SPlice LENGTHS ARE FOR EPOXY COATED BARS, ONLY.

5 TYPICAL BAR BENDS

3 TYP. VERTICAL REINFORCING - TENSION & COMPRESSION LAP SPlice



CONC. F'c P.S.I.	BAR SIZE									
	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14
3,000	24	29	36	43	63	72	81	91		
5,000	24	24	28	34	49	56	63	71		

HARDROCK CONCRETE
F_y = 60 K.S.I. (CLASS "A")
FOR LT. WT. CONCRETE, MULTIPLY LENGTH BY A FACTOR OF 1.3

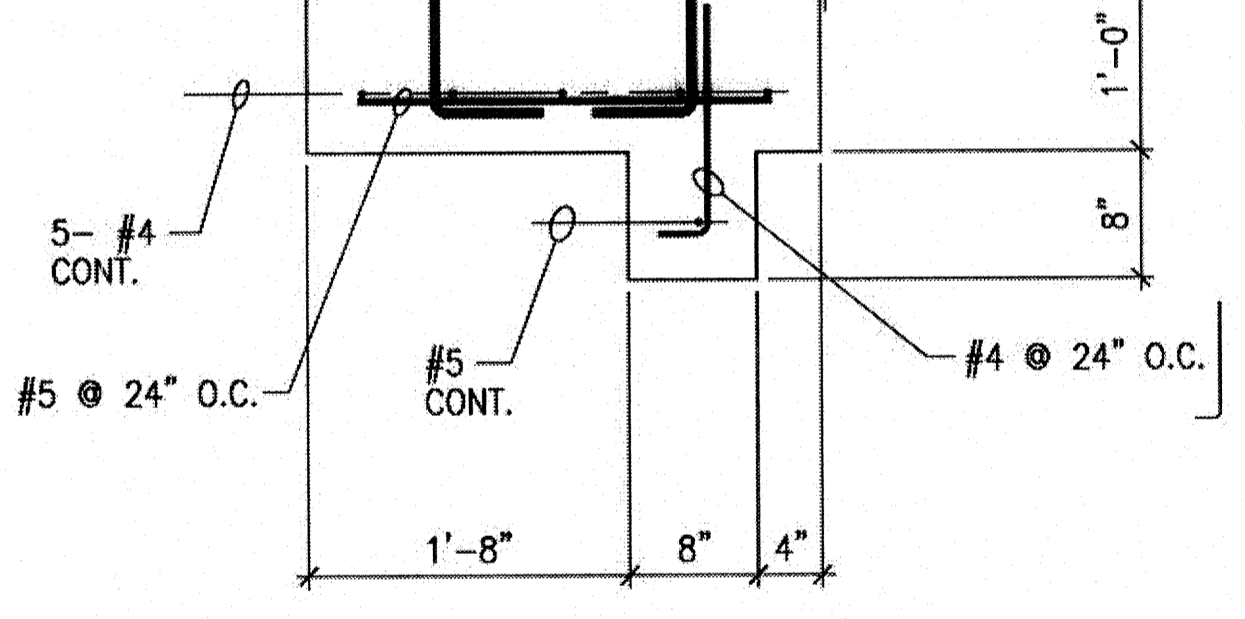
FOR EPOXY COATED BARS; MULTIPLY LENGTH BY FACTOR OF 1.3

- NOTES:
- SPlice LENGTH SHALL BE DETERMINED FROM THE SIZE OF THE SMALLER BAR SPliced.

6

TYPICAL HORIZONTAL REINFORCING SPlice

2



7

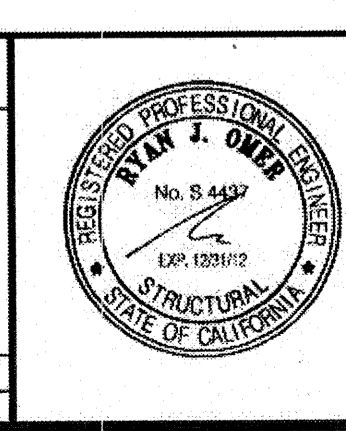
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CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

ORION
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12257 OLD POMERADO ROAD, SUITE A
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PHONE (619) 679-1974
FAX (619) 679-1975

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW



WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY: FOR CITY ENGINEER

CHECKED BY: CONSTRUCTION ENGINEER

INSPECTOR

PLANS FOR THE CONSTRUCTION OF:

PALISADES PARK COMFORT STATION

TYPICAL DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 25 OF 48 SHEETS

W.B.S. S-10026
W.D. -----

DATE: 6/18/13

DESCRIPTION	BY	APPROVED	DATE	FILMED
FINAL	MDA		08-02-12	

SECTION HEAD: [Signature]

PROJECT MANAGER: [Signature]

CCS27 COORDINATE

CCS83 COORDINATE

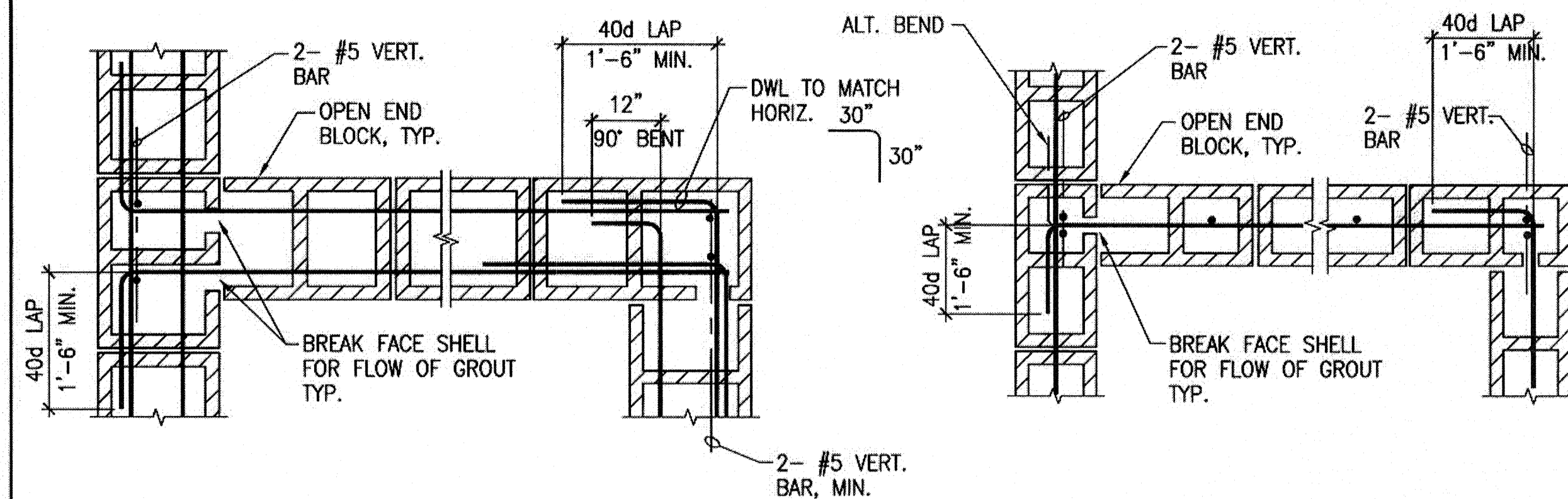
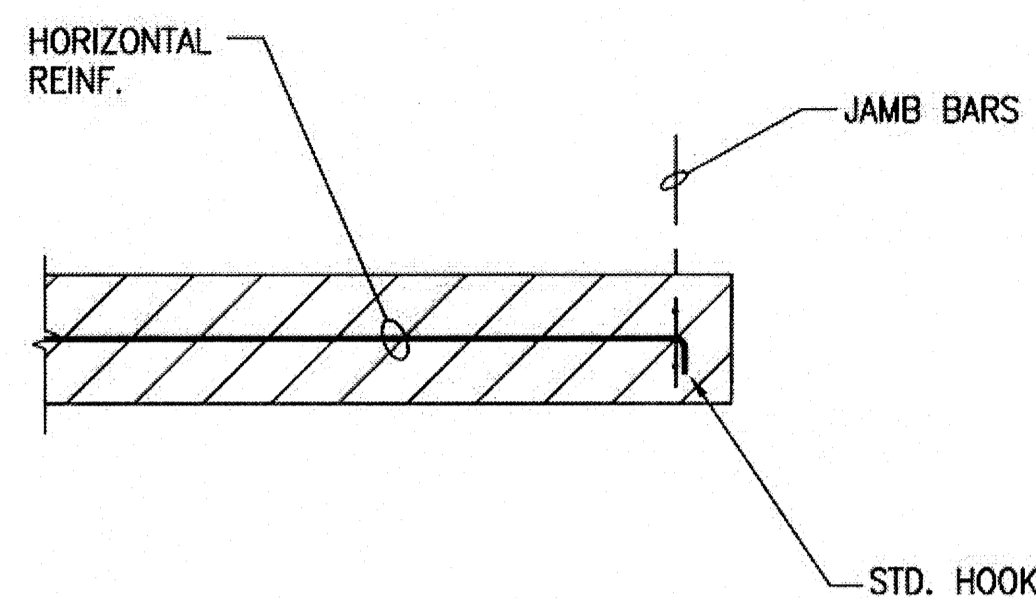
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INSPECTOR: [Blank] DATE COMPLETED: [Blank]

36598-25-D

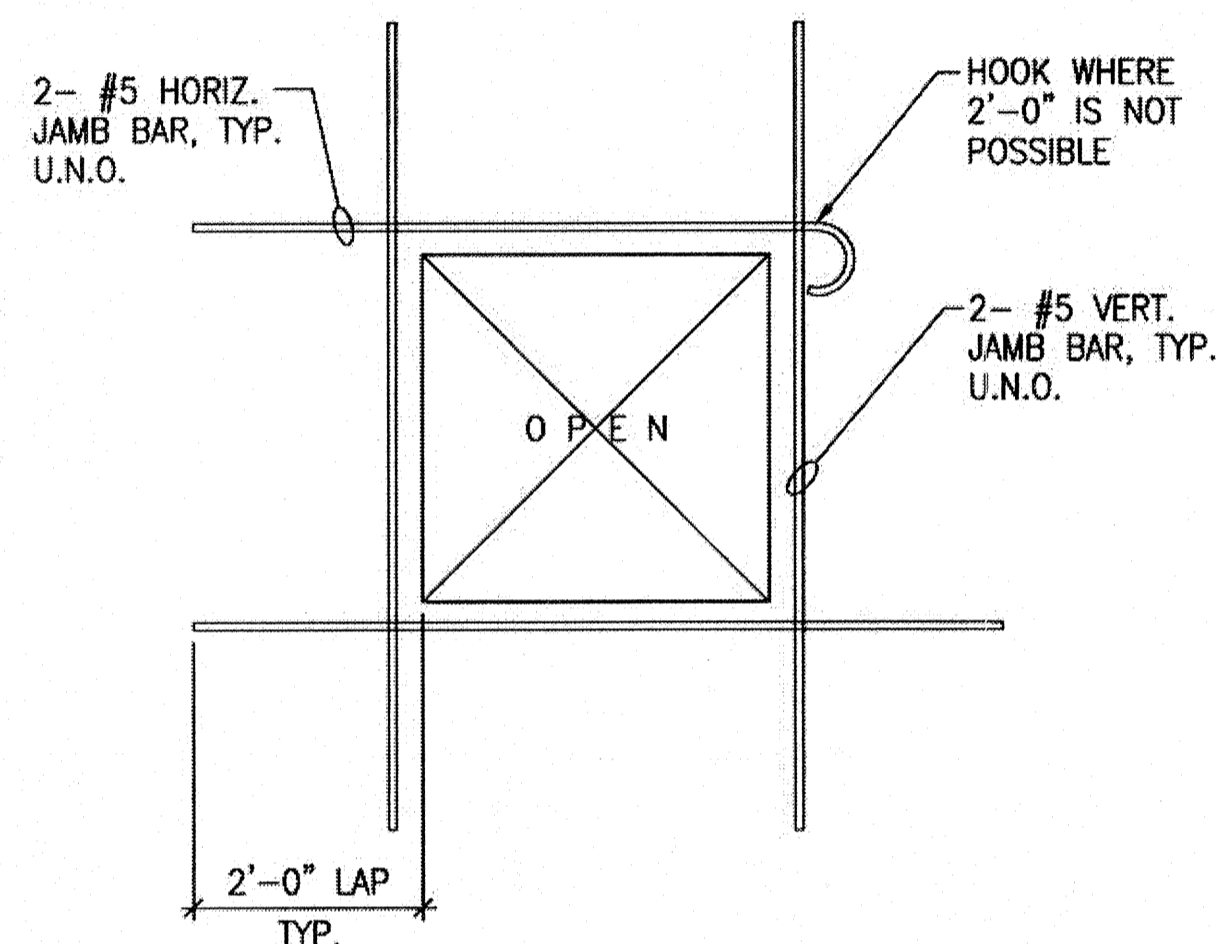
PALISADES PARK COMFORT STATION

S1.7



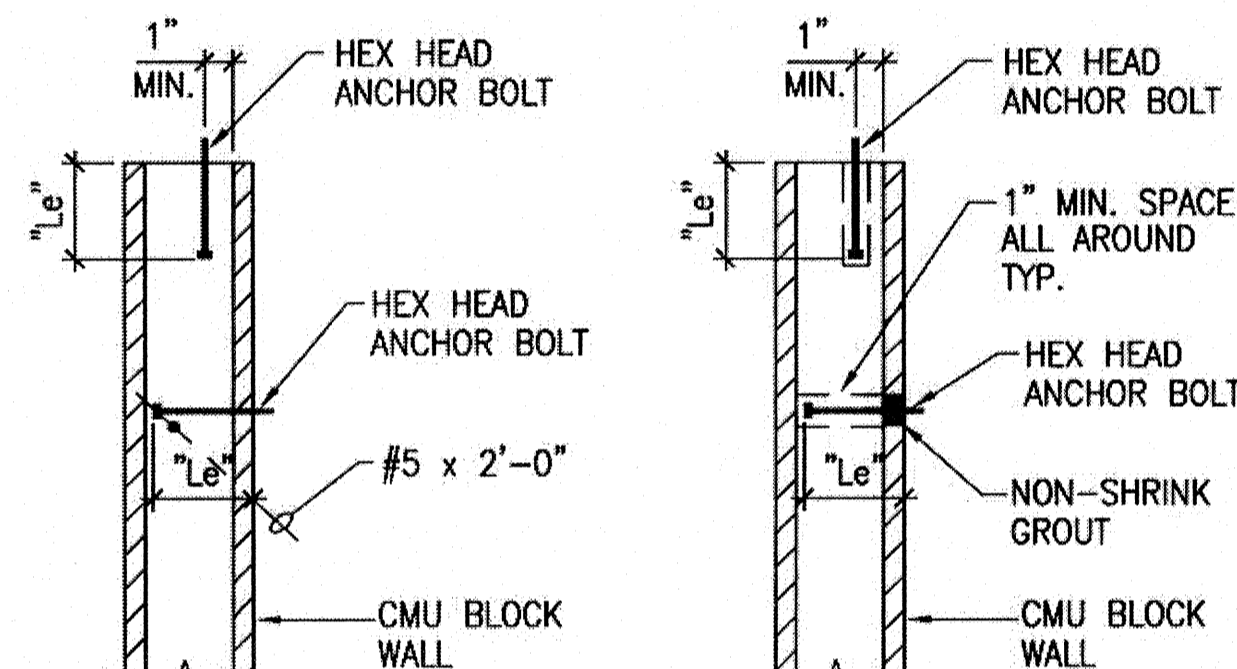
7 TYP. END WALL - PLAN VIEW

4 TYPICAL MASONRY REBAR - PLAN VIEW



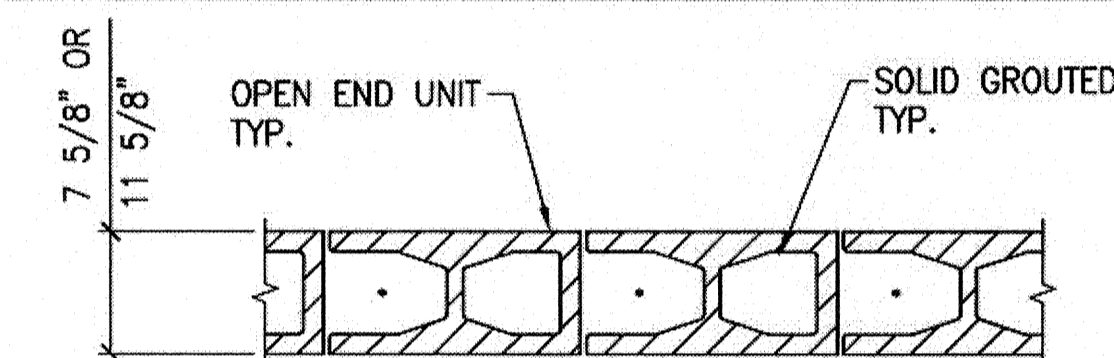
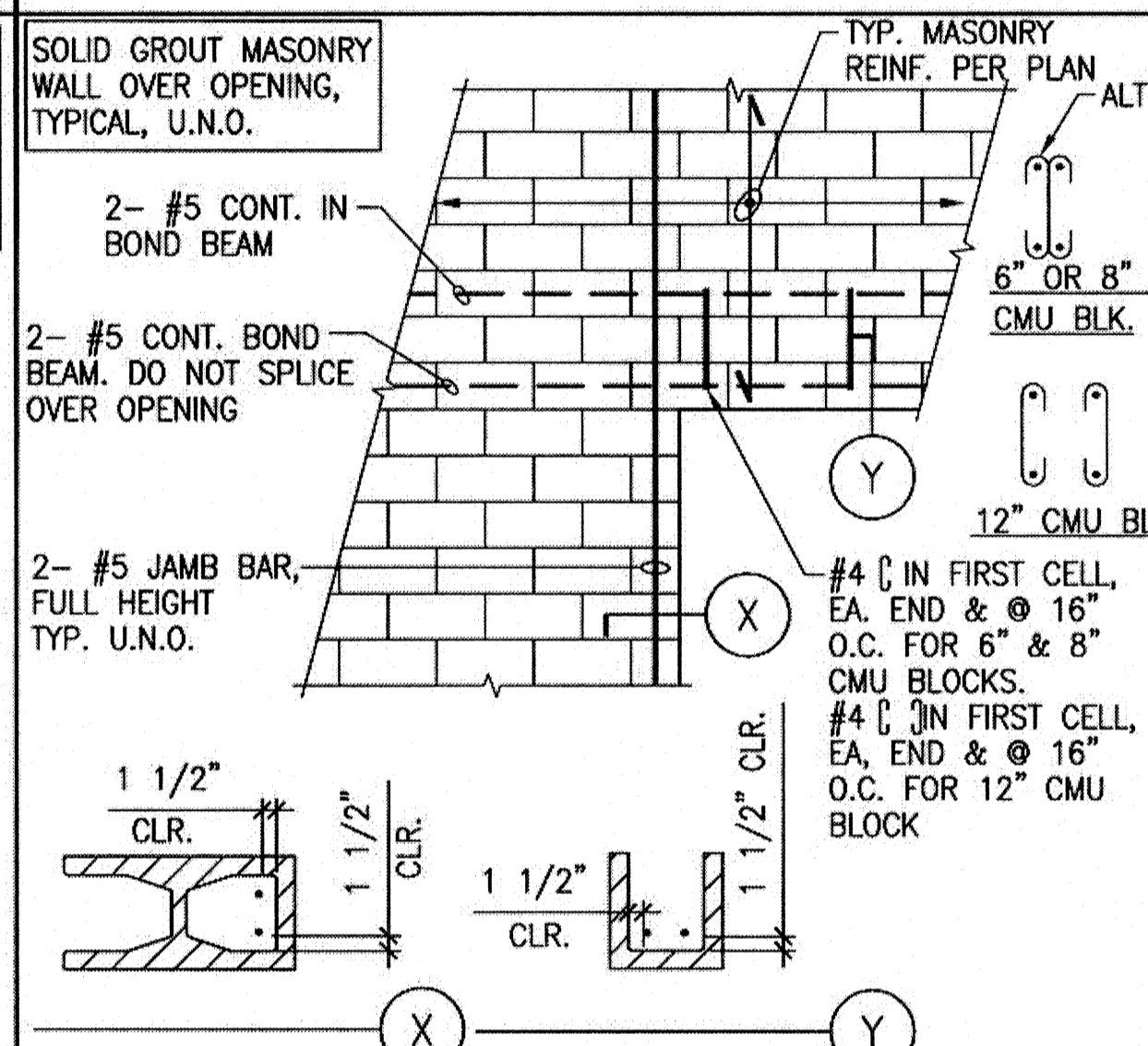
NOTE:
ALL BOLTS SHALL BE GROUTED IN PLACE WITH AT LEAST 1 INCH OF GROUT BETWEEN THE BOLT & THE MASONRY, AND SHALL BE ACCURATELY SET WITH TEMPLATES.

ANCHOR SIZE	MINIMUM EMBEDMENT			
	1/2"Ø	5/8"Ø	3/4"Ø	7/8"Ø
"Le"	5"	5"	6"	7"

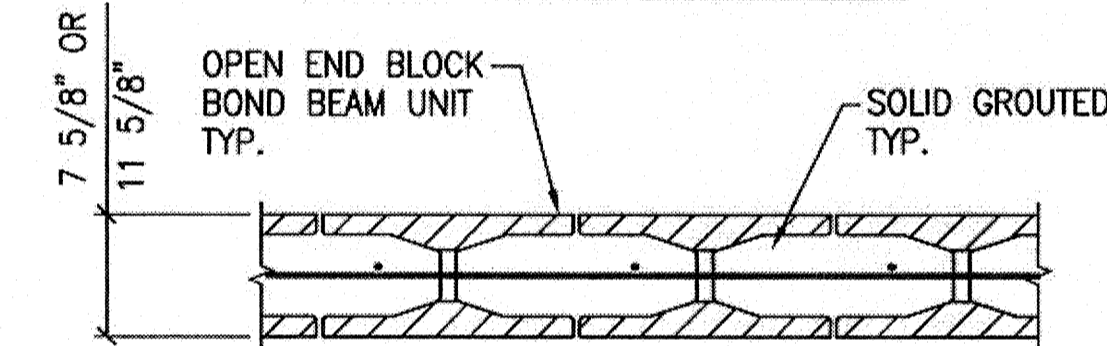


(BOLTS INSTALLED DURING CONSTRUCTION)

(BOLTS INSTALLED AFTER CONSTRUCTION)



TYPICAL MASONRY WALL COURSE BETWEEN BOND BEAM UNITS



TYPICAL BOND BEAM COURSE

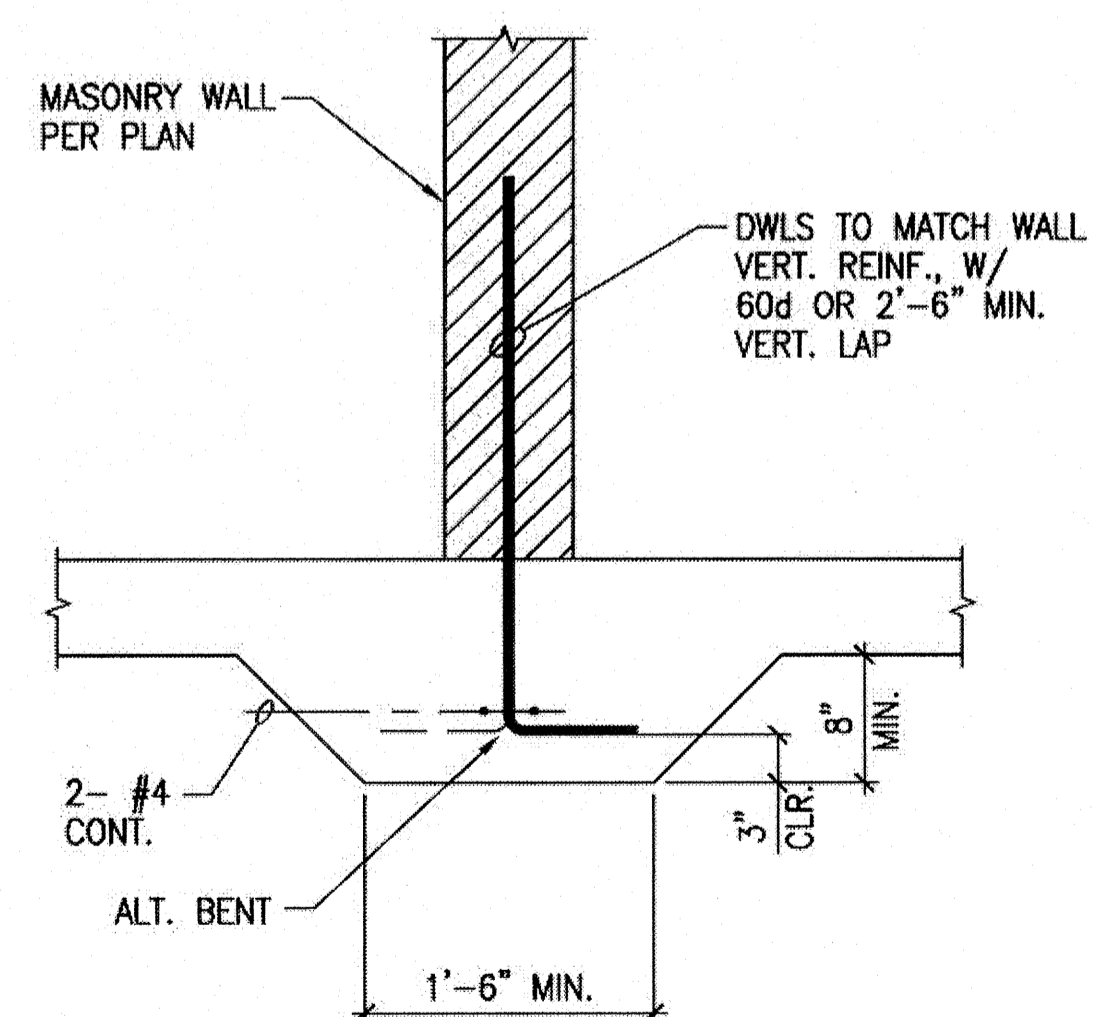
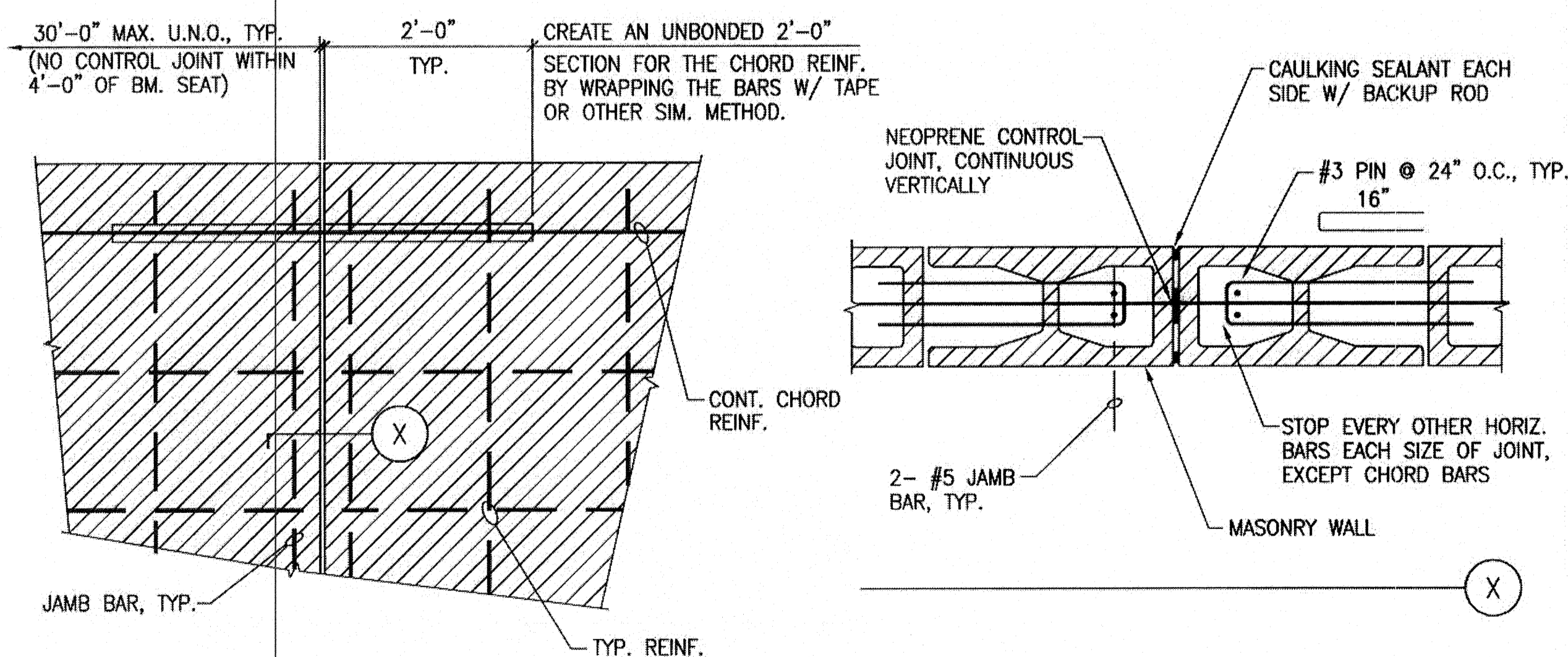
NOTE:
SINGLE CURTAIN OF REINFORCING AT 8" CMU.
DOUBLE CURTAIN OF REINFORCING AT 12" CMU

10 TYPICAL JAMB @ OPENING

8 TYP. A.B. EMBED. IN MASONRY

5 TYPICAL MASONRY LINTEL

3 TYPICAL MASONRY COURSING



TYPICAL VERTICAL CONTROL JOINT

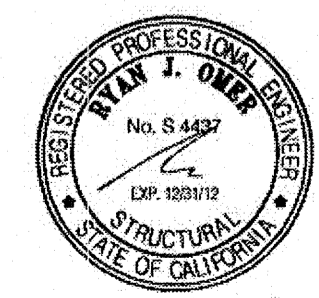
9 TYPICAL NON-BEARING WALL

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT
ORION
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12257 OLD POMEROADO ROAD, SUITE A
POWAY, CA 92064
PHONE (609) 679-1974
FAX (609) 679-1975

SCALE
HORIZONTAL NO SCALE
VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY:	FOR CITY ENGINEER
CHECKED BY:	CONSTRUCTION ENGINEER
INSPECTOR:	

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

TYPICAL DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 26 OF 48 SHEETS

W.B.S. S-10026
V.I.L. _____

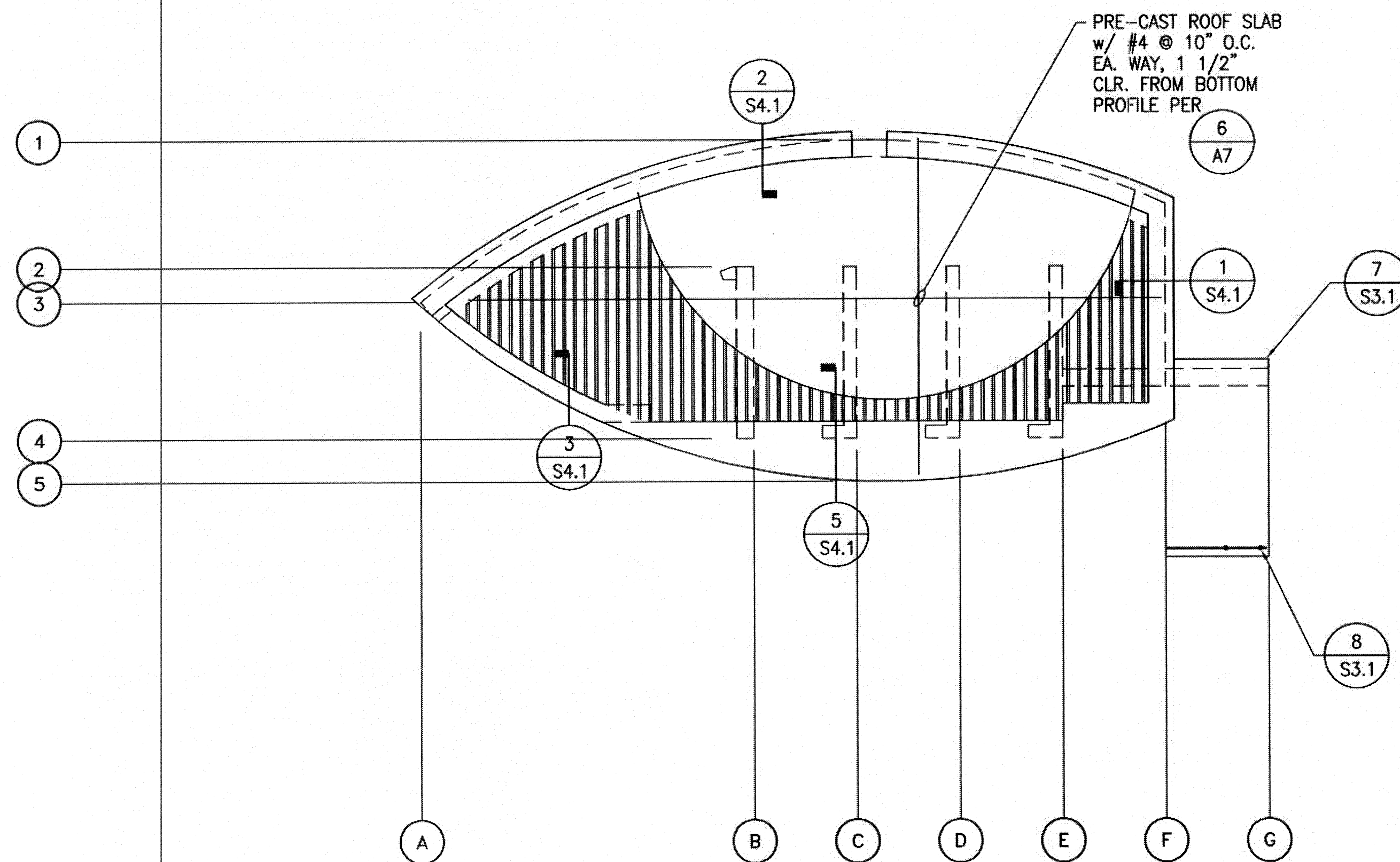
FOR CITY ENGINEER	DATE	6/18/13
DESCRIPTION	BY	APPROVED
FINAL	MOA	08-02-12

SECTION HEAD
PROJECT MANAGER
CCS27 COORDINATE
CCS83 COORDINATE

AS-BUILTS
CONTRACTOR DATE STARTED
INSPECTOR DATE COMPLETED

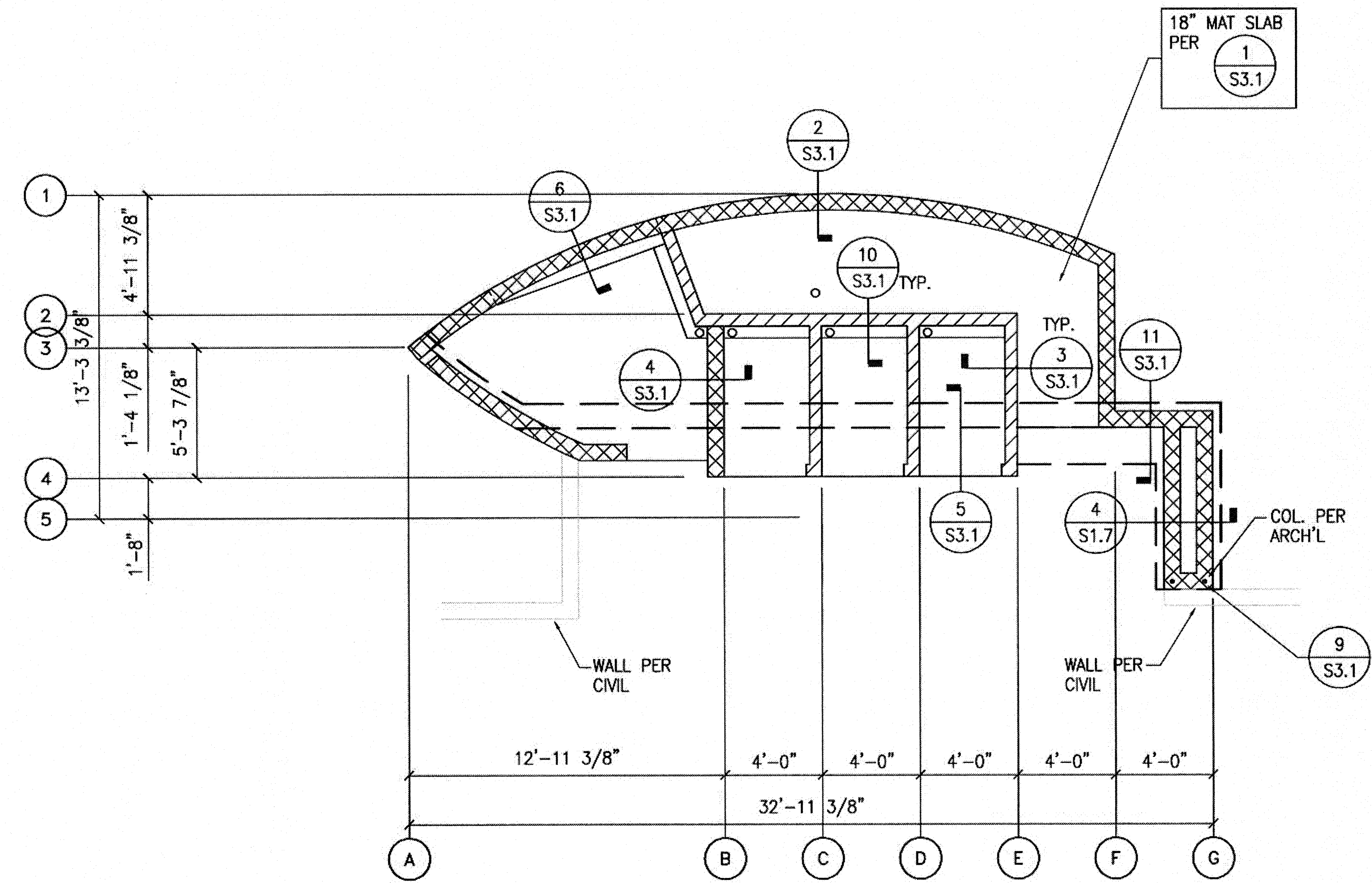
36598-26-D

PALISADES PARK COMFORT STATION



ROOF FRAMING PLAN

SCALE 1/4" = 1'-0"



FOUNDATION PLAN

SCALE 1/4" = 1'-0"

NOTES:

- FOR TYPICAL DETAILS AND GENERAL NOTES, SEE SHEETS S1.1, S1.2, S1.3, S1.4, S1.5, S1.6, S1.7 AND S1.8
- FOR DIMENSIONS NOT SHOWN, SEE ARCHITECTURAL.

LEGEND:

- INDICATES 6" CMU WALL PER
- INDICATES 8" CMU WALL PER

S2.1

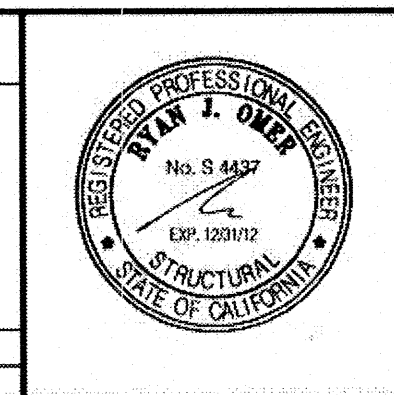
PLANS FOR THE CONSTRUCTION OF:			
PALISADES PARK COMFORT STATION			
FOUNDATION PLAN / FRAMING PLAN			
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 27 OF 48 SHEETS			W.R.S. S-10026 V.D.
APPROVED BY:	DATE:	SUBMITTED BY:	
FOR CITY ENGINEER	6/18/13	SECTION HEAD	
DESCRIPTION	BY	APPROVED	DATE
FINAL	MDA		08-02-12
CHECKED BY:	PROJECT MANAGER		
CONSTRUCTION ENGINEER	CCS27 COORDINATE		
CHECKED BY:	CCS83 COORDINATE		
INSPECTOR	AS-BUILTS		
CONTRACTOR	DATE STARTED:	36598-27-D	
INSPECTOR	DATE COMPLETED:		

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

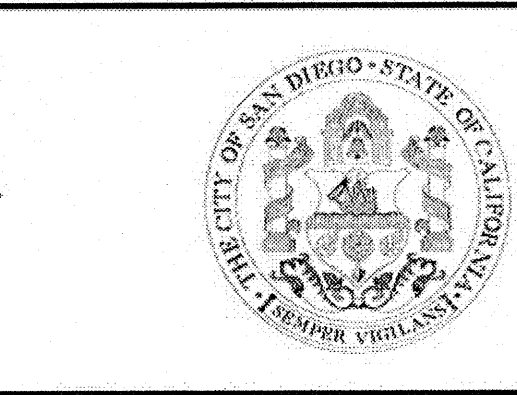
CONSULTANT

ORION
Structural Engineering, Inc.
12257 OLD POWERADO ROAD, SUITE A
POWAY, CA 92064
PHONE (658) 878-1974
FAX (658) 679-1975

SCALE HORIZONTAL NO SCALE VERTICAL NO SCALE



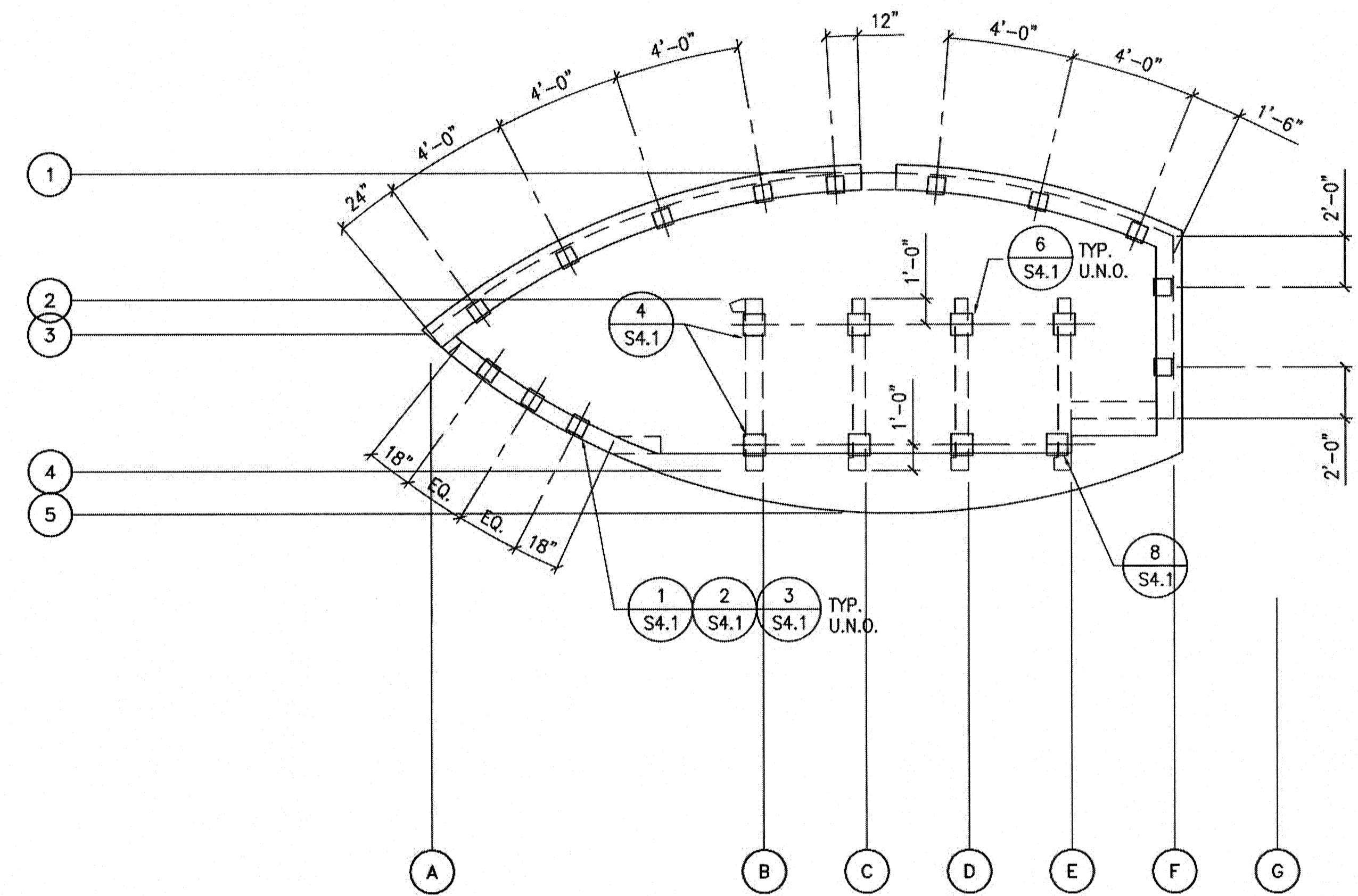
CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY:	DATE:
FOR CITY ENGINEER	
CHECKED BY:	
CONSTRUCTION ENGINEER	
CHECKED BY:	
INSPECTOR	

PALISADES PARK COMFORT STATION



EMBEDMENT PLAN

SCALE 1/4" = 1'-0"

S2.2

PLANS FOR THE CONSTRUCTION OF:	
PALISADES PARK COMFORT STATION	
EMBEDMENT PLAN	
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 28 OF 46 SHEETS	
W.B.S. S-10026	DATE 6/18/13
SECTION HEAD	PROJECT MANAGER
COORDINATOR	COORDINATOR
36598-28-D	

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

ORION
Structural Engineering, Inc.
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PODMAY, CA 92064
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SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

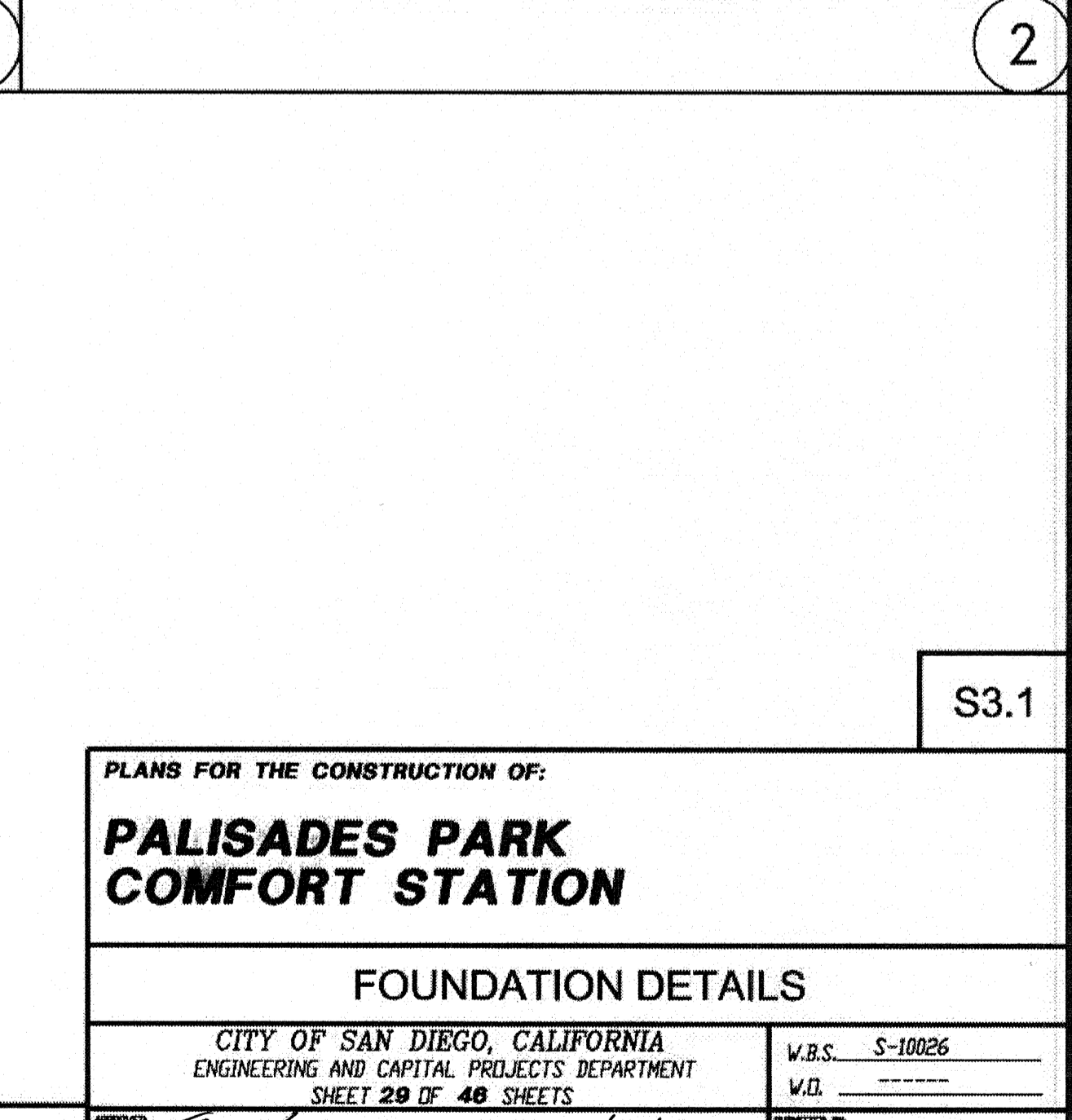
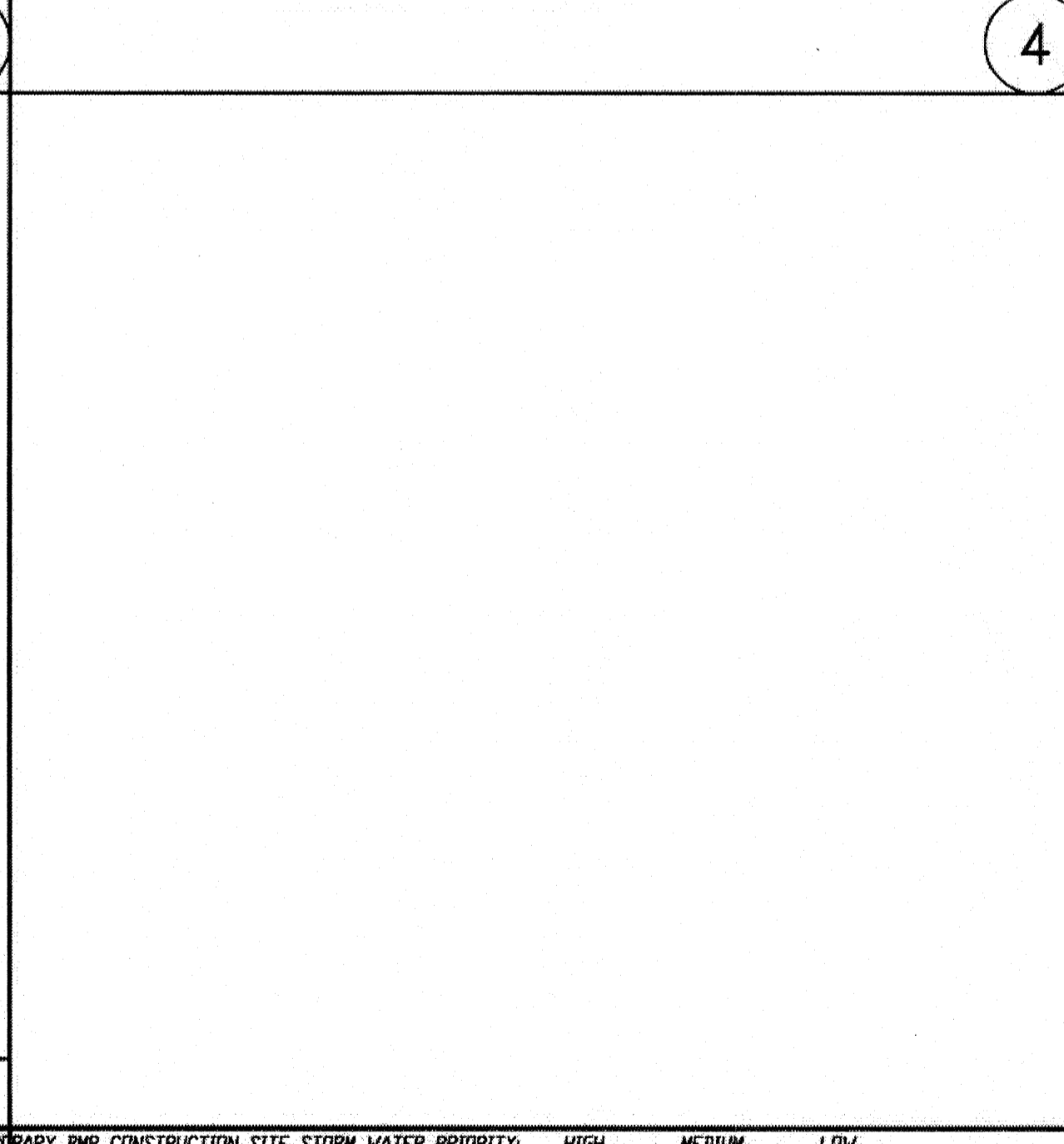
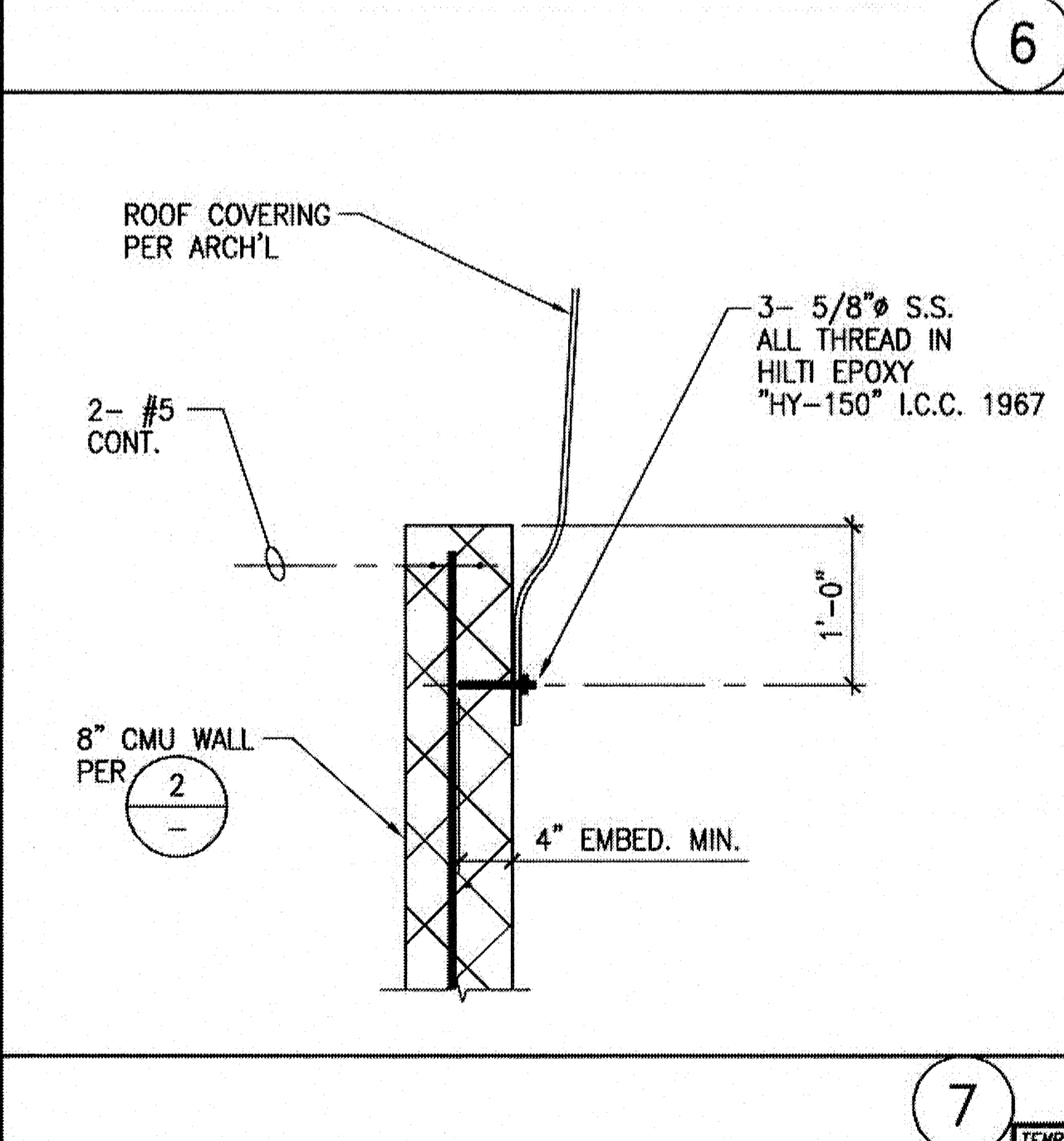
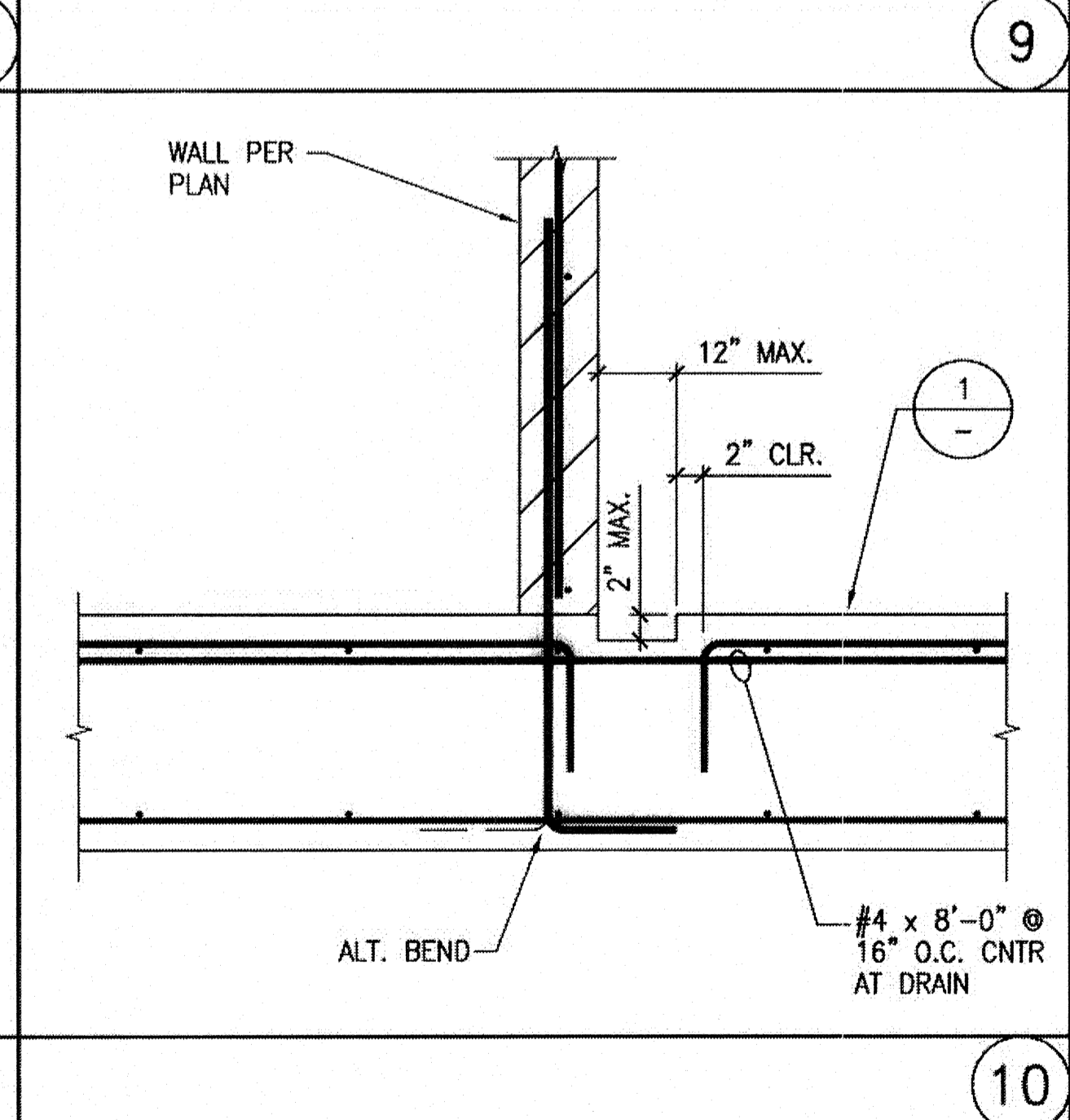
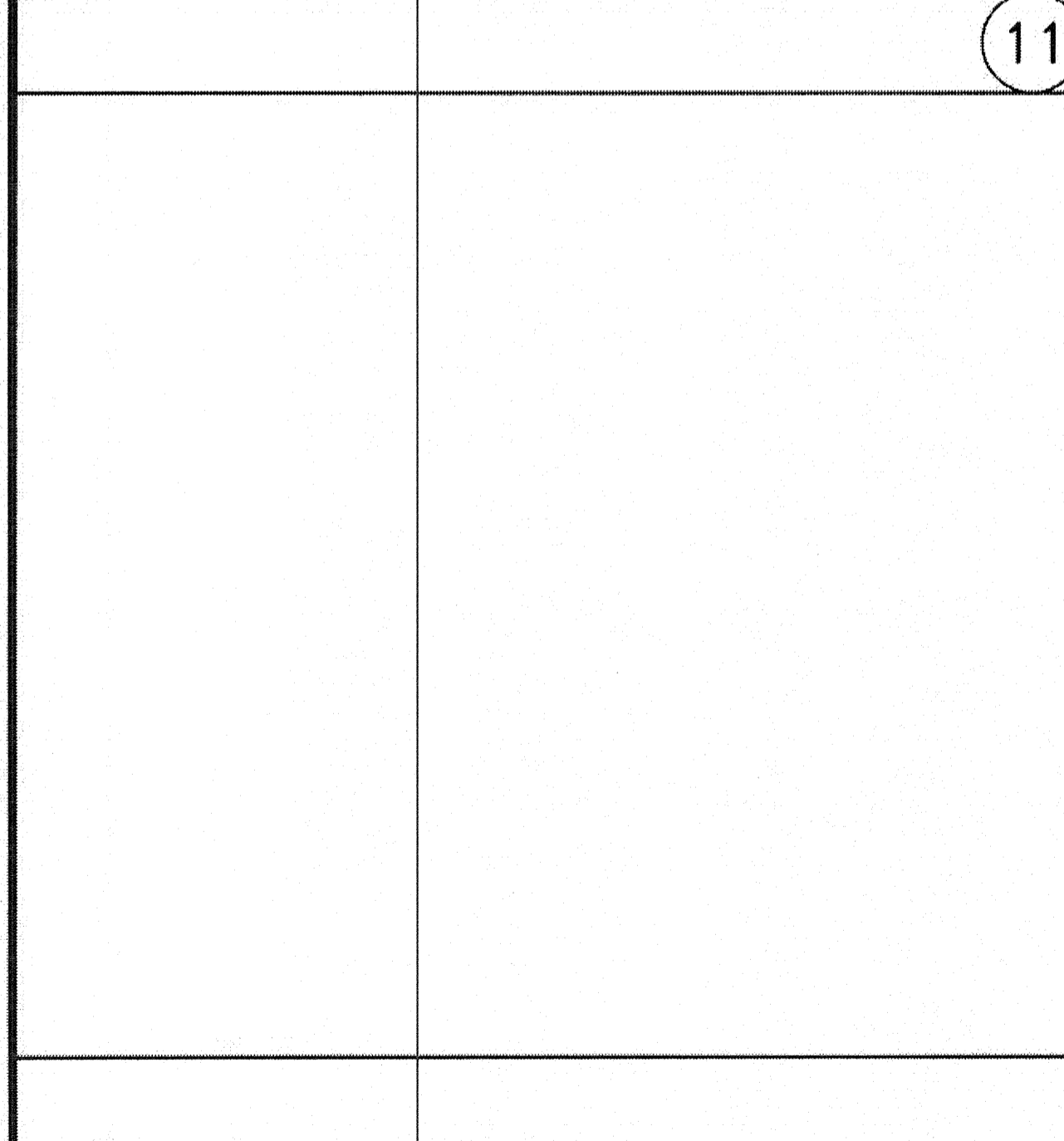
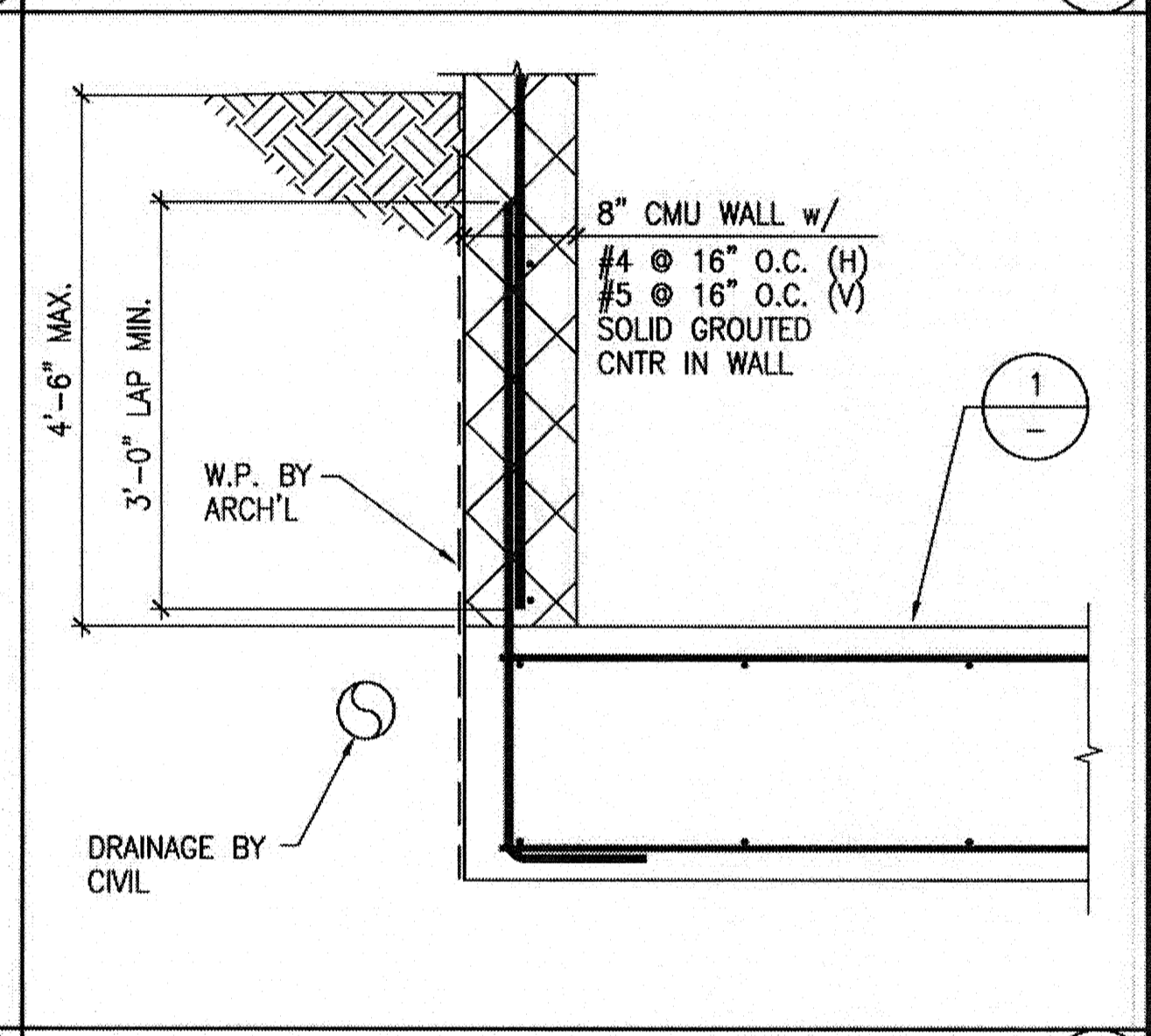
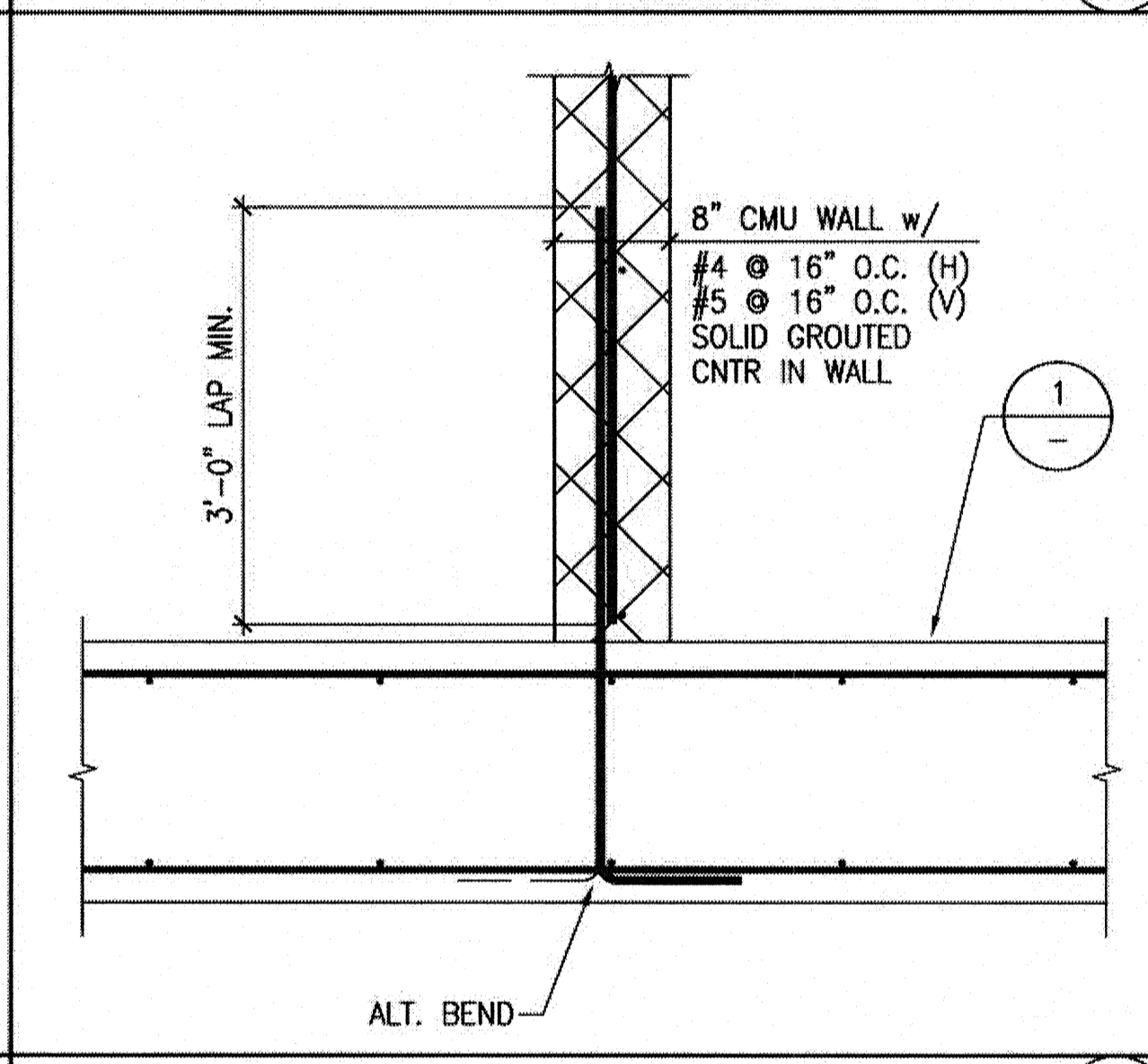
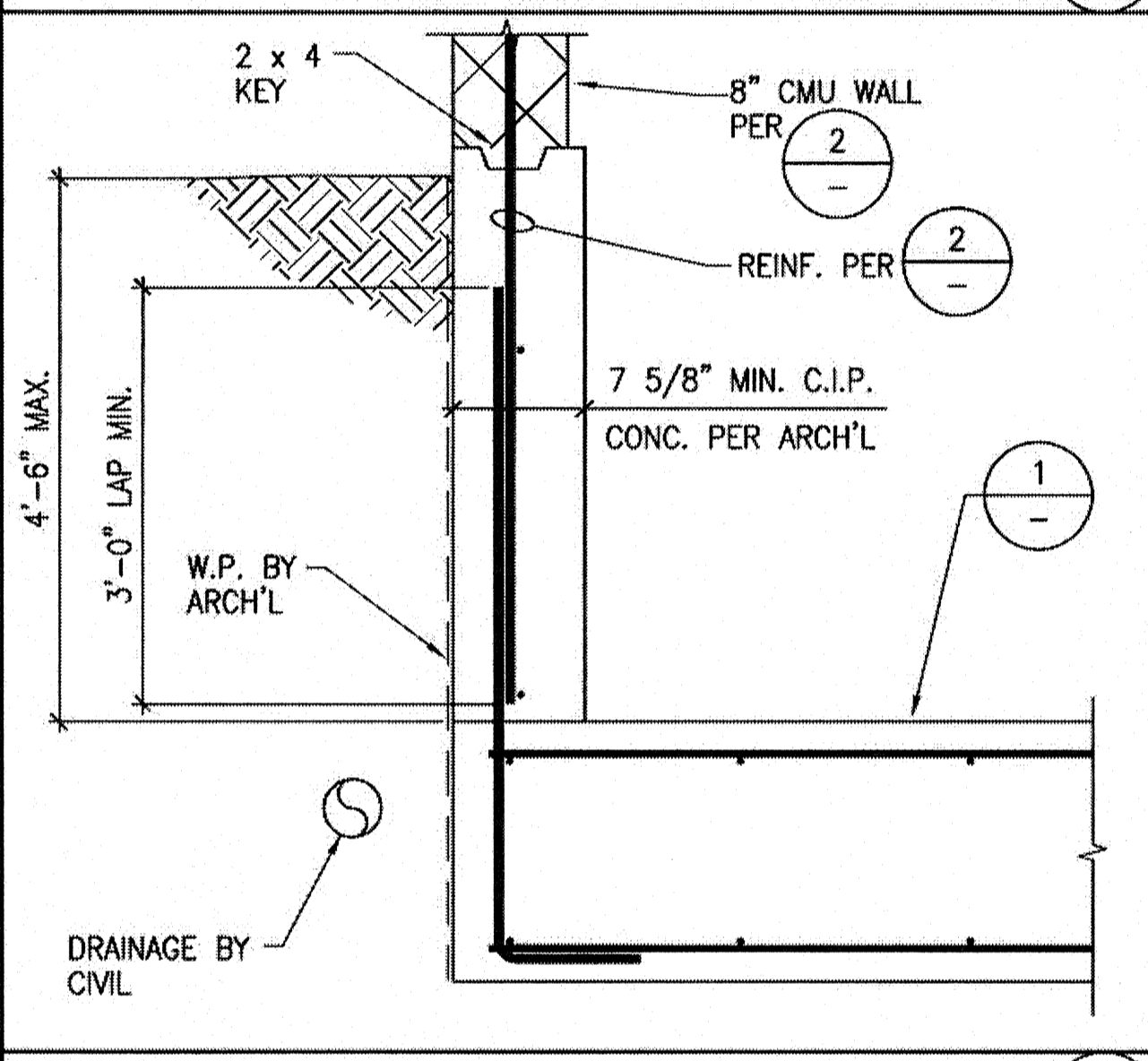
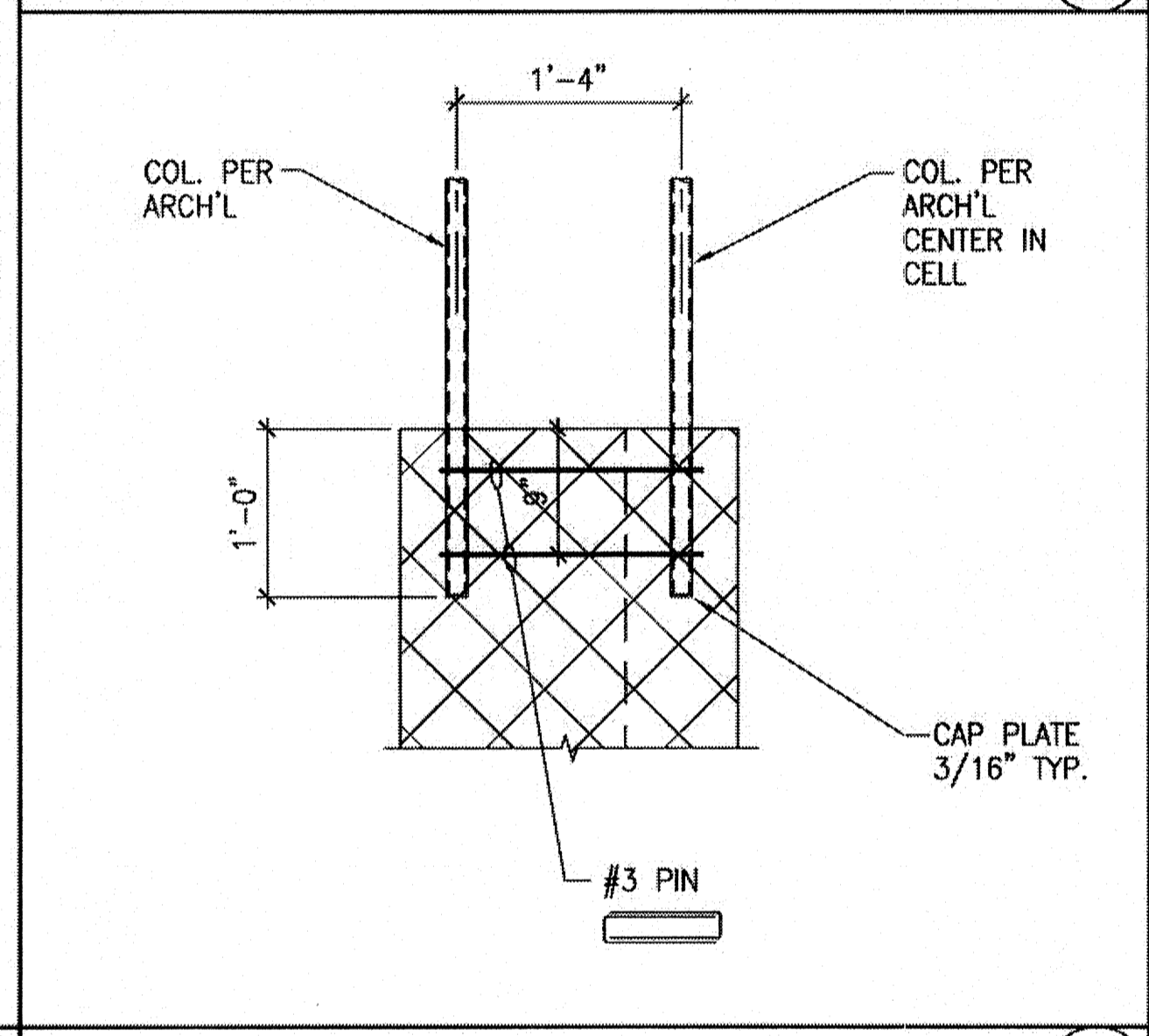
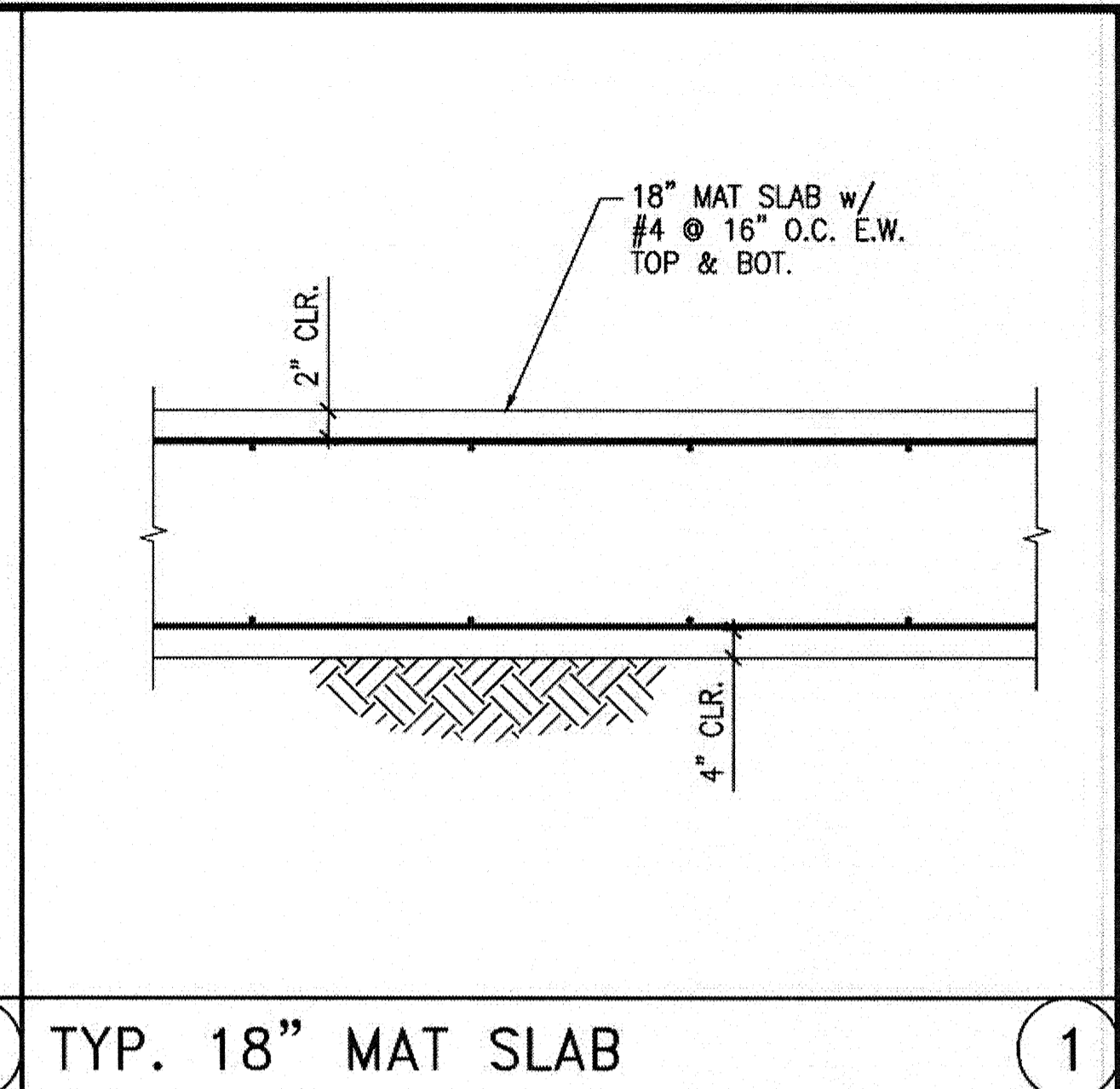
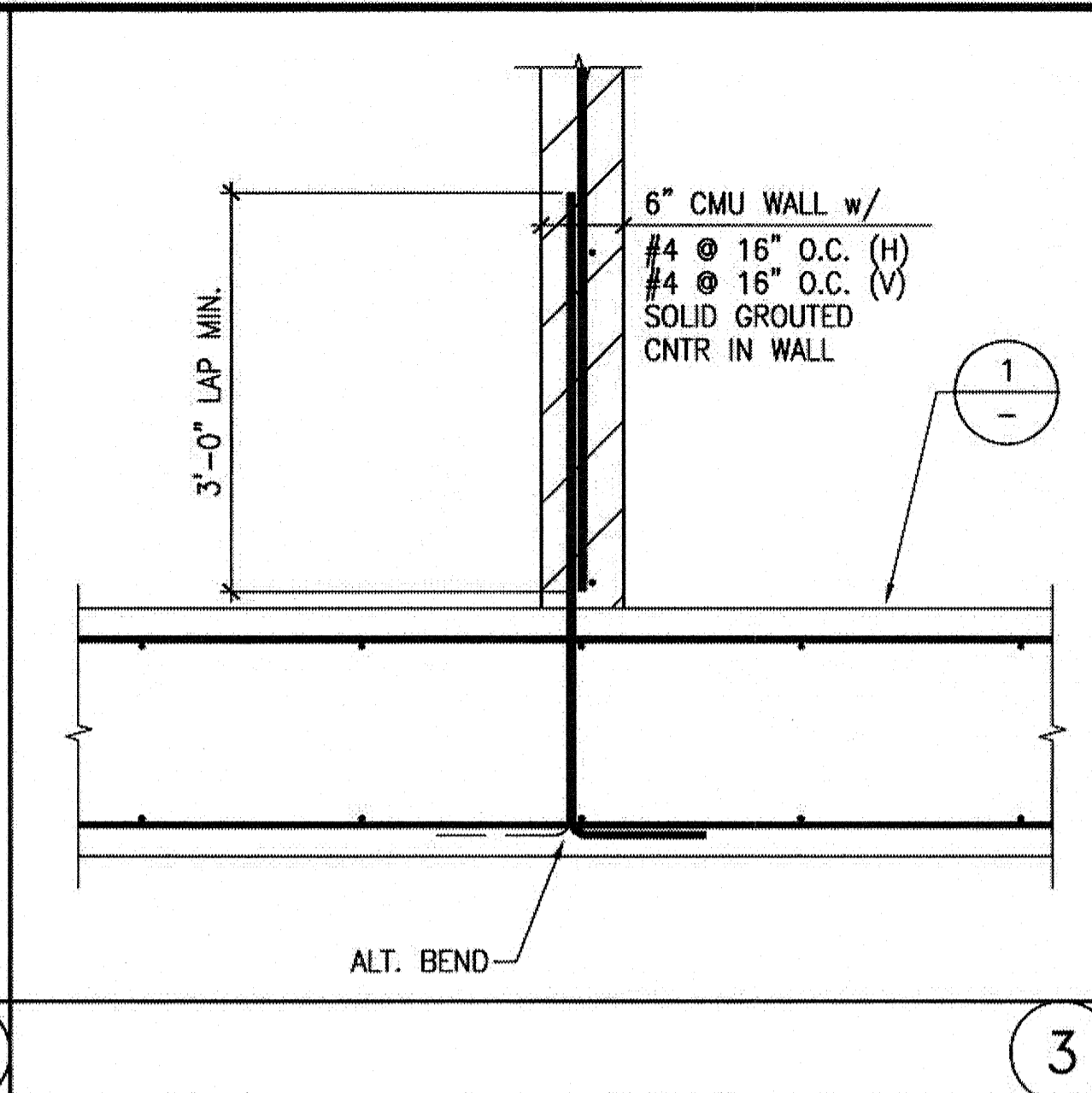
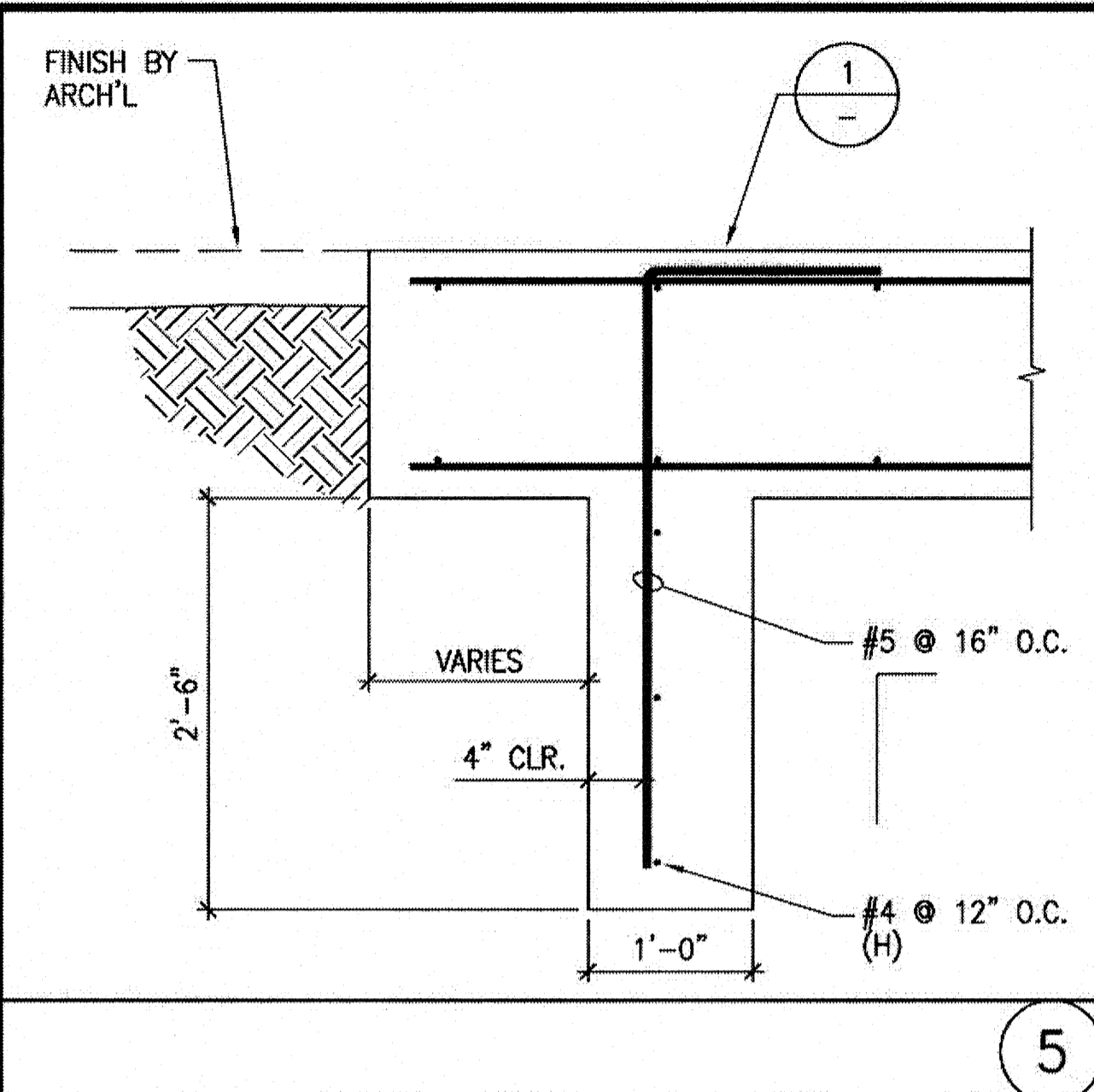
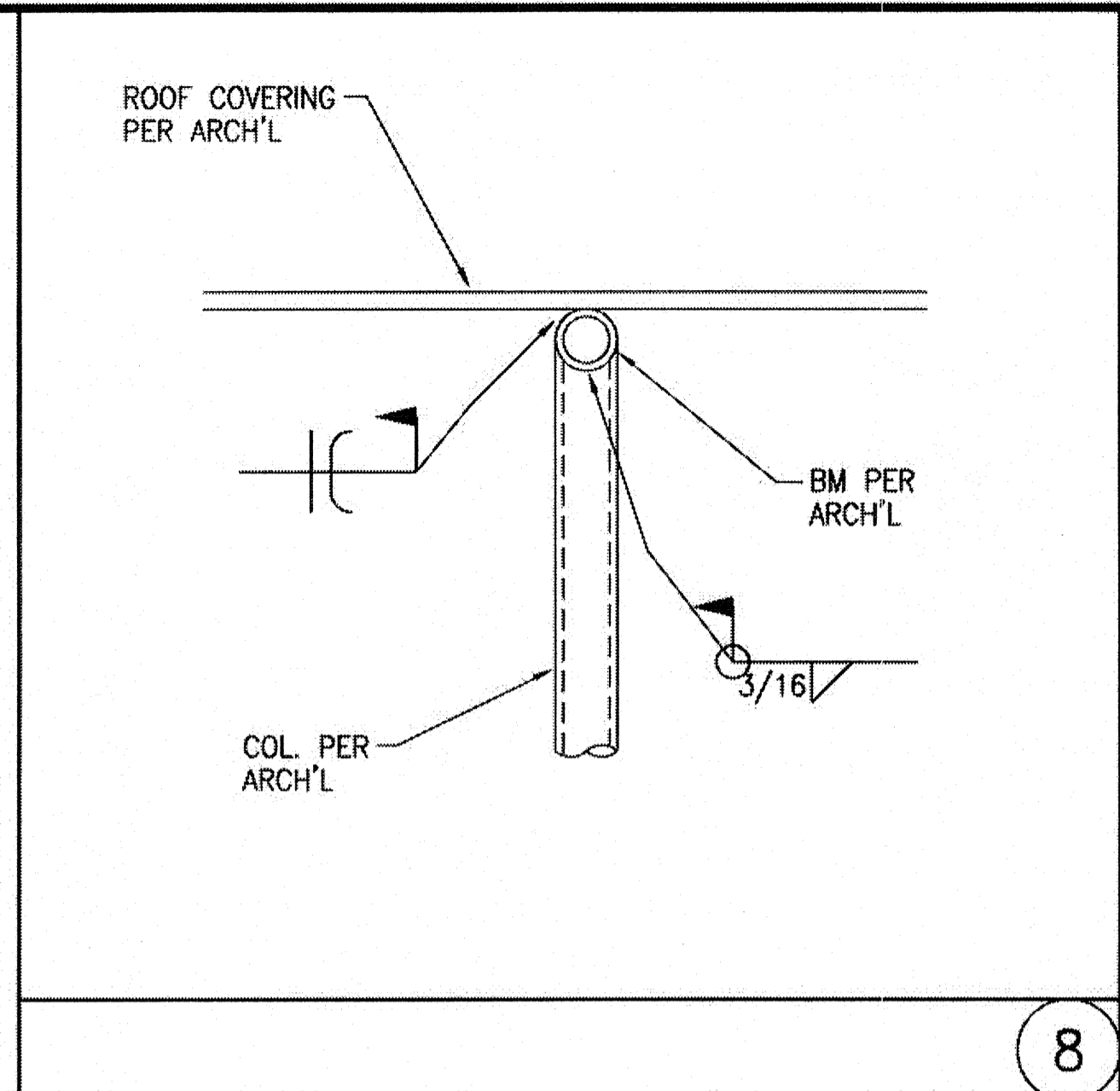
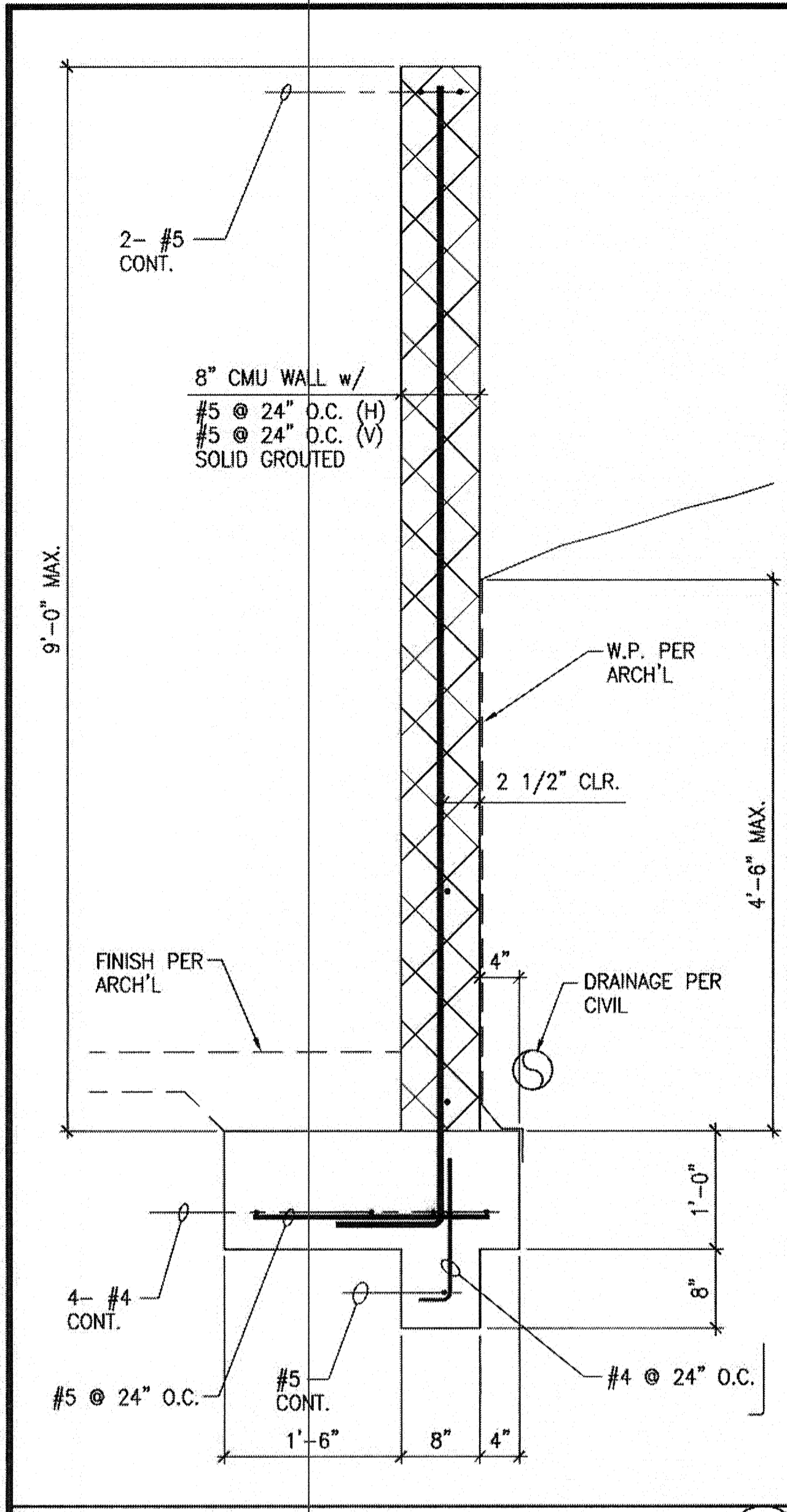


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APPROVED BY: FOR CITY ENGINEER
CHECKED BY: CONSTRUCTION ENGINEER
INSPECTOR

DESCRIPTION	BY	APPROVED	DATE	FILMED
FINAL	MJA		08-02-12	

PALISADES PARK COMFORT STATION



CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT
ORION
 Structural Engineering, Inc.
 12257 OLD POMERADO ROAD, SUITE A
 POWAY, CA 92064
 PHONE (619) 679-1974
 FAX (619) 679-1975

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

WARNING: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

APPROVED BY: FOR CITY ENGINEER, CHECKED BY: CONSTRUCTION ENGINEER, INSPECTOR

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

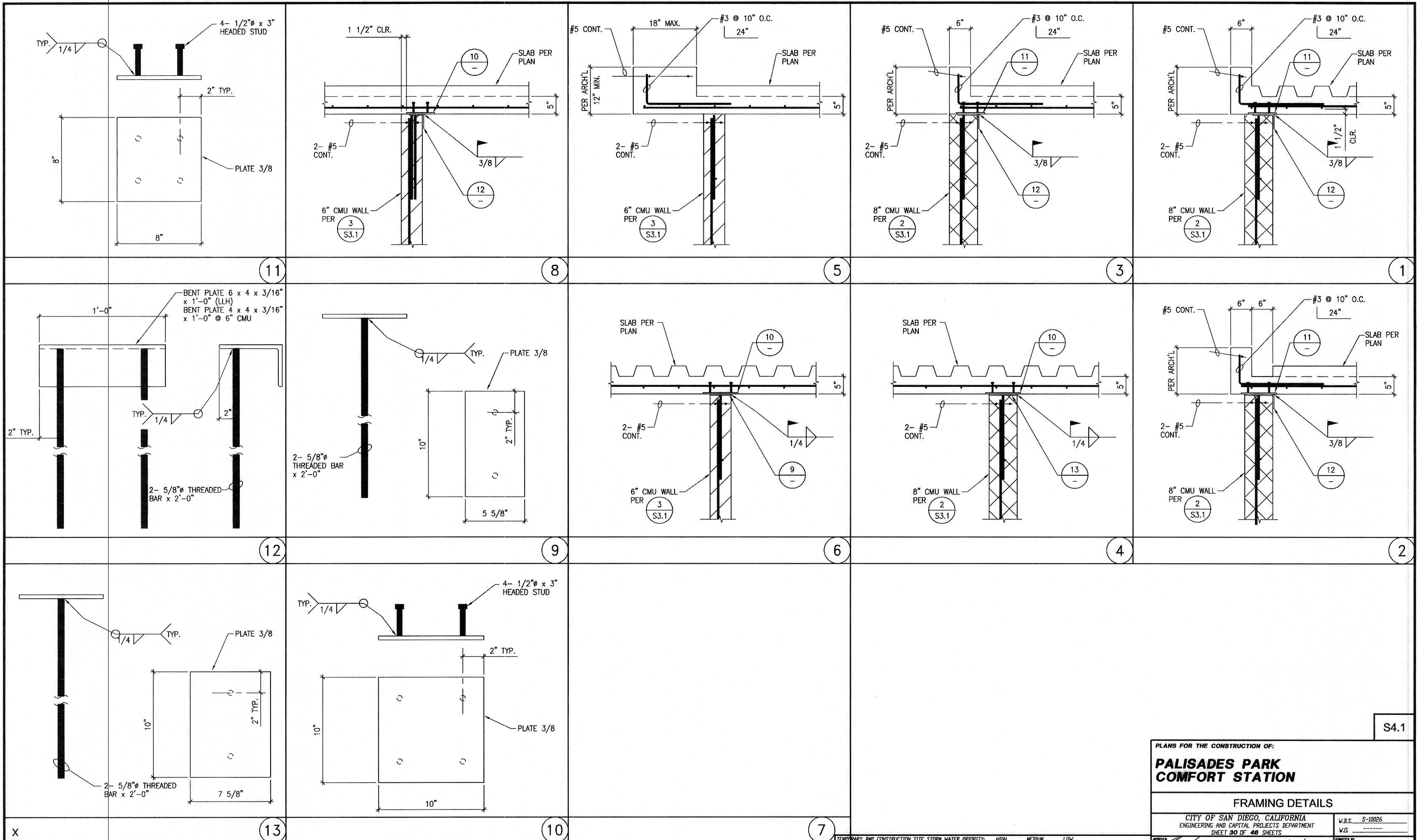
FOUNDATION DETAILS

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 29 OF 46 SHEETS

DESCRIPTION	BY	APPROVED	DATE	FILED
FINAL	MJA		08-02-12	

CONTRACTOR: 36598-29-D

PALISADES PARK COMFORT STATION



S4.1

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

FRAMING DETAILS

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 30 OF 48 SHEETS

APPROVED BY:	FOR CITY ENGINEER	DATE:	6/18/13
CHECKED BY:	FOR CITY ENGINEER	DATE:	08-02-12
CHECKED BY:	CONSTRUCTION ENGINEER	DATE:	
CHECKED BY:	INSPECTOR	DATE:	
AS-BUILTS	CONTRACTOR	DATE STARTED:	
INSPECTOR	INSPECTOR	DATE COMPLETED:	

36598-30-D

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

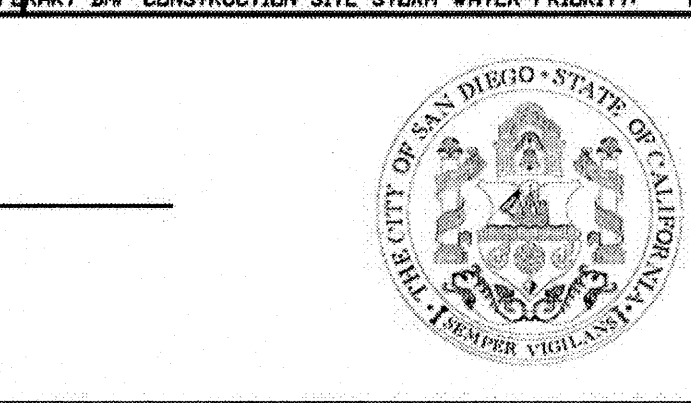
CONSULTANT

ORION
 Structural Engineering, Inc.
 12257 OLD POMERADO ROAD, SUITE A
 POWAY, CA 92064
 PHONE (619) 679-1974
 FAX (619) 679-1975

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

REGISTERED PROFESSIONAL ENGINEER
FRAN J. OBER
 No. S 4497
 Exp. 12/31/12
 STRUCTURAL
 STATE OF CALIFORNIA

CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT



TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW

WARNING
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PALISADES PARK COMFORT STATION

FIXTURE SCHEDULE

ITEM NO.	DESCRIPTION	MINIMUM ROUGH-IN SIZE						REMARKS
		WASTE	TRAP	VENT	CW	HW	OTHER	
WC 1	WATER CLOSET	4"	INTEGRAL	2"	1"	---	---	ACORN "OR APPROVED EQUAL", 2100-W-1-CN, ADA, "DURA-WARE" BLOWOUT JET, 16 GAUGE, 1-1/2" (40 mm) FLUSH VALVE CONNECTION, TYPE 304 STAINLESS STEEL, SEAMLESS WELDED CONSTRUCTION, SATIN FINISH, CONCEALED FLUSH VALVE, THRU WALL CONNECTION, ELONGATED BOWL, SELF-DRAINING FLUSHING RIM, 1.6 GPF (6 LPF) FLUSH. J R SMITH "OR APPROVED EQUAL", 0230Y-M58-M54 MOUNTING CARRIER.
WC 2	WATER CLOSET	4"	INTEGRAL	2"	1"	---	---	ACORN "OR APPROVED EQUAL", 2100-W-1-CN, "DURA-WARE" BLOWOUT JET, 16 GAUGE, 1-1/2" (40 mm) FLUSH VALVE CONNECTION, TYPE 304 STAINLESS STEEL, SEAMLESS WELDED CONSTRUCTION, SATIN FINISH, CONCEALED FLUSH VALVE, THRU WALL CONNECTION, ELONGATED BOWL, SELF-DRAINING FLUSHING RIM, 1.6 GPF (6 LPF) FLUSH, J R SMITH "OR APPROVED EQUAL", 0230Y-M58-M54 MOUNTING CARRIER.
L 1	LAVATORY	1 1/2"	1-1/2"	1-1/2"	1/2"	---	---	ACORN "OR APPROVED EQUAL", 3701-1-PDM, "MERIDIAN" TYPE 304 STAINLESS STEEL WITH SATIN FINISH, MOUNT AT 34" (864 mm) RIM HEIGHT ABOVE FINISHED FLOOR, SELF-RIMMING ROUND BASIN, PUSH BUTTON METERING VALVE, 1-1/2" (40 mm) P-TRAP AND METERING LIQUID SOAP DISPENSER.
WHA 1	WATER HAMMER ARRESTOR	---	---	---	1/2"	---	---	ZURN "OR APPROVED EQUAL", Z-1700 SHOKTROLS # 100, NESTING TYPE BELLOWS CONTAINED WITHIN CASING ENOUGH TO DISSIPATE THE KINETIC ENERGY IN THE PIPE SYSTEM, CASING AND BELLOWS CONSTRUCTED OF TYPE 304 STAINLESS STEEL.
DF 1	DRINKING FOUNTAIN	2"	1-1/2"	1-1/2"	1/2"	---	---	HAWS 3500D "OR APPROVED EQUAL", HI-LOW BARRIER FREE VANDAL RESISTANT, PEDESTAL MOUNT WITH ATTACHED PET FOUNTAIN, 100% LEAD FREE, PUSH BUTTON STAINLESS STEEL VALVE.
HB 1	HOSE BIBB	---	---	---	1/2"	---	---	JAY. R SMITH 5509QT, OAE.1/4" TURN-WALL HYDRANT W/ INTERNAL VACUUM BREAKER & STAINLESS STEEL BOX, "T" HANDLE KEY ACCESS WITH VANDAL RESISTANT COVER.
ED 1	FLOOR DRAIN	2"	---	1-1/2"	---	---	---	ZURN "OR APPROVED EQUAL", Z-525-VP ADJUSTABLE DIAMETER MEDIUM DUTY DRAIN, DURA COATED CAST IRON BODY WITH BOTTOM OUTLET AND VANDAL PROOF SECURED TOP.
TP 1	TRAP PRIMER	---	---	---	1/2"	---	---	ZURN "OR APPROVED EQUAL", 1022-DU2, AUTOMATIC TRAP PRIMER, INSTALL 6" (152 mm) ABOVE FLOOR DRAIN GRID, CONNECT TO COLD WATER SUPPLY PIPE. 2 OUTLET DISTRIBUTION
SI 1	SAND INTERCEPTOR	4"	---	2"	---	---	---	JENSEN PRECAST "OR APPROVED EQUAL", 24" X 36" DROP INLET WITH SC2436-T TRAFFIC STEEL COVER. PROVIDE PB2436-T6F, 6" TOP SECTION.
CCO 1	GRADE CLEAN OUT	---	---	---	---	---	---	ZURN "OR APPROVED EQUAL", Z1400-HD-T DURA-COATED CAST IRON BODY WITH GAS AND WATERTIGHT ABS TAPERED THREAD PLUG, WITH HEAVY DUTY SQUARE TOP.

FRICITION LOSS CALCULATION

75 PSI in Site Main
 35 PSI Set at Pressure Regulator Station
 25 PSI Required at Most Distant Fixture From Regulator
 10 FT to Highest Fixture Above Pressure Regulator
 50 FT to Most Distant Fixture From Pressure Regulator

$35 - [25 + (10 \times .43)] = 5.7$
 $100 \times 5.7 / 50 = 11.4$
 12 PSI per 100 Ft. P.D.
 Use 12 PSI/100 Ft. Friction Loss

BUILDING SERVICE CONNECTION

SERVICE	FU	GPM	SIZE	CAPACITY
WATER SUPPLY	111	80	2"	135 GPM
SANITARY SEWER	23.5	---	4"	216 FU

MATERIAL LIST

- SANITARY SOIL, WASTE AND VENT SYSTEMS: SERVICE WEIGHT NO-HUB CAST IRON PIPE AND FITTINGS W/STAINLESS STEEL COUPLINGS. ABS PIPE AND FITTINGS MAY BE USED BELOW SLAB AND BELOW GRADE.
- WATER PIPING ABOVE SLAB: TYPE "L" HARD DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS. USE 95/5 SOLDER.
- WATER PIPING ABOVE SLAB: TYPE "K" SOFT DRAWN COPPER. NO JOINTS ARE ALLOWED BELOW SLAB.

PIPE SIZING CHART

SIZE INCH	GPM	FIXTURE UNITS		VELOCITY FPS
		FLUSH TANK	FLUSH VALVE	
1/2	4	5	0	4
3/4	7	9	2	5
1	14	20	3	5
1 1/4	28	47	11	6
1 1/2	43	95	33	7
2	80	280	150	8
2 1/2	135	555	452	9

ABBREVIATION/SYMBOLS

SYMBOL	ABBREV.	DESCRIPTION
---	CW	DOMESTIC COLD WATER
---	HW	DOMESTIC HOT WATER
---	RHW	RHW - RECIRCULATING HOT WATER
---	SS	SANITARY SEWER
---	V	SANITARY VENT
---	FCO	FLOOR CLEAN-OUT
---	WCO	WALL CLEAN-OUT
---	FD	FLOOR DRAIN
---		CAP
---		DROP
---		RISE
---		VALVE IN RISE
---		BALL VALVE
---		UNION
---		BUTTERFLY VALVE
---		GATE VALVE
---		CHECK VALVE
---	WC	WATER CLOSET
---	LAV	LAVATORY
---	UR	URINAL
---	SS	SERVICE SINK
---	SOV	SHUT OFF VALVE
---	COG	CLEAN-OUT TO GRADE
---	WH	WATER HEATER
---	WHA	WATER HAMMER ARRESTOR
---	(E)	EXISTING
---	VTR	VENT THRU ROOF
---	TP	TRAP PRIMER
---	B/F	BELOW FLOOR
---	B/G	BELOW GRADE
---	OAE	OR APPROVED EQUAL
---	DF	DRINKING FOUNTAIN
---	CPC	CALIFORNIA PLUMBING CODE

GENERAL NOTES

- NO PLUMBING SHALL BE INSTALLED UNTIL ALL REQUIRED PLUMBING PLAN CHECK PERMITS AND APPROVALS HAVE BEEN OBTAINED FROM ALL REQUIRED AGENCIES.
- CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF PLUMBING FIXTURES AND ACCESSIBILITY REQUIREMENTS.
- CONTRACTOR SHALL FURNISH AND INSTALL MANUFACTURED WATER HAMMER ARRESTORS AT QUICK CLOSING VALVES, OUTLETS AND DEVICES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF WALLS AND FLOORS. INCLUDING ALL SAW CUTTING AND CORE DRILLING.
- COORDINATE INSTALLATION OF ALL EQUIPMENT AND PIPING WITH OTHER TRADES PRIOR TO INSTALLATION. ENSURE THAT ALL CONTROL DEVICES, SHUTOFF VALVES, ETC. ARE ACCESSIBLE FOR MAINTENANCE. WHERE ACCESS PANELS IN FINISHED SPACES, OTHER THAN THAT SHOWN. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF PANELS WITH ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL COORDINATE AND VERIFY SIZES, LOCATIONS, DEPTHS AND PRESSURIZED PIPING PRESSURES OF ALL BUILDING UTILITIES PRIOR TO EXCAVATION.
- ALL LINES BELOW SLAB ON GRADE TO BE LOCATED AWAY FROM ALL LOAD BEARING FOOTINGS.
- ALL PIPES AND CONDUITS SHALL BE SUPPORTED AND BRACED PER SMACNA GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS. ALL PLUMBING EQUIPMENT SHALL COMPLY WITH TITLE 24 REQUIREMENTS.
- DRAIN AND WASTE PIPES SHALL SLOPE PER CALIFORNIA PLUMBING CODE.
- FAUCETS TO BE SELF CLOSING.
- WATER CLOSETS TO BE ULTRA LOW FLUSH TYPE.
- INSULATION MATERIAL SHALL MEET THE CALIFORNIA QUALITY STANDARDS PER SECTION 118 ENERGY EFFICIENCY STANDARDS (E.E.S.)
- FAUCETS TO BE 2.2 GPM MAX.

P1.0

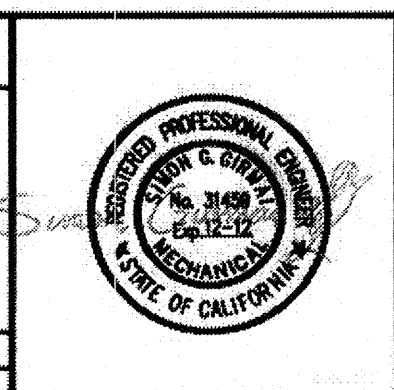
PLANS FOR THE CONSTRUCTION OF:			
PALISADES PARK COMFORT STATION			
SCHEDULES, ABBREVIATION/ SYMBOLS AND GENERAL NOTES			
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 31 OF 46 SHEETS			W.B.S. S-10026 W.O. _____
APPROVED FOR CITY ENGINEER	DATE	DATE	SECTION HEAD
100%	MOA	08/02/12	PROJECT MANAGER
AS-BUILTS			CCS27 COORDINATE
CONTRACTOR INSPECTOR	DATE STARTED	DATE COMPLETED	CCS83 COORDINATE
			36598-31-D

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

Teza Design
 Consulting & Mechanical Engineering
 2214 Street View 101, San Diego, CA 92111
 Phone: 619.591.6611 Fax: 619.200.2752

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT

WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION

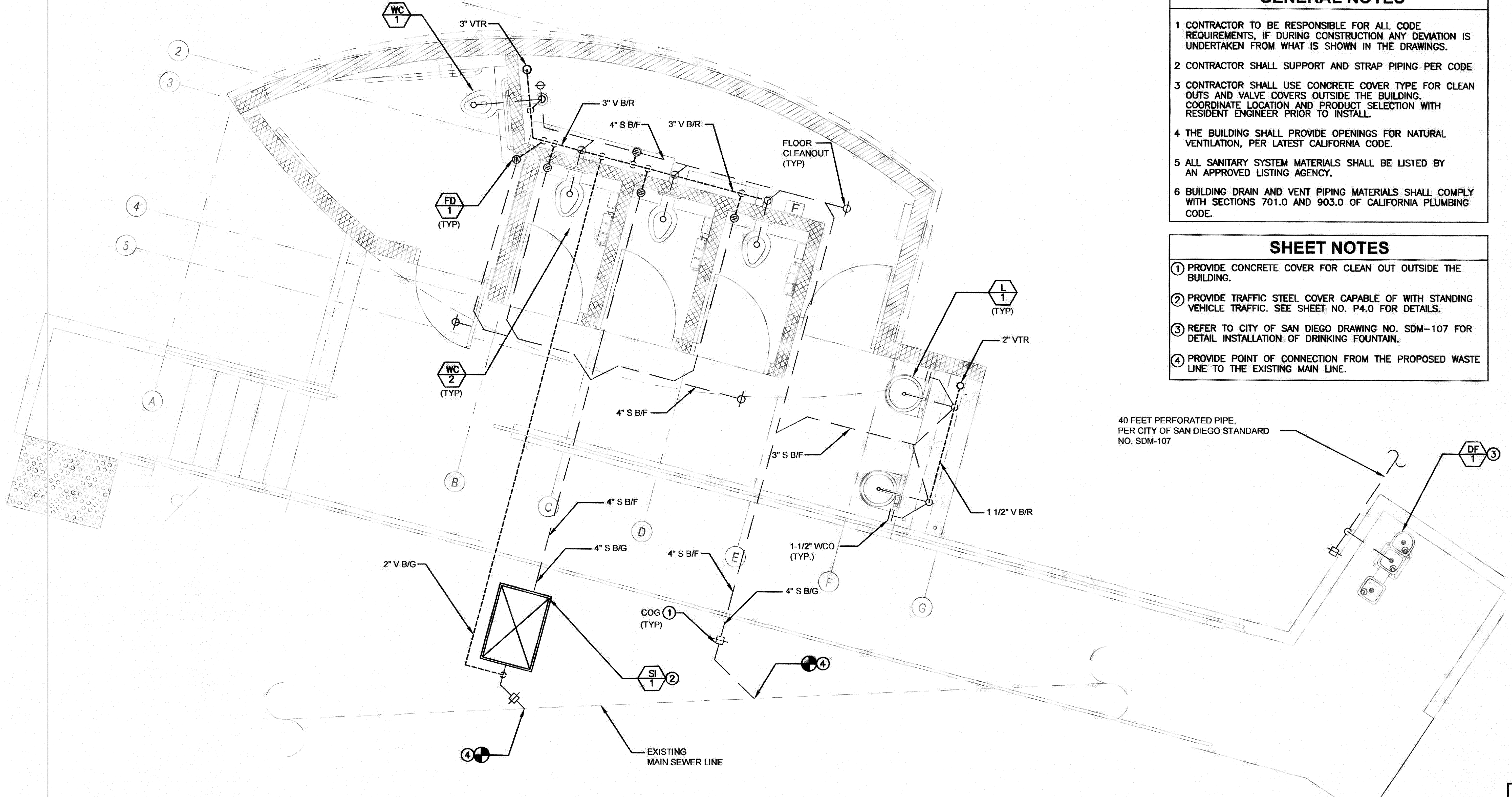
GENERAL NOTES

- 1 CONTRACTOR TO BE RESPONSIBLE FOR ALL CODE REQUIREMENTS, IF DURING CONSTRUCTION ANY DEVIATION IS UNDERTAKEN FROM WHAT IS SHOWN IN THE DRAWINGS.
- 2 CONTRACTOR SHALL SUPPORT AND STRAP PIPING PER CODE
- 3 CONTRACTOR SHALL USE CONCRETE COVER TYPE FOR CLEAN OUTS AND VALVE COVERS OUTSIDE THE BUILDING. COORDINATE LOCATION AND PRODUCT SELECTION WITH RESIDENT ENGINEER PRIOR TO INSTALL.
- 4 THE BUILDING SHALL PROVIDE OPENINGS FOR NATURAL VENTILATION, PER LATEST CALIFORNIA CODE.
- 5 ALL SANITARY SYSTEM MATERIALS SHALL BE LISTED BY AN APPROVED LISTING AGENCY.
- 6 BUILDING DRAIN AND VENT PIPING MATERIALS SHALL COMPLY WITH SECTIONS 701.0 AND 903.0 OF CALIFORNIA PLUMBING CODE.

SHEET NOTES

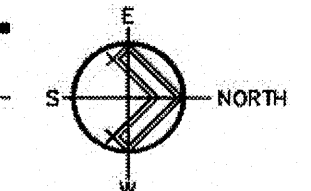
- ① PROVIDE CONCRETE COVER FOR CLEAN OUT OUTSIDE THE BUILDING.
- ② PROVIDE TRAFFIC STEEL COVER CAPABLE OF WITH STANDING VEHICLE TRAFFIC. SEE SHEET NO. P4.0 FOR DETAILS.
- ③ REFER TO CITY OF SAN DIEGO DRAWING NO. SDM-107 FOR DETAIL INSTALLATION OF DRINKING FOUNTAIN.
- ④ PROVIDE POINT OF CONNECTION FROM THE PROPOSED WASTE LINE TO THE EXISTING MAIN LINE.

40 FEET PERFORATED PIPE,
PER CITY OF SAN DIEGO STANDARD
NO. SDM-107



PLUMBING SITE PLAN WASTE AND VENT

SCALE: 1/2" = 1'-0"



P2.0

PLANS FOR THE CONSTRUCTION OF:			
PALISADES PARK COMFORT STATION			
PLUMBING SITE PLAN - WASTE AND VENT			
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 32 OF 46 SHEETS		W.B.S. S-10026	W.O. _____
APPROVED FOR CITY ENGINEER	DATE 4/11/13	SECTION HEAD	PROJECT MANAGER
DESCRIPTION	BY	APPROVED	DATE
100%	MOA		08/02/12
AS-BUILTS			
CONTRACTOR		DATE STARTED	DATE COMPLETED
			36598-32-D

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

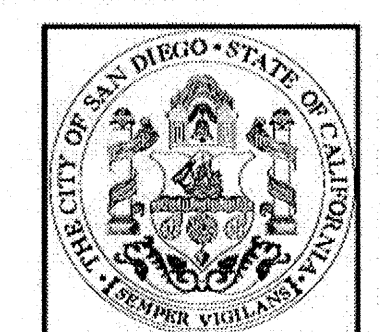
EZA Teza Design
Consulting for Environmental Engineering

218 A Street, Suite 101, San Diego, CA 92101
Phone: (619) 591-6646 Fax: (619) 591-2729

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

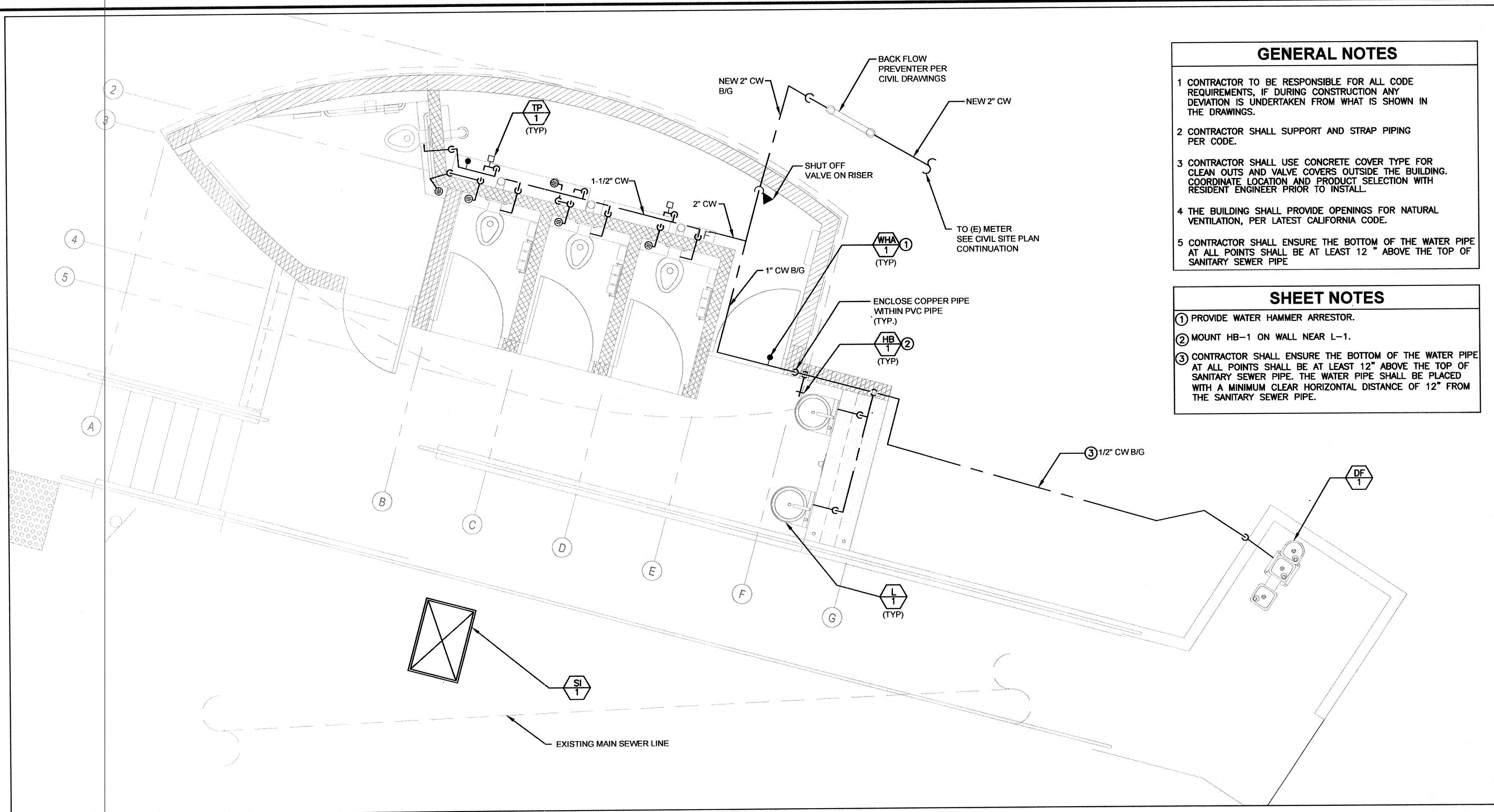


**CITY OF SAN DIEGO
PUBLIC WORKS PROJECT**



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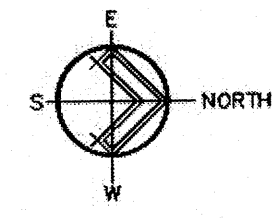
PALISADES PARK COMFORT STATION



- ### GENERAL NOTES
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 - 3 CONTRACTOR SHALL USE CONCRETE COVER TYPE FOR CLEAN OUTS AND VALVE COVERS OUTSIDE THE BUILDING. COORDINATE LOCATION AND PRODUCT SELECTION WITH RESIDENT ENGINEER PRIOR TO INSTALL.
 - 4 THE BUILDING SHALL PROVIDE OPENINGS FOR NATURAL VENTILATION, PER LATEST CALIFORNIA CODE.
 - 5 CONTRACTOR SHALL ENSURE THE BOTTOM OF THE WATER PIPE AT ALL POINTS SHALL BE AT LEAST 12" ABOVE THE TOP OF SANITARY SEWER PIPE

- ### SHEET NOTES
- ① PROVIDE WATER HAMMER ARRESTOR.
 - ② MOUNT HB-1 ON WALL NEAR L-1.
 - ③ CONTRACTOR SHALL ENSURE THE BOTTOM OF THE WATER PIPE AT ALL POINTS SHALL BE AT LEAST 12" ABOVE THE TOP OF SANITARY SEWER PIPE. THE WATER PIPE SHALL BE PLACED WITH A MINIMUM CLEAR HORIZONTAL DISTANCE OF 12" FROM THE SANITARY SEWER PIPE.

PLUMBING SITE PLAN COLD WATER
SCALE: 1/2" = 1'-0"



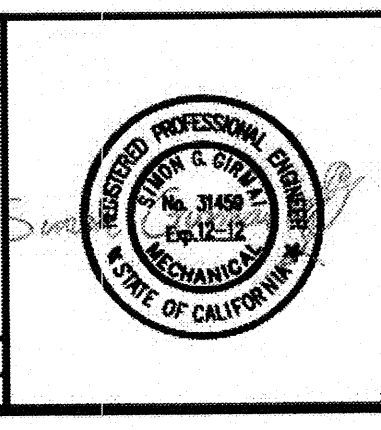
P3.0

CONSTRUCTION CHANGE / ADDENDUM		APPROVAL NO.
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS


CONSULTANT

Teza Design
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Phone: 619 594 8819 Fax: 619 594 7700

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

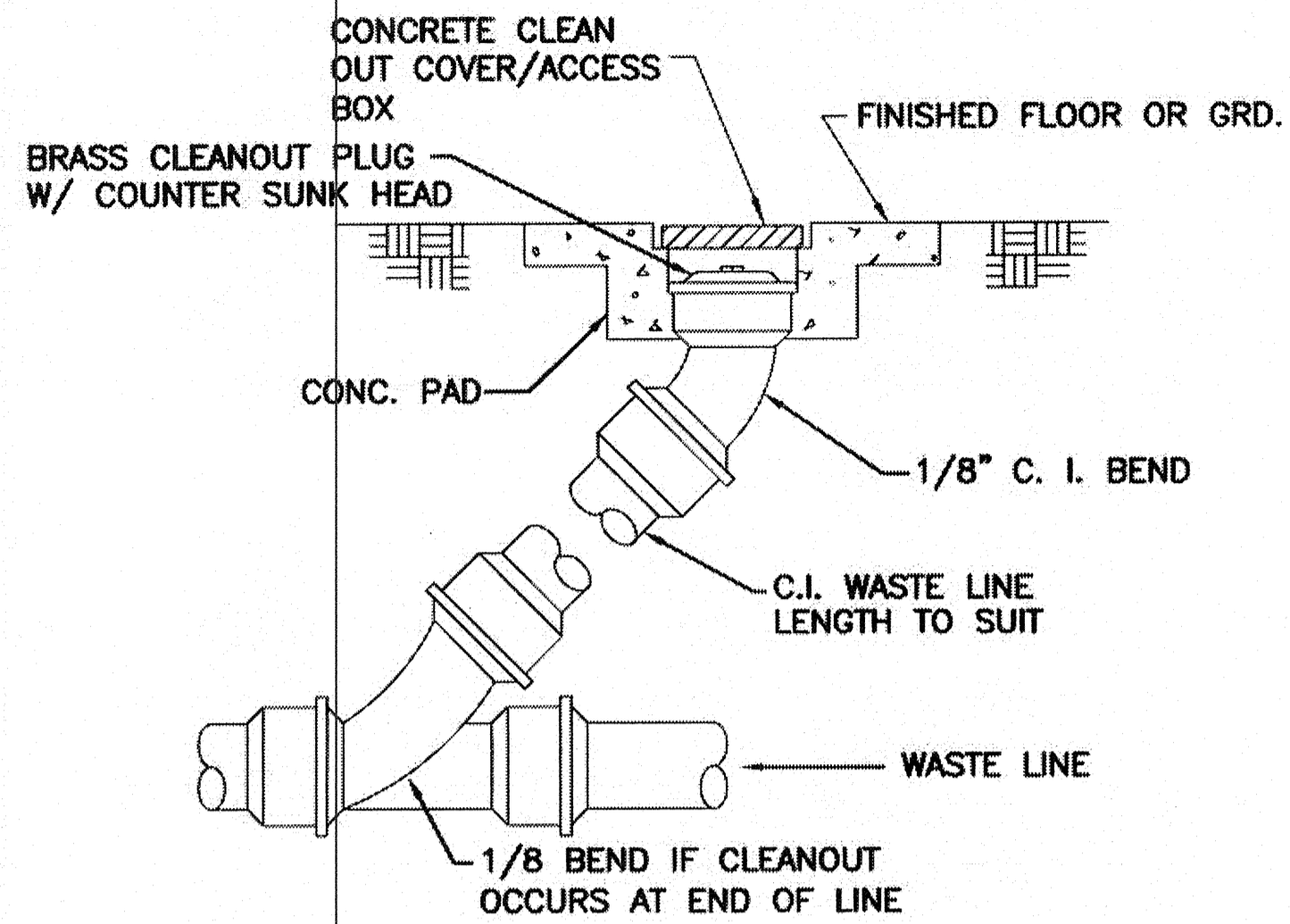


WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

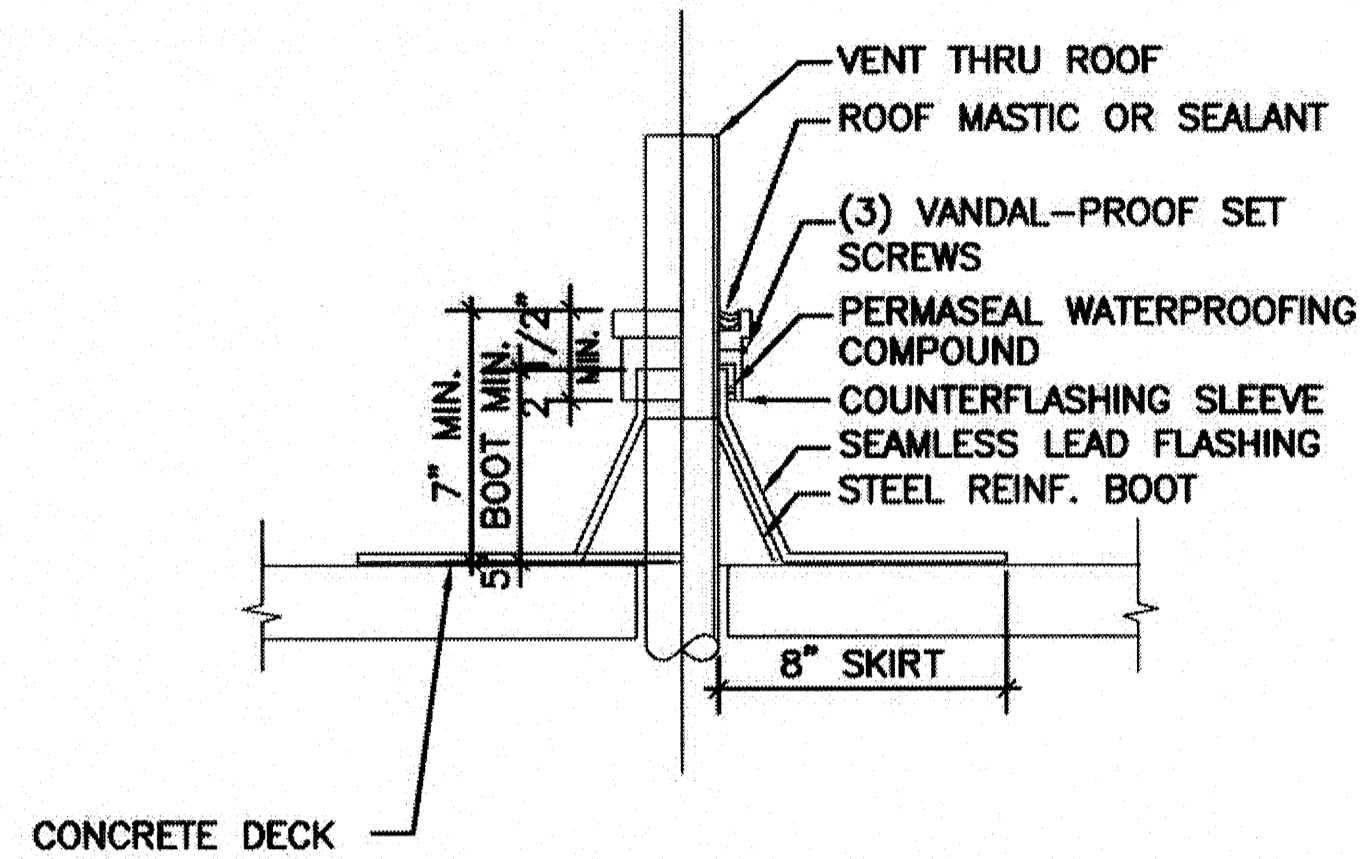
PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

PLUMBING SITE PLAN				W.B.S. S-10026
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 33 OF 48 SHEETS				W.O. _____
APPROVED FOR CITY ENGINEER	DATE	6/18/15	SECTION HEAD	_____
100% MOA	APPROVED	DATE	FILMED	PROJECT MANAGER
		08/02/12		CCS27 COORDINATE
				CCS83 COORDINATE
AS-BUILTS	CONTRACTOR	DATE STARTED	INSPECTOR	DATE COMPLETED
				36598-33-D

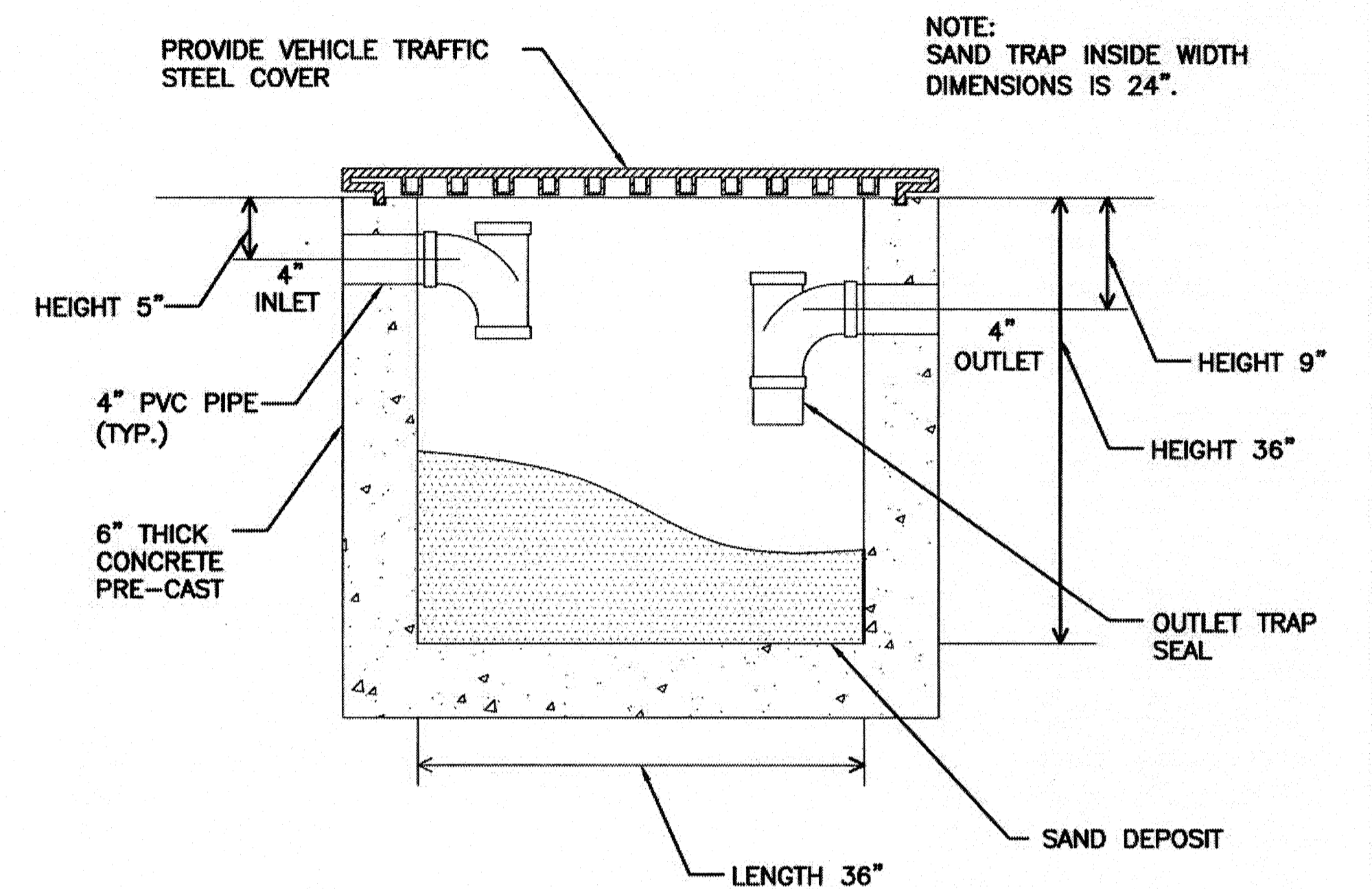
PALISADES PARK COMFORT STATION



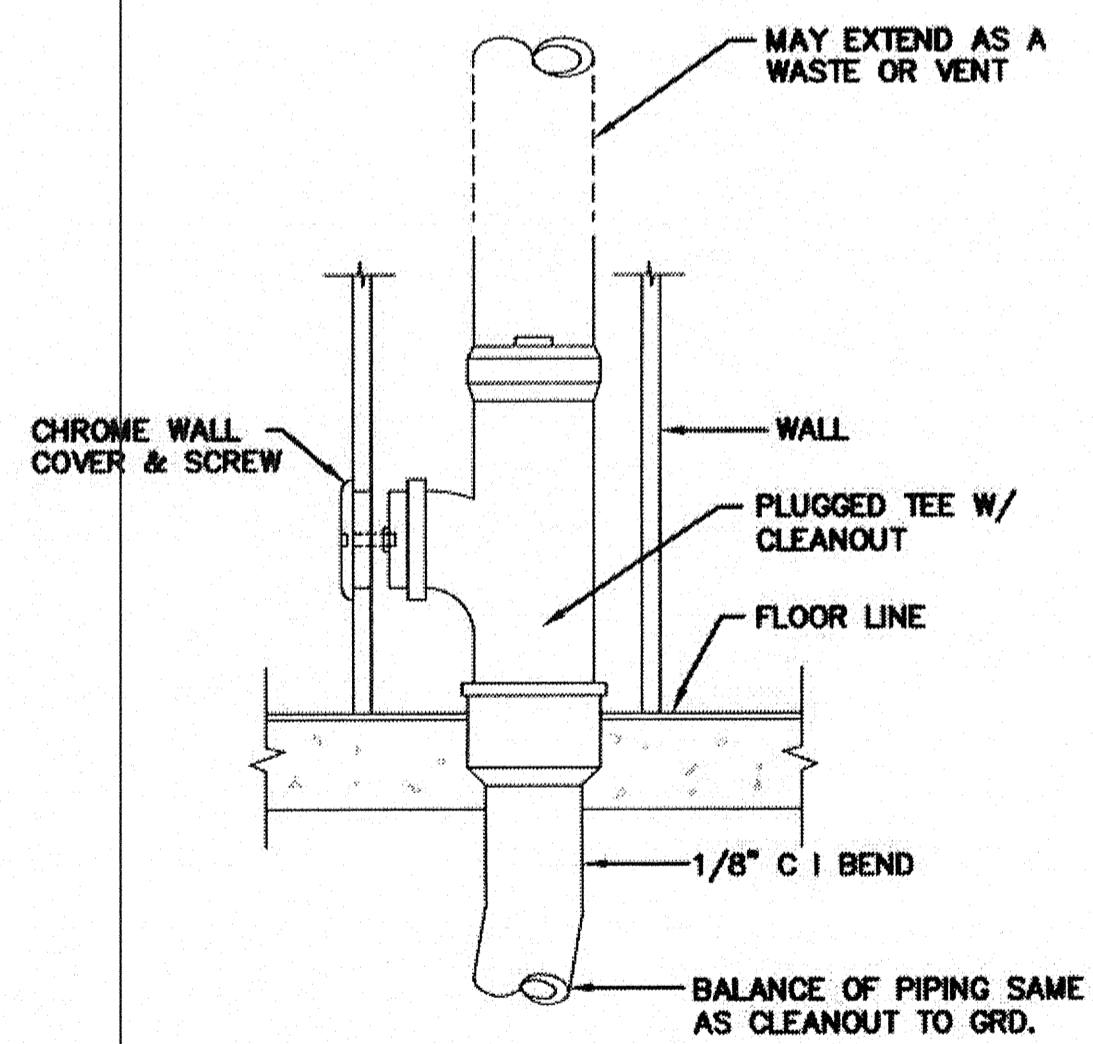
A GRADE CLEANOUT/ CLEANOUT DETAIL
NOT TO SCALE



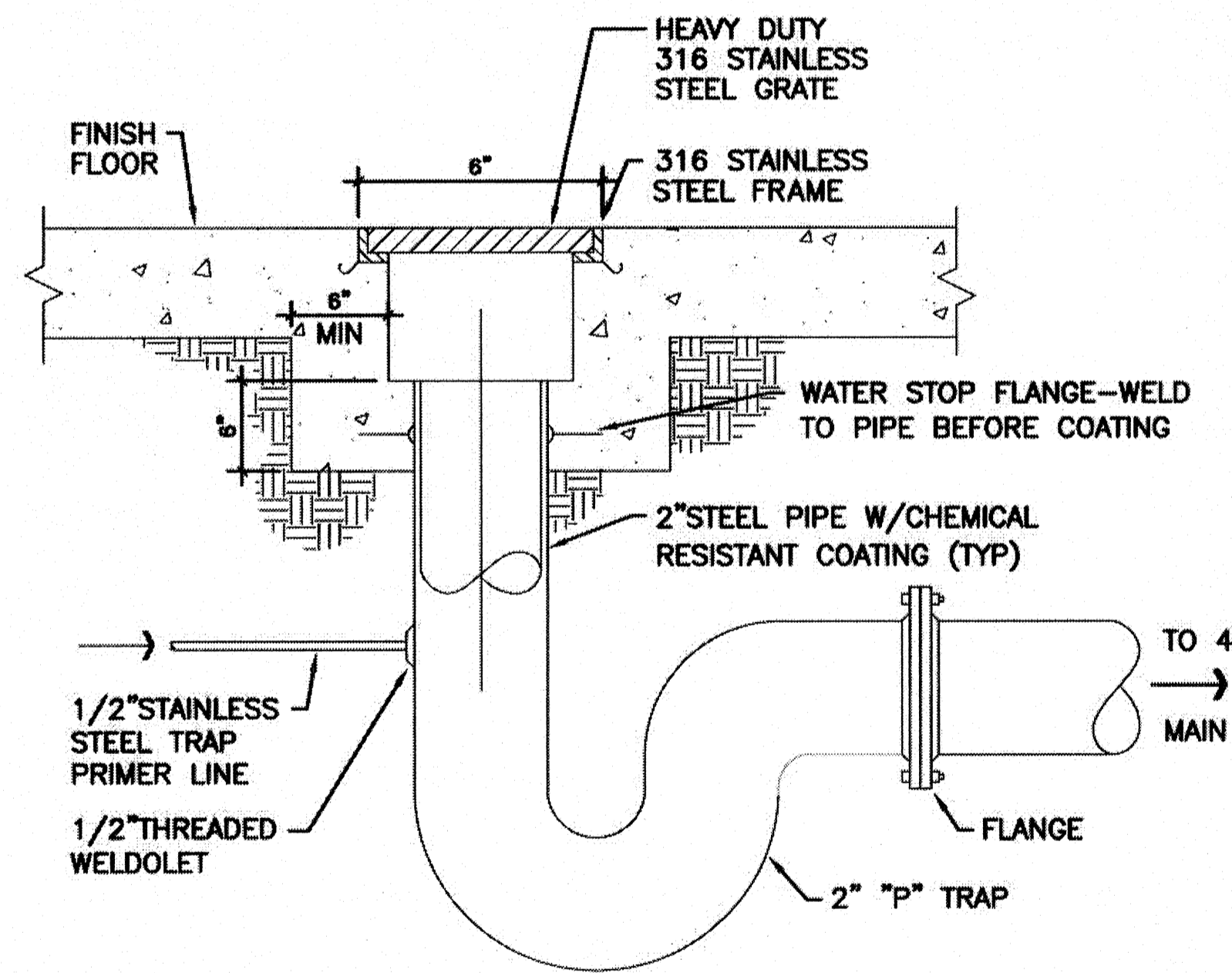
B VENT THRU ROOF
NOT TO SCALE



C SAND INTERCEPTOR
NOT TO SCALE



D WALL CLEANOUT DETAIL
NOT TO SCALE



NOTE:
CONTRACTOR SHALL GET MANUFACTURERS DATA ON GRATE AND FRAME DIMENSIONS BEFORE FORMING FOR FLOOR DRAIN

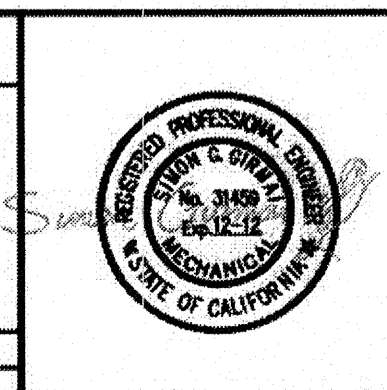
E FLOOR DRAIN DETAIL
NOT TO SCALE

P4.0

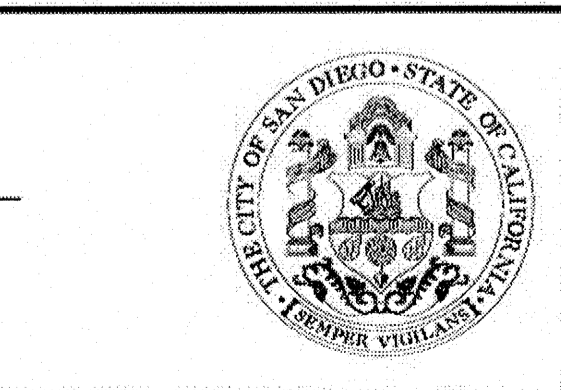
PLANS FOR THE CONSTRUCTION OF:					
PALISADES PARK COMFORT STATION					
PLUMBING DETAILS					
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 34 OF 48 SHEETS				W.B.S. 5-10026	
APPROVED: <i>[Signature]</i> 6/18/13				DATE	SECTION HEAD
FOR CITY ENGINEER	BY	APPROVED	DATE	FILMED	PROJECT MANAGER
100%	MOA		08/02/12		CCS27 COORDINATE
AS-BUILTS				DATE STARTED	CCS83 COORDINATE
CONTRACTOR INSPECTOR				DATE COMPLETED	36598-34-D

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT	
 <small>200 A Street, Suite 1001 San Diego, CA 92101 Phone: 619-594-6100 Fax: 619-594-2720</small>	
SCALE	HORIZONTAL VERTICAL
	NO SCALE NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING	1
0	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	

PALISADES PARK COMFORT STATION

SYMBOL LIST

- EX — EXISTING CONDUIT TO REMAIN.
- R — EXISTING CONDUIT TO BE REMOVED IF IN AN ACCESSIBLE AREA OR TO BE ABANDONED IF IN AN INACCESSIBLE AREA.
- (A) FIXTURE TYPE AND WATTAGE PER FIXTURE LIST. TYPICAL FOR ROOM INDICATED UNLESS OTHERWISE NOTED.
- INDICATES CONTROLLING SWITCH LEG.
- 110 DENOTES BRANCH CIRCUIT NUMBER SUPPLYING FIXTURE.
- SURFACE MOUNTED FLUORESCENT LIGHTING FIXTURE.
- WALL MOUNTED LIGHTING FIXTURE. MOUNTING HEIGHT AS INDICATED.
- SURFACE MOUNTED PANELBOARD.
- FLUSH MOUNTED PANELBOARD.
- SURFACE MOUNTED CABINET, AS NOTED.
- FLUSH MOUNTED CABINET, AS NOTED.
- CODE SIZE JUNCTION BOX.
- ⊠ CODE SIZE PULLBOX, SIZED AS REQUIRED.
- ELECTRICAL HANDHOLE.
- S SINGLE POLE, SINGLE THROW TOGGLE SWITCH, MOUNTED AT +48" U.O.N. TO TOP. SUBSCRIPT INDICATES CONTROLLING SWITCH LEG.
- ⊕ DUPLEX RECEPTACLE, WITH GFI PROTECTION, MOUNTED AT +18" TO CENTER OF BOX U.O.N.
- ⊙ METER
- ④ ELECTRICAL NOTE REFERENCE
- (A) INDICATES DETAIL "A" ON SHEET E-6
- ⌋ LOW VOLTAGE CIRCUIT BREAKER.
- ⌋ FUSE, SIZE AND TYPE AS NOTED.
- ⌋ GROUND CONNECTION.
- ⌋ SWITCH SIZE
- 60A 3P NO. OF POLES
- 30A FUSE SIZE

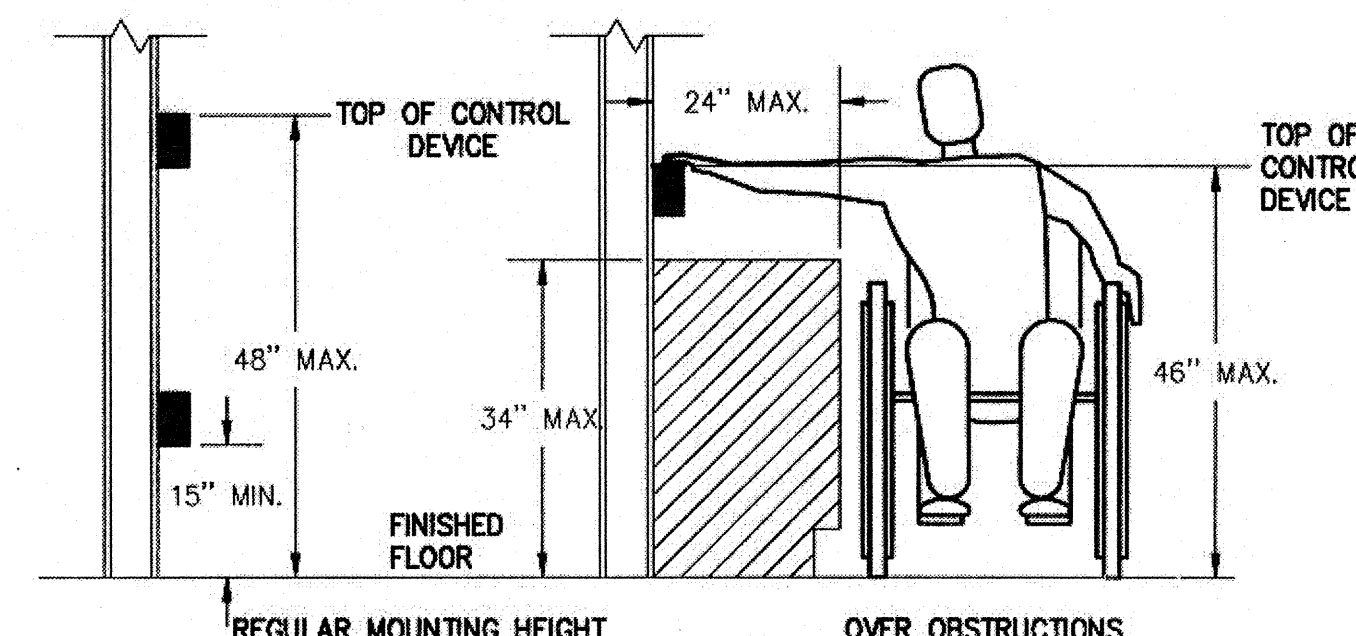
- ⊙ OCCUPANCY SENSOR OMNIDIRECTIONAL, CEILING MOUNTED.
- ⊙ PHOTOCCELL, MOUNTED FACING NORTH.
- ⊠ TIME CONTROLLED SWITCH.
- ⊕ 3/4"x10'-0" COPPER CLAD GROUND ROD, U.O.N.
- ⊕ 3/4" X 10'-0" COPPER CLAD GROUND ROD IN A YARD BOX.
- CONDUIT CONCEALED IN WALL OR CEILING SPACE.
- CONDUIT CONCEALED UNDER FLOOR SLAB OR UNDERGROUND.
- CONDUIT INSTALLED EXPOSED.
- CONDUIT OR SURFACE RACEWAY TURNED UP.
- CONDUIT OR SURFACE RACEWAY TURNED DOWN.
- CONDUIT STUB-OUT TERMINATION.
- ⌋ FLEXIBLE METAL CONDUIT. INSTALL REQUIRED BRANCH CIRCUIT CONDUCTORS AND EQUIPMENT GROUND CONDUCTOR.
- ⌋ HOMERUN TO INDICATED PANELBOARD ("A"). NUMBERS (1,3) INDICATE BRANCH CIRCUIT NUMBERS. 1" CONDUIT MINIMUM AT NEW BUILDINGS.
- 3/4"-3#8+1#10 EG INDICATES 3/4" CONDUIT WITH 3 NUMBER 8 CONDUCTORS + 1 NUMBER 10 EQUIPMENT GROUND.
- 3/4" CONDUIT WITH 2#12 CONDUCTORS PLUS 1#12 EQUIPMENT GROUNDING CONDUCTOR.
- 3/4" CONDUIT WITH 3#12 CONDUCTORS PLUS 1#12 EQUIPMENT GROUNDING CONDUCTOR.
- 3/4" CONDUIT WITH 4#12 CONDUCTORS PLUS 1#12 EQUIPMENT GROUNDING CONDUCTOR.
- 3/4" CONDUIT WITH 5#12 CONDUCTORS PLUS 1#12 EQUIPMENT GROUNDING CONDUCTOR.
- 3/4" CONDUIT WITH 6#12 CONDUCTORS PLUS 1#12 EQUIPMENT GROUNDING CONDUCTOR.
- 3/4" CONDUIT WITH 7#12 CONDUCTORS PLUS 1#12 EQUIPMENT GROUNDING CONDUCTOR.
- 1" CONDUIT WITH 8#12 CONDUCTORS PLUS 1#12 EQUIPMENT GROUNDING CONDUCTOR.
- A NUMBER ADJACENT TO THE HASH MARK IN ANY CONDUIT RUN INDICATES THE CONDUCTOR SIZE TO BE USED IN LIEU OF #12 AWG. CONDUIT AND EQUIPMENT GROUNDING CONDUCTOR SHALL BE SIZED PER NEC, U.O.N.
- #10
- TRIP SETTING
- FRAME SIZE
- NUMBER OF POLES

ABBREVIATIONS

- AFF ABOVE FINISHED FLOOR
- AIC AMPERE INTERRUPTING CAPACITY
- ANSI AMERICAN NATIONAL STANDARDS INSTITUTE
- BKBD BACKBOARD
- CB CIRCUIT BREAKER
- CBB COMMUNICATION BACKBOARD
- CEC CALIFORNIA ELECTRICAL CODE
- CIR CIRCUIT
- CMH COMMUNICATIONS MAINTENANCE HOLE
- C.O. CONDUIT ONLY
- CU COPPER
- DP DISTRIBUTION PANELBOARD
- E EMERGENCY LIGHTING FIXTURE
- EG EQUIPMENT GROUND
- EMH ELECTRICAL HANDHOLE
- EX EXISTING
- KAIC 1000 AMPS INTERRUPTING CAPACITY
- KVA KILOVOLT-AMPS
- MFR MANUFACTURER
- MSB MAIN SWITCHBOARD
- NTS NOT TO SCALE
- OC ON CENTER
- S.I. SQUARE INCHES
- SCCR SHORT CIRCUIT CURRENT RATING
- SWBD SWITCHBOARD
- TYP TYPICAL
- U.O.N. UNLESS OTHERWISE NOTED
- WP WEATHERPROOF
- XFMR TRANSFORMER
- +45" MOUNTING HEIGHT ABOVE FINISHED FLOOR TO CENTER

GENERAL NOTES

1. ALL WIRING ON THIS PROJECT SHALL BE COPPER AND SHALL BE INSTALLED IN CONDUIT.
2. INSTALL A PULL ROPE IN ALL CONDUITS LABELED "CONDUIT ONLY". PULL ROPE TO BE 200 POUND TENSILE STRENGTH MINIMUM.
3. VERIFY ALL EXISTING CONDITIONS AND ASSUME THE RESPONSIBILITY OF FITTINGS, EQUIPMENT, RACEWAYS, ETC. IN THE EXISTING SPACE ALLOWED. ALL NEW INSTALLATIONS SHALL BE AT NEAT RIGHT ANGLES.
4. ALL WORK SHALL BE IN COMPLIANCE WITH NEC 2008 WITH CALIFORNIA AMENDMENTS (2010 CEC) AND WHERE APPLICABLE AS AMENDED BY LOCAL ORDINANCES AND CODES OF GOVERNING MUNICIPALITIES.
5. ALL ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND ALL OTHER RELATED CONTRACT DRAWINGS.
6. CAREFULLY EXAMINE ALL CONTRACT DRAWINGS/SPECIFICATIONS AND BE RESPONSIBLE FOR THE PROPER FITTING OF MATERIALS AND EQUIPMENT AT EACH LOCATION AS INDICATED WITHOUT SUBSTANTIAL ALTERATION. IN AS MUCH AS THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. FURNISHING FITTINGS REQUIRED TO MEET SUCH CONDITIONS SHALL BE AT NO COST TO THE CLIENT.
7. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
8. ALL CIRCUIT PROTECTIVE DEVICES SHALL HAVE THE REQUIRED RATINGS AND INTERRUPTING CAPACITY EQUAL TO OR GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT AT ITS SUPPLY TERMINAL.
9. FIELD VERIFY EXISTING CONDITIONS AND ADVISE ENGINEER OF ANY DISCREPANCIES OR DEVIATIONS BETWEEN PLANS AND ACTUAL CONDITIONS PRIOR TO SUBMITTING BID.



NOTE

WHERE LIGHT SWITCHES, RECEPTACLES, TELEPHONE/DATA OUTLETS, DIMMING CONTROL STATIONS, FIRE ALARM PULL STATIONS OR OTHER OPERABLE OUTLET DEVICES OCCUR OVER FIXED OBSTRUCTIONS (SUCH AS CASEWORK, ETC) RESPECTIVE DEVICE MOUNTING HEIGHT LIMIT AFF SHALL BE AS TYPICALLY DEPICTED ABOVE.

MOUNTING HEIGHT OVER OBSTRUCTIONS

NO SCALE

TRENCHING NOTE

LOCATIONS OF EXISTING UNDERGROUND UTILITY AND OTHER UNDERGROUND OBSTRUCTIONS AND CONDITIONS ARE GENERALLY UNKNOWN. HIRE A UTILITY LOCATING SERVICE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO DIGGING. VERIFY EXACT LOCATION SIZE AND EXTENT OF ALL OBSTRUCTIONS AND OTHER CONDITIONS WHICH MAY AFFECT THE PROPOSED WORK UNDER THE PROJECT. TAKE EVERY PRECAUTION TO PREVENT DAMAGE TO EXISTING WORK, INCLUDING HAND DIGGING AROUND EXISTING UTILITIES, TREE ROOT SYSTEMS, AND HARDSCAPE FEATURES. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES SHALL BE IMMEDIATELY REPAIRED OR REPLACED IN ACCORDANCE WITH THE RESIDENT ENGINEER'S DIRECTION AT THE CONTRACTOR'S EXPENSE.

UTILITY CONTACT

SDG&E PLANNER:
JIM TODD
EMAIL: JXTODD@SEMPRAUTILITIES.COM
PHONE: (858) 636-3920

LAMP NOTES

ALL 4'-0" T8 LAMPS SHALL BE SPECIFICALLY GE F32T8/XL/SPX35/HLEC WITH A CRI OF 85 OR SYLVANIA EQUIVALENT. NO EXCEPTIONS WILL BE ALLOWED.

ALL NON-DIMMED 4'-0" FIXTURES SHALL BE PROVIDED WITH THE FOLLOWING LAMP/BALLAST COMBINATIONS:

- LAMPS: GE F32T8/XL/SPX35/HLEC AND GE BALLASTS AS FOLLOWS:
- 1 LAMP: # GE132-MVPS-L (30 WATTS)
- 2 LAMP: # GE232-MVPS-L (47 WATTS)

THESE COMBINATIONS SHALL PROVIDE 30000 HOUR RATED LAMP LIFE (3 HR PER START) TOGETHER WITH A LIMITED 36 MONTH LAMP WARRANTY AND AN ASSOCIATED 5 YEAR BALLAST WARRANTY. (REFER TO GE ULTRASTART PROGRAM START SYSTEM WARRANTY).

FIXTURE NOTES

- ① FIXTURE CONNECTIONS SHALL BE AS INDICATED ON THE PLANS AND SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF TITLE 24, CALIFORNIA ENERGY EFFICIENCY REGULATIONS.
- ② CATALOG NUMBERS ARE BASED ON VENDOR INFORMATION, SALES LITERATURE AND PHOTOMETRIC DATA ON HAND AT THE TIME OF PROJECT DESIGN BY TURPIN & RATTAN AND ARE INTENDED TO CONVEY THE FEATURES/PERFORMANCE REQUIRED. EACH FIXTURE MUST BE PROVIDED COMPLETE WITH ALL FITTINGS AS APPROPRIATE FOR PROPER MOUNTING AT THE LOCATIONS INDICATED.

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	MANUFACTURER AND CATALOG NUMBER	EQUIVALENT MANUFACTURER SUBJECT TO APPROVAL OF SHOP DRAWINGS	LAMPS				FIXTURE		BALLAST TYPE	MOUNTING	DESCRIPTION
			QTY.	TYPE	WATTS	COLOR TEMP.	INPUT VOLTS	TOTAL INPUT WATTS			
(A)	KENALL MLHA1224MS-F-XX-PP-2-17-RS-1-DV	ANY TRUE APPROVED EQUAL	2	T8	17	3500° K	120	33	ELECTRONIC	SURFACE CEILING	1'X2'X3.8" DEEP, 2-LAMP SURFACE MOUNTED VANDAL RESISTANT FLUORESCENT FIXTURE WITH MARINE GRADE DIE-CAST ALUMINUM HOUSING, FLAT END CAPS, PEARLESCENT POLYCARBONATE LENS, CLOSED CELL GASKET TO SEAL DOORFRAME TO HOUSING, INTEGRAL ELECTRONIC BALLAST AND INTEGRAL SUPER HIGH FREQUENCY OCCUPANCY SENSOR. U.L. CERTIFIED IP64. FINISH PER ARCHITECT.
(B)	KENALL MR13FFD-PP-FINISH-26Q-1-120	ANY TRUE APPROVED EQUAL	1	DTT	26	3000° K	120	28	ELECTRONIC	SURFACE CEILING	13.2" DIAMETER X 5.31" DEEP 1-LAMP SURFACE MOUNTED COMPACT FLUORESCENT FIXTURE WITH MARINE GRADE DIE-CAST ALUMINUM HOUSING, INJECTION MOLDED FLAT PEARLESCENT POLYCARBONATE LENS, SILICONE GASKETS AND INTEGRAL ELECTRONIC BALLAST. U.L. LISTED FOR WET LOCATIONS. FINISH PER ARCHITECT.
(B)	KENALL MR13EL-PP-FINISH-26Q-1-120	ANY TRUE APPROVED EQUAL	1	DTT	26	3000° K	120	28	ELECTRONIC	SURFACE WALL	13.2" DIAMETER X 4" DEEP 1-LAMP WALL MOUNTED COMPACT FLUORESCENT SCONCE WITH EYELD, MARINE GRADE DIE-CAST ALUMINUM HOUSING, INJECTION MOLDED PEARLESCENT POLYCARBONATE LENS, SILICONE GASKETS AND INTEGRAL ELECTRONIC BALLAST. U.L. LISTED FOR WET LOCATIONS. FINISH PER ARCHITECT.
(C)	INTENSE LIGHTING IFS90S-26-E-HG	ANY TRUE APPROVED EQUAL	1	DTT	26	3000° K	120	28	ELECTRONIC	RECESSED WALL	11" X 4.5" X 4" DEEP RECESSED COMPACT FLUORESCENT STEP LIGHT WITH MARINE GRADE 316 STAINLESS STEEL HORIZONTAL LOUVERED FACEPLATE, SINGLE PIECE SILICONE GASKET, DIE-CAST ALUMINUM HOUSING AND INTEGRAL ELECTRONIC BALLAST. NRTL LISTED FOR WET LOCATIONS.
(D)	KENALL MLHA1248MS-F-XX-PP-2-32-PS(G.E. ULTRASTART)-1-120	ANY TRUE APPROVED EQUAL	2	T8	32	3500° K	120	47	ELECTRONIC	SURFACE CEILING	1'X4'X3.8" DEEP, 2-LAMP SURFACE MOUNTED VANDAL RESISTANT FLUORESCENT FIXTURE WITH MARINE GRADE DIE-CAST ALUMINUM HOUSING, FLAT END CAPS, PEARLESCENT POLYCARBONATE LENS, CLOSED CELL GASKET TO SEAL DOORFRAME TO HOUSING, INTEGRAL ELECTRONIC BALLAST AND INTEGRAL SUPER HIGH FREQUENCY OCCUPANCY SENSOR. U.L. CERTIFIED IP64. FINISH PER ARCHITECT.
(D)	KENALL ES5-48-1-32-PS(G.E. ULTRASTART)-1-120-5H-PP-IP65	ANY TRUE APPROVED EQUAL	1	T8	32	3500° K	120	30	ELECTRONIC	SURFACE CEILING	5.5"X4'X5.6" DEEP, 1-LAMP SURFACE MOUNTED VANDAL RESISTANT FLUORESCENT FIXTURE WITH 304 STAINLESS STEEL HOUSING, PEARLESCENT POLYCARBONATE LENS, LINEAR SILICONE GASKET TO SEAL DOORFRAME TO HOUSING AND INTEGRAL G.E. ULTRASTART ELECTRONIC BALLAST. U.L. CERTIFIED IP65.

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

GENERAL NOTES, SYMBOLS, FIXTURE SCHEDULE

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 35 OF 48 SHEETS

W.B.S. S-10028
W.O.

FOR CITY ENGINEER: DATE 6/18/13
DESCRIPTION: MOA
APPROVED: DATE 06/02/12
FILED

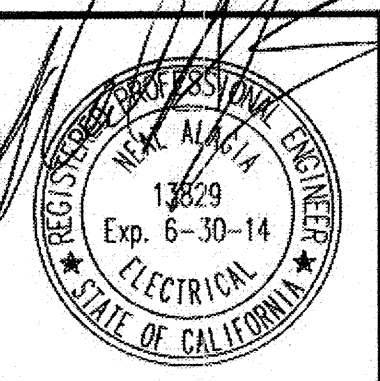
SECTION HEAD: PROJECT MANAGER
CCS27 COORDINATE
CCS83 COORDINATE

AS-BUILTS
CONTRACTOR: DATE STARTED
INSPECTOR: DATE COMPLETED

36598-35-D

CONSULTANT
TURPIN & RATTAN
ENGINEERS, INC.
4719 PALM AVENUE
LA MEHA, CA 91941-1032
619-449-4000 FAX: 619-449-4000
EMAIL: info@trinc.com
TRC # 10120.00

SCALE: HORIZONTAL NO SCALE
VERTICAL NO SCALE



**CITY OF SAN DIEGO
PUBLIC WORKS PROJECT**



WARNING
IF THIS BAR DOES NOT MEASURE 1 THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION

CERTIFICATE OF COMPLIANCE (Page 1 of 4) **LTG-1C**
 Project Name: **PALISADES PARK COMFORT STATION** Date: **AUGUST 2, 2012**
 Project Address: **4980 OCEAN BLVD., SAN DIEGO, CA** Climate Zone: **7** Building CFA: **Unconditioned Floor Area: 294**

General Information
 Building Type: Nonresidential High-Rise Residential Hotel/Motel
 School Relocatable Public Schools Conditioned Spaces Unconditioned Spaces
 Phase of Construction: New Construction Addition Alteration Tailored
 Method of Compliance: Complete Building Area Category Tailored

Documentation Author's Declaration Statement
 I certify that this Certificate of Compliance documentation is accurate and complete.
 Name: **KARIN ORTEGA** Signature: [Signature] Date: **7-31-12**
 Company: **TURPIN & RATTAN ENGINEERING, INC.** If applicable: CEA # **13829** CEPE # **(619)466-6224**
 Address: **4719 PALM AVE** License # **13829**
 City/State/Zip: **LA MESA, CA 91941** Date: **7-31-12**

Principal Lighting Designer's Declaration Statement
 I am eligible under Division 3 of the California Business and Professions Code to accept responsibility for the lighting design.
 This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
 This design features represented on the Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, and drawings submitted to the enforcement agency for approval with this building permit application.
 Name: **NEAL ALAGIA** Signature: [Signature] Date: **7-31-12**
 Company: **TURPIN & RATTAN ENGINEERING INC.** Phone: **(619)466-6224**
 Address: **4719 PALM AVE** License # **13829**
 City/State/Zip: **LA MESA, CA 91941** Date: **7-31-12**

Lighting Mandatory Measures
 Indicate location on building plans of Mandatory Measure Note Block: **THIS SHEET**

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheet is included)
 For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, please refer to the Nonresidential Manual published by the California Energy Commission.
 LTG-1C Pages 1 through 4 Certificate of Compliance. All Pages required on plans for all submissions.
 LTG-3C Lighting Controls Credit Worksheet
 LTG-3C Indoor Lighting Power Allowance
 LTG-4C Pages 1 through 4 Tailored Method Worksheet
 LTG-5C Pages 1 and 2 Line Voltage Track Lighting Worksheet

2008 Nonresidential Compliance Forms July 2010

CERTIFICATE OF COMPLIANCE (Page 2 of 4) **LTG-1C**
INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST
 Project Name: **PALISADES PARK COMFORT STATION** Date: **AUGUST 2, 2012**

Installation Certificate, LTG-1-INST (Retain a copy and verify form is completed and signed.) Field Inspector
 Certificate of Acceptance, LTG-2A and LTG-3A (Retain a copy and verify form is completed and signed.) Field Inspector

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces Installed Lighting Power listed on this Lighting Schedule is only for: CONDITIONED SPACES UNCONDITIONED SPACES

The actual indoor lighting power listed below includes all installed permanent and portable lighting systems in accordance with § 146(a)
 Only for offices: Up to the first 0.2 watts per square foot of portable lighting shall not be required to be included in the calculation of actual indoor lighting power density in accordance with the Exception to § 146(a). All portable lighting in excess of 0.2 watts per square foot is included below.

A	B	C	D	E		F	G	H	I
				Watts per Luminaire	How wattage was determined				
	Complete Luminaire Description (i.e. 3 lamp fluorescent troffer, F32T8, non-dimmable electronic ballast)								
A	5.8" x 24" 2-LAMP SURFACE MTD. FLUORESCENT	33				3	99		
D	5.8" x 24" 2-LAMP SURFACE MTD. FLUORESCENT	47				1	47		
D	5.8" x 24" 1-LAMP SURFACE MTD. FLUORESCENT	50				1	50		

Building total number of pages: **1** Installed Watts Building Total: **176**
 (Sum of all pages) Enter into LTG-1C Page 4 of 4

1. Wattage shall be determined according to Section 130(d) and (e). Wattage shall be rating of light fixture, not rating of ball.
 2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

2008 Nonresidential Compliance Forms July 2010

CERTIFICATE OF COMPLIANCE (Page 3 of 4) **LTG-1C**
 Project Name: **PALISADES PARK COMFORT STATION** Date: **AUGUST 2, 2012**

MANDATORY LIGHTING CONTROLS - FIELD INSPECTION ENERGY CHECKLIST

Type / Description	Number of Units	Location in Building	Special Features	Pass	Fail
OCCUPANCY SENSOR	1	UTILITY ROOM		<input type="checkbox"/>	<input type="checkbox"/>
OCCUPANCY SENSOR (INTEGRAL TO TYPE 'A')	3	SMALL RESTROOMS		<input type="checkbox"/>	<input type="checkbox"/>
OCCUPANCY SENSOR (INTEGRAL TO TYPE 'D')	1	LARGE RESTROOM		<input type="checkbox"/>	<input type="checkbox"/>

Field Inspector's Notes or Discrepancies:

2008 Nonresidential Compliance Forms July 2010

CERTIFICATE OF COMPLIANCE (Page 4 of 4) **LTG-1C**
 Project Name: **PALISADES PARK COMFORT STATION** Date: **AUGUST 2, 2012**

Conditioned and Unconditioned space Lighting must not be combined for compliance

Indoor Lighting Power for Conditioned Spaces	Watts	Indoor Lighting Power for Unconditioned Spaces	Watts
Installed Lighting (from Conditioned LTG-1C Page 2)	176	Installed Lighting (from Unconditioned LTG-1C Page 2)	0
Lighting Control Credit (from LTG-3C)	-	Lighting Control Credit (from LTG-3C)	-
Adjusted Installed Lighting Power	176	Adjusted Installed Lighting Power	0

Complies if Installed < Allowed
 Allowed Lighting Power Conditioned Spaces (from LTG-3C): **176**
 Allowed Lighting Power Unconditioned Spaces (from LTG-3C): **176**

Required Acceptance Tests
 Designer: [Signature]
 Enforcement Agency: [Signature]

Equipment Requiring Testing	Description	Number of Like Controls	Location	LTG-2A and 3A Controls and Sensors and Automatic Daylighting Controls Acceptance
OCCUPANCY SENSOR	INTEGRAL TO TYPE A	3	EACH SMALL RESTROOM	<input type="checkbox"/>
OCCUPANCY SENSOR	INTEGRAL TO TYPE D	1	LARGE RESTROOM	<input type="checkbox"/>
OCCUPANCY SENSOR	TYPE D1	1	SUPPORT ROOM	<input type="checkbox"/>

2008 Nonresidential Compliance Forms July 2010

INDOOR LIGHTING POWER ALLOWANCE **LTG-3C**
 Project Name: **PALISADES PARK COMFORT STATION** Date: **AUGUST 2, 2012**

ALLOWED LIGHTING POWER (Choose One Method)
 A Separate LTG-3C must be filled out for Conditioned and Unconditioned Spaces. Indoor Lighting Power Allowances listed on this page are only for: CONDITIONED SPACES UNCONDITIONED SPACES

COMPLETE BUILDING METHOD
 BUILDING CATEGORY (From § 146 Table 146-E): **0.6** WATTS PER (F) X BLDG. AREA = **284** ALLOWED WATTS
 OTHER (RESTROOMS AND SUPPORT AREAS): **176**
 TOTALS: **460** WATTS

AREA CATEGORY METHOD - Part A
 AREA CATEGORY (From § 146 Table 146-B): **0.6** WATTS PER (F) X AREA (F) = **284** ALLOWED WATTS

AREA CATEGORY METHOD - Part B
 Additional Wattage Allowance (from Table 146-F Footnotes): **176**
 TOTALS: **460** WATTS

TAILORED METHOD
 Total Allowed Watts using the Tailored Method taken from LTG-4C (Page 1 of 4) Row 3
 The indoor lighting power allowance using the Tailored Method of compliance shall be determined using the LTG-4C set of forms. A separate set of LTG-4C forms shall be filled out for CONDITIONED and UNCONDITIONED spaces

2008 Nonresidential Compliance Forms August 2009

LIGHTING MANDATORY MEASURES

- BUILDING LIGHTING SHUT-OFF: OCCUPANCY SENSORS
- OVERRIDE FOR BUILDING LIGHTING SHUT-OFF: N/A
- AUTOMATIC CONTROL DEVICES CERTIFIED: YES
- FLUORESCENT BALLASTS AND LUMINAIRES CERTIFIED: YES
- TANDEM WIRING FOR TWO-LAMP BALLASTS: N/A
- INDIVIDUAL ROOM/AREA CONTROLS: YES
- UNIFORM ROOM/AREA CONTROLS: YES
- UNIFORM REDUCTION FOR INDIVIDUAL ROOMS: N/A
- DAYLIT AREA CONTROLS: N/A

NOTES

CERTIFICATES OF ACCEPTANCE (LTG-2A/OLTG-2A) AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FIELD INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED. INSTALLATION CERTIFICATES (LTG-INST/OLTG-INST) MUST BE COMPLETED FOR ALL BUILDINGS BY THE PERSON WITH THE OVERALL RESPONSIBILITY FOR CONSTRUCTION OR THE PERSON(S) RESPONSIBLE FOR THE INSTALLATION OF MATERIALS. A COPY OF THE INSTALLATION CERTIFICATE(S) SHALL BE POSTED, OR MADE AVAILABLE WITH THE BUILDING PERMIT(S) ISSUED FOR THE BUILDING, AND SHALL BE MADE AVAILABLE TO THE RESIDENT ENGINEER FOR ALL APPLICABLE INSPECTIONS.

E2

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

INTERIOR TITLE 24 COMPLIANCE

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 36 OF 46 SHEETS

W.B.S. S-10026
 W.O. _____

FOR CITY ENGINEER: [Signature] DATE: 6/18/13
 SECTION HEAD

DESCRIPTION BY APPROVED DATE FILMED
 FINAL MOA 08/02/12 PROJECT MANAGER

AS-BUILTS
 CONTRACTOR DATE STARTED
 INSPECTOR DATE COMPLETED

CCS27 COORDINATE
 CCS83 COORDINATE
36598-36-D

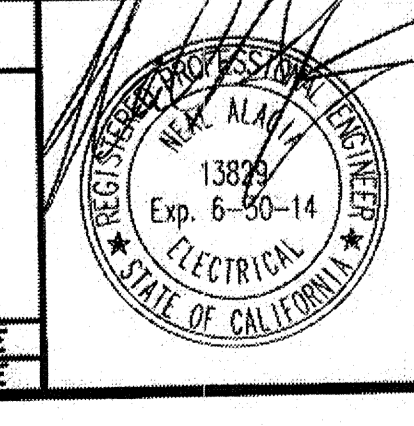
CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

TURPIN & RATTAN ENGINEERING, INC.
 4719 PALM AVE
 LA MESA, CA 91941-2831
 P.O. BOX 1487
 LA MESA, CA 91941-1487
 C-MAIL: TURPIN@TRINC.COM
 TEL: 619.466.6224
 FAX: 619.466.6225

SCALE: HORIZONTAL NO SCALE
 VERTICAL NO SCALE



CITY OF SAN DIEGO PUBLIC WORKS PROJECT

WARNING
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION

CERTIFICATE OF ACCEPTANCE LTG-2A
Lighting Control Acceptance Document (Page 1 of 3)
 Project Name/Address: **PALISADES PARK COMFORT STATION / 4960 OCEAN BLVD., SAN DIEGO, CA**
 System Name or Identification/Tag: _____ System Location or Area Served: _____
 Enforcement Agency: _____ Permit Number: _____
 Note: Submit one Certificate of Acceptance for each system that must demonstrate compliance. Enforcement Agency Use: Checked by/Date: _____

FIELD TECHNICIAN'S DECLARATION STATEMENT
 I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
 I am the person who performed the acceptance requirements verification reported on this Certificate of Acceptance (Field Technician).
 I certify that the construction/installation identified on this form complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
 I have confirmed that the Installation Certificate(s) for the construction/installation identified on this form has been completed and is posted or made available with the building permit(s) issued for the building.

Company Name: _____
 Field Technician's Name: _____ Field Technician's Signature: _____
 Date Signed: _____ Position With Company (Title): _____

RESPONSIBLE PERSON'S DECLARATION STATEMENT
 I certify under penalty of perjury, under the laws of the State of California, that I am the Field Technician, or the Field Technician is acting on my behalf as my employee or my agent and I have reviewed the information provided on this form.
 I am a licensed contractor, architect, or engineer, who is eligible under Division 3 of the Business and Professions Code, in the applicable classification, to take responsibility for the scope of work specified on this document and attest to the declarations in this statement (responsible person).
 I certify that the information provided on this form substantiates that the construction/installation identified on this form complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
 I have confirmed that the Installation Certificate(s) for the construction/installation identified on this form has been completed and is posted or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Certificate of Acceptance is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: _____ Phone: _____
 Responsible Person's Name: _____ Responsible Person's Signature: _____
 License: _____ Date Signed: _____ Position With Company (Title): _____

Occupant Sensor, Manual Daylighting Control, and Automatic Time Switch Control
 Intent: Lights are turned off when not needed per Section 119(d) & 131(d).
Construction Inspection
 I. Instrumentation to perform test includes, but not limited to:
 a. Hand-held amperage and voltage meter
 b. Power meter
 continued on next page

2008 Nonresidential Acceptance Forms August 2009

CERTIFICATE OF ACCEPTANCE LTG-2A
Lighting Control Acceptance Document (Page 2 of 3)
 Project Name/Address: **PALISADES PARK COMFORT STATION / 4960 OCEAN BLVD., SAN DIEGO, CA**
 System Name or Identification/Tag: _____ System Location or Area Served: _____

2 Occupancy Sensor Construction Inspection
 Occupancy sensor has been located to minimize false signals
 Light meter
 Ultrasonic occupancy sensors do not emit audible sound (119a) 5 feet from source

3 Manual Daylighting Controls Construction Inspection
 If dimming ballasts are specified for light fixtures within the daylight area, make sure they meet all the Standards requirements, including "deduced flicker operation" for manual dimming control systems

4 Automatic Time Switch Controls Construction Inspection
 a. Automatic time switch control is programmed for (check all):
 Weekdays
 Weekends
 Holidays
 b. Document for the owner automatic time switch programming (check all):
 Weekdays settings
 Weekend settings
 Holiday settings
 Set-up settings
 Preference program setting
 Verify the correct time and date is properly set in the time switch
 Verify the battery is installed and energized
 Override time limits is no more than 2 hours
 Occupant Sensors and Automatic Time Switch Controls have been certified to the Energy Commission in accordance with the applicable provision in Section 119 of the Standards, and model numbers for all such controls are listed on the Commission database as Certified Appliances and Control Devices

A. Select Acceptance Test (Indicate lighting control systems Names/Designations by the applicable tests below)
 1 Occupancy Sensor
 2 Manual Daylighting Controls
 3 Automatic Time Switch Controls

B. Equipment Testing Requirements
 Check and verify those items applicable to selected system:
Occupancy Sensor - Step 1: Simulate an unoccupied condition
 a. Lights controlled by occupancy sensors turn off within a maximum of 30 minutes from start of an unoccupied condition per Standard Section 119(d). Y/N Y/N Y/N
 b. The occupant sensor does not trigger a false "on" from movement in an area adjacent to the controlled space or from HVAC operation. Y/N Y/N Y/N
 c. Signal sensitivity is adequate to achieve desired control. Y/N Y/N Y/N
Occupant Sensor - Step 2: Simulate an occupied condition
 a. Status indicator or annunciator operates correctly. Y/N Y/N Y/N
 b. Lights controlled by occupancy sensors turn on when immediately upon an occupied condition OR (this requirement is mutually exclusive with Step 2.c.) Y/N Y/N Y/N
 c. Sensor indicates space is "occupied" and lights turn on manually. Y/N Y/N Y/N
 continued on next page

2008 Nonresidential Acceptance Forms August 2009

CERTIFICATE OF ACCEPTANCE LTG-2A
Lighting Control Acceptance Document (Page 3 of 3)
 Project Name/Address: **PALISADES PARK COMFORT STATION / 4960 OCEAN BLVD., SAN DIEGO, CA**
 System Name or Identification/Tag: _____ System Location or Area Served: _____

Occupant Sensor - Step 3: System returned to initial operating conditions Y/N Y/N Y/N
Occupant Sensor - Step 4 - Sensor is also a multi-Level Occupant Sensor used to qualify for a Power Adjustment Factor in Section 146(c)2D of the Standards. If yes, then 'a', 'b', and 'c' must also be yes. Y/N Y/N Y/N
 a. The first stage activates between 30 to 70% of the lighting either manually or automatically. Y/N Y/N Y/N
 b. A reasonably uniform level of illuminance is achieved by dimming of all lamps or luminaires; or by switching alternate lamps in luminaires, alternate luminaires, or alternate rows of luminaires. Y/N Y/N Y/N
 c. After the first stage occurs, manual switches have been provided to activate the alternate set of lights, activate 100% of the lighting power, and manually deactivate all of the lights. Y/N Y/N Y/N

Manual Daylighting Controls - Step 1: Manual switching control
 a. At least 50% of lighting power in daylight areas is separately controlled from other lights. Y/N Y/N Y/N
 b. The amount of light delivered to the space is uniformly reduced. Y/N Y/N Y/N

Manual Daylighting Controls - Step 2: System returned to initial operating conditions Y/N Y/N Y/N
Automatic Time Switch Controls - Step 1: Simulate occupied condition
 a. All lights can be turned on and off by their respective area control switch. Y/N Y/N Y/N
 b. Verify the switch only operates lighting in the ceiling-height partitioned area in which the switch is located. Y/N Y/N Y/N

Automatic Time Switch Controls - Step 2: Simulate unoccupied condition
 a. All non-exempt lighting turn off per Section 131(d). Y/N Y/N Y/N
 b. Manual override switch allows only the lights in the selected ceiling height partitioned space where the override switch is located, to turn on or remain on until the next scheduled shut-off occurs. Y/N Y/N Y/N
 c. All non-exempt lighting turn off. Y/N Y/N Y/N

Automatic Time Switch Controls - Step 3: System returned to initial operating conditions Y/N Y/N Y/N

Note: Shaded areas do not apply for particular test procedure.
C. PASS / FAIL Evaluation (check one):
 PASS: All applicable Construction Inspection responses are complete and all applicable Equipment Testing Requirements responses are positive (Y - yes).
 FAIL: Any applicable Construction Inspection responses are incomplete OR there is one or more negative (N - no) responses in any applicable Equipment Testing Requirements section. Provide explanation below. Use and attach additional pages if necessary.

2008 Nonresidential Acceptance Forms August 2009

CERTIFICATE OF ACCEPTANCE OLTG-2A
NA7.7 Outdoor Lighting Acceptance Tests (Page 1 of 3)
 Project Name/Address: **PALISADES PARK COMFORT STATION / 4960 OCEAN BLVD., SAN DIEGO, CA**
 System Name or Identification/Tag: _____ System Location or Area Served: _____
 Enforcement Agency: _____ Permit Number: _____
 Note: Submit one Certificate of Acceptance for each system that must demonstrate compliance. Enforcement Agency Use: Checked by/Date: _____

FIELD TECHNICIAN'S DECLARATION STATEMENT
 I certify under penalty of perjury, under the laws of the State of California, the information provided on this form is true and correct.
 I am the person who performed the acceptance requirements verification reported on this Certificate of Acceptance (Field Technician).
 I certify that the construction/installation identified on this form complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
 I have confirmed that the Installation Certificate(s) for the construction/installation identified on this form has been completed and is posted or made available with the building permit(s) issued for the building.

Company Name: _____
 Field Technician's Name: _____ Field Technician's Signature: _____
 Date Signed: _____ Position With Company (Title): _____

RESPONSIBLE PERSON'S DECLARATION STATEMENT
 I certify under penalty of perjury, under the laws of the State of California, that I am the Field Technician, or the Field Technician is acting on my behalf as my employee or my agent and I have reviewed the information provided on this form.
 I am a licensed contractor, architect, or engineer, who is eligible under Division 3 of the Business and Professions Code, in the applicable classification, to take responsibility for the scope of work specified on this document and attest to the declarations in this statement (responsible person).
 I certify that the information provided on this form substantiates that the construction/installation identified on this form complies with the acceptance requirements indicated in the plans and specifications approved by the enforcement agency, and conforms to applicable acceptance requirements and procedures specified in Reference Nonresidential Appendix NA7.
 I have confirmed that the Installation Certificate(s) for the construction/installation identified on this form has been completed and is posted or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a signed copy of this Certificate of Acceptance is required to be included with the documentation the builder provides to the building owner at occupancy.

Company Name: _____ Phone: _____
 Responsible Person's Name: _____ Responsible Person's Signature: _____
 License: _____ Date Signed: _____ Position With Company (Title): _____

2008 Nonresidential Compliance Forms August 2009

CERTIFICATE OF ACCEPTANCE OLTG-2A
NA7.7 Outdoor Lighting Acceptance Tests (Page 2 of 3)
 Project Name/Address: **PALISADES PARK COMFORT STATION / 4960 OCEAN BLVD., SAN DIEGO, CA**
 System Name or Identification/Tag: _____ System Location or Area Served: _____

NA7.7.1 Outdoor Motion Sensor Acceptance
 Intent: Lights are turned off when not needed per Section 119(d) & 132.
Construction Inspection
 1. Motion Sensor Construction Inspection
 Motion sensor has been located to minimize false signals
 Sensor is not triggered by motion outside of adjacent area
 Desired motion sensor coverage is not blocked by obstruction that could adversely affect performance

Functional testing
 1. Simulate motion in area under lights controlled by the motion sensor. Verify and document the following:
 Status indicator operates correctly.
 Lights controlled by motion sensors turn on immediately upon entry into the area lit by the controlled lights near the motion sensor.
 Signal sensitivity is adequate to achieve desired control.
 2. Simulate no motion in area with lighting controlled by the sensor but with motion adjacent to this area. Verify and document the following:
 Lights controlled by motion sensors turn off within a maximum of 30 minutes from the start of an unoccupied condition per Standard Section 119(d).
 The occupant sensor does not trigger a false "on" from movement outside of the controlled area
 Signal sensitivity is adequate to achieve desired control

NA7.7.2 Outdoor Lighting Shut-off Controls
Construction Inspection
 1. Outdoor Lighting Shut-off Controls Construction Inspection
 Astronomical time switch controls and automatic time switch controls have been certified to the Energy Commission in accordance with the applicable provision in Standards Section 119. Verify that model numbers of all such controls are listed on the Energy Commission database as "Certified Appliances & Control Devices."
 Controls to turn off lights during daytime hours are installed
 Astronomical and standard time switch control is programmed with acceptable weekday, weekend, and holiday (if applicable) schedules
 Demonstrate and document for the owner time switch programming including weekday, weekend, holiday schedules as well as all set-up and preference program settings
 2. Lighting systems that meet the criteria of Section 132(c)2 of the Standards shall have a scheduling control (time switch) installed which is able to schedule separately:
 A reduction in outdoor lighting power by 50 to 80%
 Turning off all outdoor lighting covered by Section 132(c)2 of the Standards
 Verify that the correct time and date is properly set in the standard and astronomical time switch.
 Verify that the correct latitude, longitude and time zone are set in the astronomical time switch.
 Verify the battery back-up (if applicable) is installed and energized in the standard and astronomical time switch.

2008 Nonresidential Compliance Forms August 2009

CERTIFICATE OF ACCEPTANCE OLTG-2A
NA7.7 Outdoor Lighting Acceptance Tests (Page 3 of 3)
 Project Name/Address: **PALISADES PARK COMFORT STATION / 4960 OCEAN BLVD., SAN DIEGO, CA**
 System Name or Identification/Tag: _____ System Location or Area Served: _____

NA7.7.2.2 Outdoor Photocontrol Functional testing
 Note: photocontrol must be used in conjunction with time switch or motion sensor to meet the requirements of Section 132(c)2 of the Standards.
 1. Nighttime test: Simulate or provide conditions without daylight. Verify and document:
 Controlled lights turn on
 2. Sunrise test: Provide between 10 and 30 horizontal footcandles (fc) to photosensor. Verify and document the following:
 Controlled lights turn off

NA7.7.2.3 Astronomical Time Switch Functional testing
 1. Power off test: Program control with location information, local date and time, and schedules. Disconnect control from power source for at least 1 hour. Verify and document:
 Control retains all programmed settings and local date and time
 2. Night schedule ON test: Simulate or provide times when the sun has set and lights are scheduled to be ON. Verify and document:
 Controlled lights turn on
 3. Night schedule OFF test: Simulate or provide times when the sun has set and lights are scheduled to be OFF. Verify and document:
 Controlled lights turn off
 4. Sunrise test: Simulate or provide the programmed offset time after the time of local sunrise
 Controlled lights turn off

NA7.7.2.4 Standard (non-astronomical) Time Switch Functional Testing
 Note: this control must be used in conjunction with a photocontrol to meet requirements of Section 132(c) of the Standards.
 1. Power off test: Program control with local date and time and schedules. Disconnect control from power source for at least 1 hour. Verify and document:
 Control retains all programmed schedules and local date and time
 2. On schedule test: Simulate or provide times when lights are scheduled to be ON. Verify and document:
 Controlled lights turn on
 3. Schedule test: Simulate or provide times when the sun has set and lights are scheduled to be OFF. Verify and document:
 Controlled lights turn off

2008 Nonresidential Compliance Forms August 2009

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

TITLE 24 ACCEPTANCE FORMS

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 37 OF 46 SHEETS

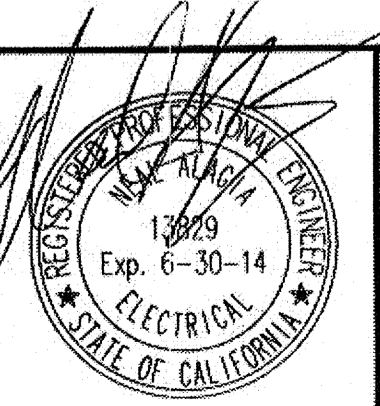
W.B.S. S-10026
 W.O. _____

FOR CITY ENGINEER: _____ DATE: 6/18/13
 DESCRIPTION BY APPROVED DATE FILED
 FINAL MOA _____ 08/02/12 _____
 SECTION HEAD: _____
 PROJECT MANAGER: _____
 CCS27 COORDINATE: _____
 CCS83 COORDINATE: _____

AS-BUILTS
 CONTRACTOR: _____ DATE STARTED: _____
 INSPECTOR: _____ DATE COMPLETED: _____

36598-37-D

CONSTRUCTION CHANGE / ADDENDUM				CONSULTANT	
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.	TURPIN & RATTAN	
				CONSULTANT ENGINEERS 4719 PALM AVENUE SAN DIEGO, CA 92108-0521 619 / 444 / 4333 FAX 444 / 4333 EMAIL: CONSULTANTS@TURPINRATTAN.COM TREC # 10120.00	
SCALE				HORIZONTAL	NO SCALE
				VERTICAL	NO SCALE



**CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT**



WARNING
 IF THIS BAR DOES NOT MEASURE, IT THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION

Certificate of Compliance (Page 1 of 4) OLTG-1C
 Project Name: PALISADES PARK COMFORT STATION Date: AUGUST 2, 2012
 Project Address: 4960 OCEAN BLVD., SAN DIEGO, CA Total Hardcape Illuminated Area: 786

General Information: New Construction Addition Alteration

Documentation Author's Declaration Statement
 I certify that this Certificate of Compliance documentation is accurate and complete.

Name: KAREN ORTEGA Signature: [Signature] Date: 7-31-12
 Company: TURPIN AND RATTAN ENGINEERING, INC. License # 13829
 Address: 4719 PALM AVE. Phone: (619)466-6224
 City/State/Zip: LA MESA, CA 91941

Principal Lighting Designer's Declaration Statement
 I am eligible under Division 3 of the California Business and Professions Code to accept responsibility for the lighting design.
 This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
 The design features represented on the Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans, and specifications submitted to the enforcement agency for approval with this building permit application.

Name: NEAL ALAGA Signature: [Signature] Date: 7-31-12
 Company: TURPIN AND RATTAN ENGINEERING, INC. License # 13829
 Address: 4719 PALM AVE. Phone: (619)466-6224
 City/State/Zip: LA MESA, CA 91941

Principal Lighting Designer's Declaration
 I certify that this Certificate of Compliance documentation is accurate and complete, and accounts for all outdoor lighting power, including building mounted, pole-mounted, as well as all other outdoor lighting designed for the site, and that Additional Lighting Power Allowances for Specific Applications or Additional Lighting Power Allowances for Ordinance Requirements have not been counted more than one time for the same area, in accordance with Section 147 of the Standards.

Outdoor Lighting Mandatory Measures
 Indicate location on building plans of Mandatory Measures Note Block: THIS SHEET

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheet is included)
 For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, please refer to the Nonresidential Manual published by the California Energy Commission.
 OLTG-1C Certificate of Compliance. All 4 pages required on plans for all submittals.
 OLTG-2C (Page 1 of 3) Lighting Wattage Allowances for General Hardcape, Sales Frontage, or Ornamental Lighting. Optional on plans.
 OLTG-2C (Page 2 of 3) Lighting Wattage Allowances per Application or Per Area. Optional on plans.
 OLTG-2C (Page 3 of 3) Additional Lighting Power Allowances for Ordinance Requirements. Optional on plans.

Certificate of Compliance (Page 2 of 4) OLTG-1C
 COMPLIANCE FIXTURE / LIGHTING CONTROL, SCHEDULE and FIELD INSPECTION CHECKLIST
 Project Name: PALISADES PARK COMFORT STATION Date: AUGUST 2, 2012

INSTALLATION CERTIFICATE, OLTG-1-INST (Retain a copy and verify form is completed and signed.) Field Inspection
 CERTIFICATE OF ACCEPTANCE, OLTG-2A (Retain a copy and verify form is completed and signed.) Field Inspection

A	B	C	D	E	Installed Watts			I	Field Inspector
					F	G	H		
					How wattage was determined				
					Number of Luminaires	Watts per Luminaire	Design Watts (G x H)	Allowed Watts Minimum of D or I	
B	SURFACE MTD COMPACT FLUOR DOWNLIGHT	FULL	28		56	3	84		
B	SURFACE MTD COMPACT FLUOR DOWNLIGHT	FULL	28		56	1	28		
C	RECESSED COMPACT FLUOR STEP LIGHT	FULL	28		56	8	224		
Enter total into OLTG-1C, Page 4 of 4; Row H; Total Installed Watts:					336				

1. Type of luminaire (i.e., post top, wall pack, surface, street light) for non-incandescent luminaires, indicate nominal lamp wattage and lamp type (i.e., fluorescent, incandescent, HID); ballast type (i.e., electronic or magnetic); number of lamps and number of ballasts per luminaire. For incandescent luminaires, the luminaire wattage listed in column D shall be the maximum relaying rated wattage on a permanent factory-installed label on the luminaire, NOT the wattage of the lamp (only) used, in accordance with Section 1306 or 4. If fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

EXEMPT LUMINAIRES
 Name or Symbol Description of exempt luminaires in accordance with § 147

#	Description	Location	#	Description	Location
1	ATS	UTILITY ROOM			
1	OP	NORTH WALL			

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of OLTG-1C)
 The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Certificate of Compliance (Page 3 of 4) OLTG-1C
 Project Name: PALISADES PARK COMFORT STATION Date: AUGUST 2, 2012

A. OUTDOOR LIGHTING ZONE
 OUTDOOR LIGHTING ZONE: OLZ 1 OLZ 2 OLZ 3 OLZ 4

Is the Outdoor Lighting Zone: Default in accordance with § 10-114, or Amended by JHA
 Complete the information below if the default Outdoor Lighting Zone has been amended by the local jurisdiction having authority (JHA):
 The site is a government designated park, recreation area, wildlife preserve, or portion thereof, and has been designated as LZ2 or LZ3, in accordance with Table 10-114-A, because the site is contained within such a zone.
 The local jurisdiction having authority has officially adopted a change to the State Default Lighting Zone and has notified the Energy Commission by providing the materials required in § 10-114(d) to the Executive Director.
 The adopted change is posted on the Energy Commission website.

B. ADDITIONAL LIGHTING POWER ALLOWANCE FOR ORDINANCE REQUIREMENTS
 Are additional lighting power allowances for ordinance requirements used? Yes No
 Complete the information below if additional lighting power allowances for ordinance requirements are used:
 The local jurisdiction having authority has officially adopted specific outdoor light levels, which are expressed as average or minimum footcandle levels, by following a public process that allowed for formal public notification, review, and comment about the proposed change.
 The local jurisdiction having authority which adopted specific outdoor light levels and has notified the Commission by providing the following materials required § 10-114(f) to the Executive Director.

C. ACCEPTANCE FORMS
 Required Acceptance Tests
 Designer:
 This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, LTG-2A. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NLP Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately. Forms can be grouped by type of Luminaire control.

Enforcement Agency:
 Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when over new lighting system with controls is installed in the building or space shall be certified as meeting the acceptance requirements. The LTG-2A form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance form shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of § 10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the LTG-2A for each different lighting luminaire control(s) must be provided by the owner of the building for their records.

Luminaires Controlled		Certificate of Acceptance OLTG-2A	
Equipment Requiring Testing	Description	Number of Lamps/Controls	Outdoor Lighting Acceptance Tests
ASTRONOMICAL TIME SWITCH (ATS)	TYPES B, BI, C	1	UTILITY ROOM
OUTDOOR PHOTOCONTROL (OP)	TYPES B, BI, C	1	NORTH WALL

1. Insert: OMS for Outdoor Motion Sensor; OLS for Outdoor Lighting Shutoff Controls; OP for Outdoor Photocontrol; ATS for Astronomical Time Switch; and, STS for Standard (non-astronomical) Time Switch controls.

CERTIFICATE OF COMPLIANCE (Page 4 of 4) OLTG-1C
 Project Name: PALISADES PARK COMFORT STATION Date: AUGUST 2, 2012

ALLOWED AND INSTALLED OUTDOOR LIGHTING POWER

	Lighting Wattage Power Allowance	Lighting Wattage Power Allowance
A	Lighting power allowance for general hardcape (from OLTG-2C Page 1 of 3)	1075
B	Specific application lighting wattage allowance per unit length (from OLTG-2C Page 1 of 3)	
C	Specific application wattage allowance for ornamental lighting (from OLTG-2C Page 1 of 3)	
D	Specific application wattage allowance per application (from OLTG-2C Page 2 of 3)	84
E	Specific application lighting wattage allowance per area (from OLTG-2C Page 2 of 3)	28
F	Additional lighting power allowance for ordinance requirements (from OLTG-2C Page 3 of 3)	
G	Total Allowed Wattage = Sum of rows A through F:	1187
H	Total Installed Watts (from Luminaire Schedule, (from OLTG-1C (Page 2 of 4)	336

Provided that the lighting wattage power allowances listed in rows A through F are identical to the lighting wattage power allowances taken from OLTG-2C Pages 1 through 3, complies if Installed Wattage in row H is less than or equal to the Total Installed Wattage in row G Yes No

NOTES:

OUTDOOR LIGHTING WORKSHEET (Page 1 of 3) OLTG-2C
 Project Name: PALISADES PARK COMFORT STATION Date: AUGUST 2, 2012

A. LIGHTING POWER ALLOWANCE FOR GENERAL HARDCAPE

AREA WATTAGE ALLOWANCE (AWA)		LINEAR WATTAGE ALLOWANCE (LWA)		INITIAL WATTAGE ALLOWANCE	TOTAL GENERAL HARDCAPE LIGHTING ALLOWANCE
A	B	C	D	E	F
ILLUMINATED HARDCAPE AREA	AWA PER SQUARE FOOT	AWA (A x B)	PERIMETER LENGTH OF GENERAL HARDCAPE	LWA PER LINEAR FOOT	LWA (D x E)
786	0.092	72	253	.92	233
Enter total into OLTG-1C, Page 4 of 4; Row A; Lighting Power Allowance for General Hardcape:					770
C + F + G					
1075					

Enter total into OLTG-1C, Page 4 of 4; Row A; Lighting Power Allowance for General Hardcape: 1075

B. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER UNIT LENGTH (Available only for sales frontage)

DETERMINE WATTAGE ALLOWANCE		LUMINAIRE TYPE		DESIGN WATTS		ALLOWED WATTS	
A	B	C	D	E	F	G	
Specific Lighting Application	Linear Feet of Frontage	Sales Frontage allowance for OLZ (watts per ft)	Wattage Allowance (B x C)	Name or Symbol	Luminaire Type	Watts per Luminaire	Design Watts (G x H)
							Allowed Watts Minimum of D or I

Enter total into OLTG-1C, Page 4 of 4; Row B; Specific Application Lighting Wattage Allowance Per Unit Length

C. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE FOR ORNAMENTAL LIGHTING

DETERMINE WATTAGE ALLOWANCE		LUMINAIRE TYPE		DESIGN WATTS		ALLOWED WATTS	
A	B	C	D	E	F	G	
Specific Lighting Application	Square feet of Hardcape	Ornamental Lighting allowance for OLZ (watts per ft)	Wattage Allowance (B x C)	Name or Symbol	Luminaire Type	Watts per Luminaire	Design Watts (G x H)
							Allowed Watts Minimum of D or I

Enter total into OLTG-1C, Page 4 of 4; Row C; Specific Application Lighting Wattage Allowance for Ornamental Lighting

OUTDOOR LIGHTING WORKSHEET (Page 2 of 3) OLTG-2C
 Project Name: PALISADES PARK COMFORT STATION Date: AUGUST 2, 2012

D. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER APPLICATION

DETERMINE WATTAGE ALLOWANCE		LUMINAIRE TYPE		DESIGN WATTS		ALLOWED WATTS	
A	B	C	D	E	F	G	
Specific Lighting Application	Number of Luminaires	Specific Application Allowance (watts)	Wattage Allowance (B x C)	Luminaire Symbol	Luminaire Type	Watts per Luminaire	Design Watts (G x H)
BUILDING ENTRANCE	3	100	300	B	COMP. FL. DOWNLIGHT	3	84
							Allowed Watts Minimum of D or I

Enter total into OLTG-1C, Page 4 of 4; Row D; Specific Application Wattage Allowance Per Application

E. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER AREA

DETERMINE WATTAGE ALLOWANCE		LUMINAIRE TYPE		DESIGN WATTS		ALLOWED WATTS	
A	B	C	D	E	F	G	
Specific Lighting Application	Illuminated Area of Application	Specific Application Allowance (watts per ft)	Wattage Allowance (B x C)	Code for Luminaire Type	Luminaire Type	Watts per Luminaire	Design Watts (G x H)
NON-SALES CANOPY	75	.408	31	B1	COMP. FL. DOWNLIGHT	1	28
							Allowed Watts Minimum of D or I

Enter total into OLTG-1C, Page 4 of 4; Row E; Specific Application Lighting Wattage Allowance Per Area

OUTDOOR LIGHTING MANDATORY MEASURES

INSTALLED LIGHTING POWER
 DETERMINED IN ACCORDANCE WITH SECTION #30 (d).

CONTROLS FOR LIGHTING SYSTEMS
 N/A. ALL OUTDOOR LUMINAIRES WITH LAMPS RATED OVER 100 WATTS HAVE AN EFFICACY OF AT LEAST 80 LUMENS PER WATT, 132 (g)

OUTDOOR LUMINAIRE CUTOFF
 N/A. ALL OUTDOOR LUMINAIRES WITH LAMPS RATED OVER 175 WATTS ARE CUTOFF TYPE, 132 (b)

CONTROLS TO TURN LIGHTS OFF DURING DAYLIGHT HOURS
 ALL OUTDOOR LIGHTING IS CONTROLLED BY A PHOTOCELL AND 2-CHANNEL TIME SWITCH.

CONTROLS TO PROVIDE THE OPTION TO TURN OFF A PORTION OF THE OUTDOOR LIGHTS
 2-CHANNEL TIME SWITCH ALLOWS A PORTION OF THE OUTDOOR LIGHTS TO BE TURNED OFF.

NOTES
 CERTIFICATES OF ACCEPTANCE (LTG-2A/OLTG-2A) AND ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED TO THE FIELD INSPECTOR DURING CONSTRUCTION. CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED UNTIL THESE FORMS ARE REVIEWED AND APPROVED. INSTALLATION CERTIFICATES (LTG-INST/OLTG-INST) MUST BE COMPLETED FOR ALL BUILDINGS BY THE PERSON WITH THE OVERALL RESPONSIBILITY FOR CONSTRUCTION OR THE PERSON(S) RESPONSIBLE FOR THE INSTALLATION OF MATERIALS. A COPY OF THE INSTALLATION CERTIFICATE(S) SHALL BE POSTED, OR MADE AVAILABLE WITH THE BUILDING PERMIT(S) ISSUED FOR THE BUILDING, AND SHALL BE MADE AVAILABLE TO THE RESIDENT ENGINEER FOR ALL APPLICABLE INSPECTIONS.

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

EXTERIOR TITLE 24 COMPLIANCE

CITY OF SAN DIEGO, CALIFORNIA
 ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
 SHEET 38 OF 46 SHEETS

W.B.S. S-10026
 W.O. _____

FOR CITY ENGINEER: [Signature] DATE: 6/18/13
 DESCRIPTION: FINAL BY: MOA APPROVED: DATE: 08/02/12 FILMED: [Signature]

SECTION HEAD: [Signature]
 PROJECT MANAGER: [Signature]
 CCS27 COORDINATE: [Signature]
 CCS83 COORDINATE: [Signature]

CONTRACTOR: [Signature] DATE STARTED: [Signature]
 INSPECTOR: [Signature] DATE COMPLETED: [Signature]

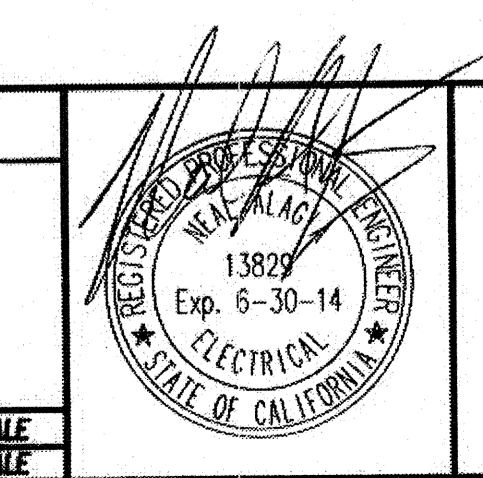
36598-38-D

CONSTRUCTION CHANGE / ADDENDUM

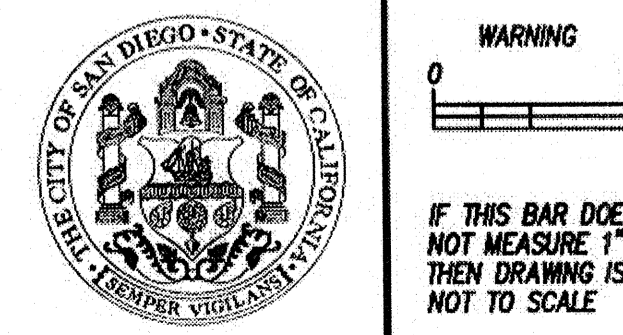
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT
 TURPIN & RATTAN ENGINEERING, INC.
 4719 PALM AVE. LA MESA, CA 91941
 TEL: (619) 466-6224 FAX: (619) 466-6224
 TRF # 10120.00

SCALE: HORIZONTAL NO SCALE VERTICAL NO SCALE

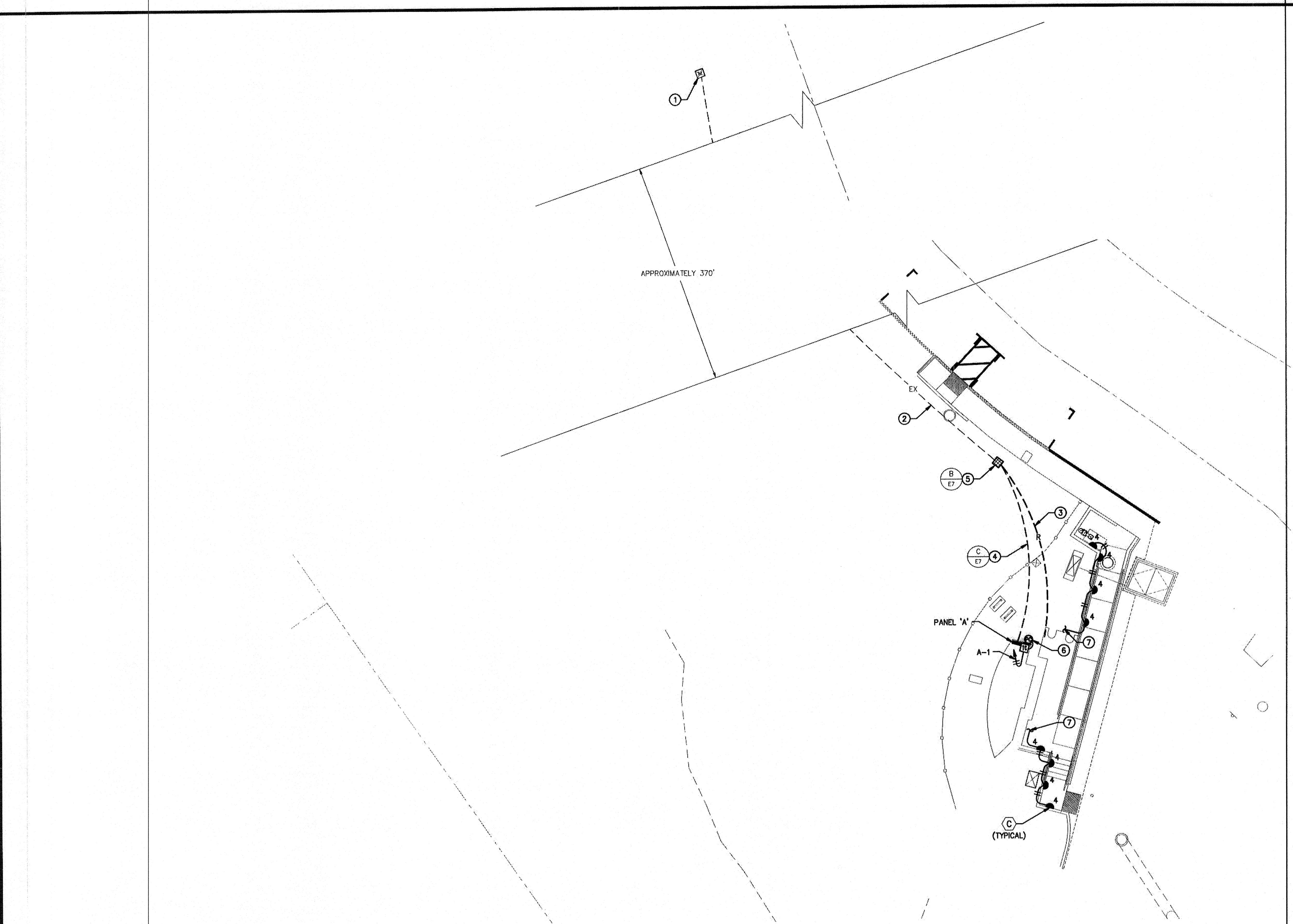


CITY OF SAN DIEGO
 PUBLIC WORKS PROJECT



WARNING
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION



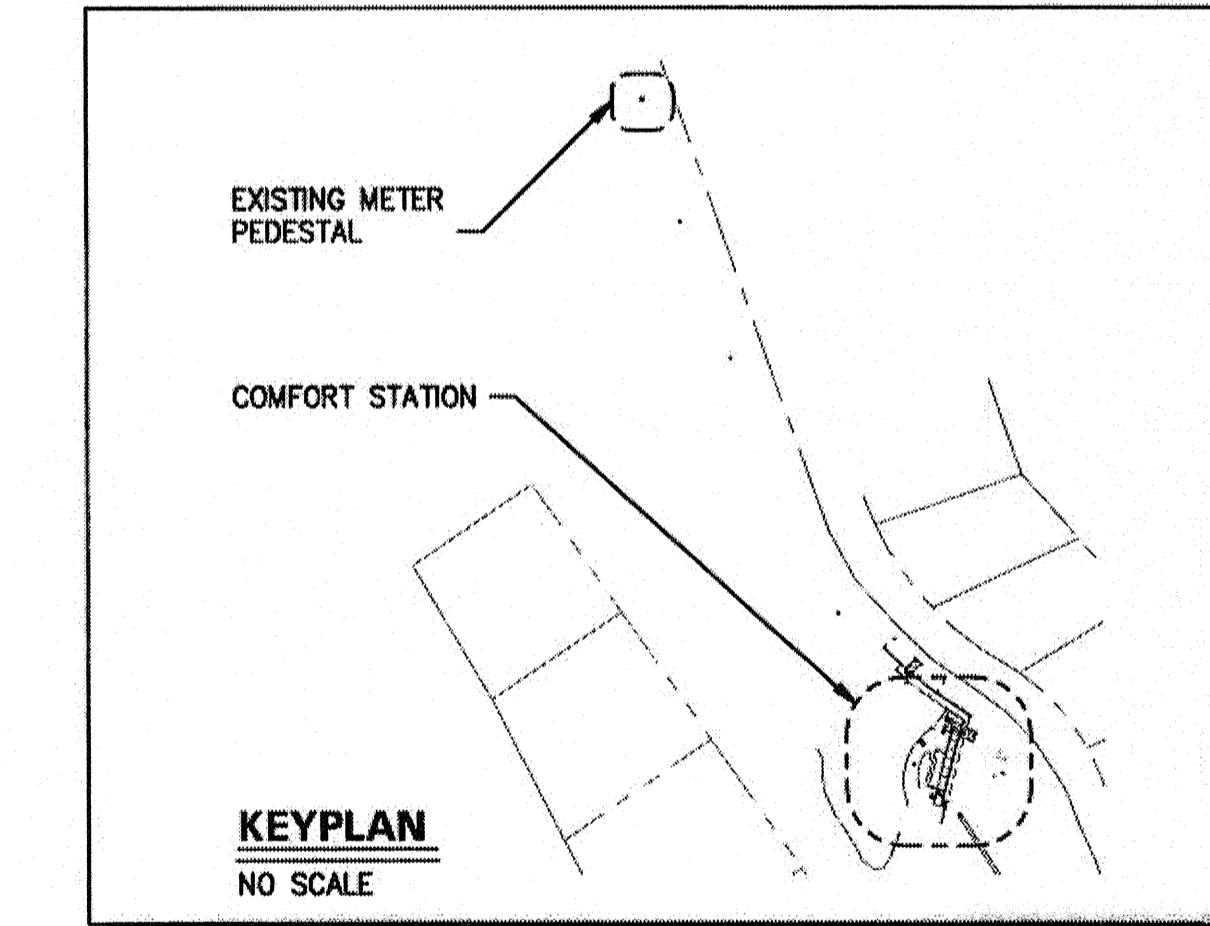
- KEYNOTES**
- ① EXISTING METER PEDESTAL TO REMAIN.
 - ② EXISTING UNDERGROUND FEEDER TO REMAIN.
 - ③ DISCONNECT AND REMOVE EXISTING UNDERGROUND FEEDER CONDUIT AND WIRE BACK TO LOCATION OF NEW GRADE MOUNTED JUNCTION BOX.
 - ④ INTERCEPT EXISTING UNDERGROUND FEEDER. PROVIDE 1" CONDUIT, 3#6 FROM GRADE MOUNTED JUNCTION BOX TO PANEL 'A'. VERIFY SIZE OF EXISTING CONDUIT PRIOR TO ORDERING NEW CONDUIT.
 - ⑤ GRADE MOUNTED JUNCTION BOX.
 - ⑥ PHOTOCELL. MOUNT ON WALL FACING NORTH.
 - ⑦ FOR CONTINUATION SEE SHEET E6.

TRENCHING NOTE

LOCATIONS OF EXISTING UNDERGROUND UTILITY AND OTHER UNDERGROUND OBSTRUCTIONS AND CONDITIONS ARE GENERALLY UNKNOWN. HIRE A UTILITY LOCATING SERVICE TO LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO DIGGING. VERIFY EXACT LOCATION SIZE AND EXTENT OF ALL OBSTRUCTIONS AND OTHER CONDITIONS WHICH MAY AFFECT THE PROPOSED WORK UNDER THE PROJECT. TAKE EVERY PRECAUTION TO PREVENT DAMAGE TO EXISTING WORK, INCLUDING HAND DIGGING AROUND EXISTING UTILITIES, TREE ROOT SYSTEMS, AND HARDSCAPE FEATURES. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES SHALL BE IMMEDIATELY REPAIRED OR REPLACED IN ACCORDANCE WITH THE RESIDENT ENGINEER'S DIRECTION AT THE CONTRACTOR'S EXPENSE.

LANDSCAPING REPAIR NOTE

IN THE COURSE OF TRENCHING AND SAWCUTTING EXISTING GROUNDS, WALKWAYS AND PAVEMENT, REPLACE SOD, SHRUBS, BUSHES, TREES, AC PAVING, PARKING LOT STRIPING AND REFILL/PATCH CONCRETE, ETC. TO MATCH EXISTING SURFACES.



ELECTRICAL SITE PLAN 1
SCALE: 1" = 10'-0"
north

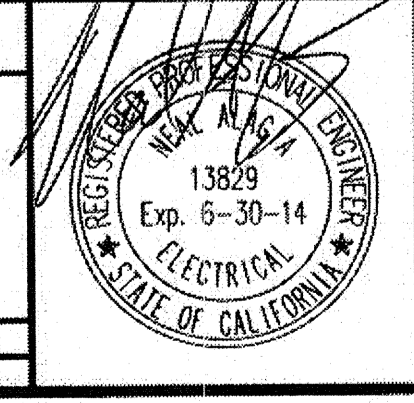
PLANS FOR THE CONSTRUCTION OF:			
PALISADES PARK COMFORT STATION			
ELECTRICAL SITE PLAN			
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 39 OF 46 SHEETS		W.B.S. S-10026 N.O.	
APPROVED	DATE	SECTION HEAD	
FOR CITY ENGINEER	6/18/13	PROJECT MANAGER	
DESCRIPTION	BY	APPROVED	DATE
FINAL	MOA		08/02/12
AS-BUILTS			
CONTRACTOR INSPECTOR	DATE STARTED	DATE COMPLETED	
		36598-39-D	

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

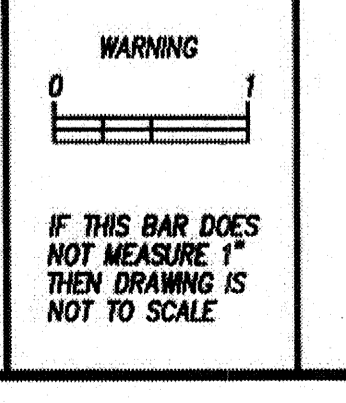
CONSULTANT

TURPIN & RATTAN
ENGINEERS, INC.
CONSULTING ENGINEERS
4710 WALN AVENUE
LA JOLLA, CA 92037-1501
619 480 4822 FAX 619 480 4833
E-MAIL: info@tr-engineers.com
TREC # 10120.00

SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE

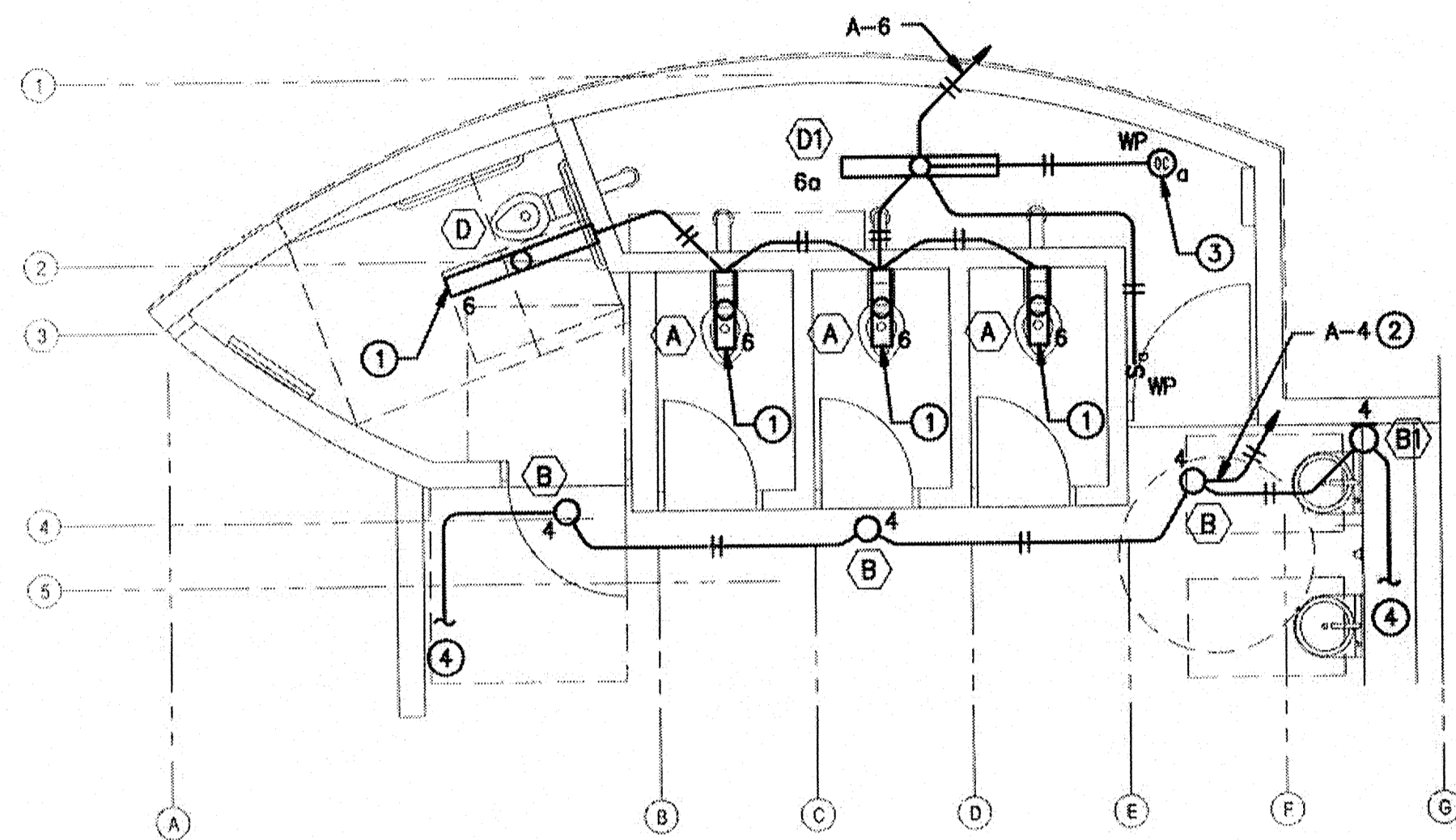


CITY OF SAN DIEGO PUBLIC WORKS PROJECT



E5

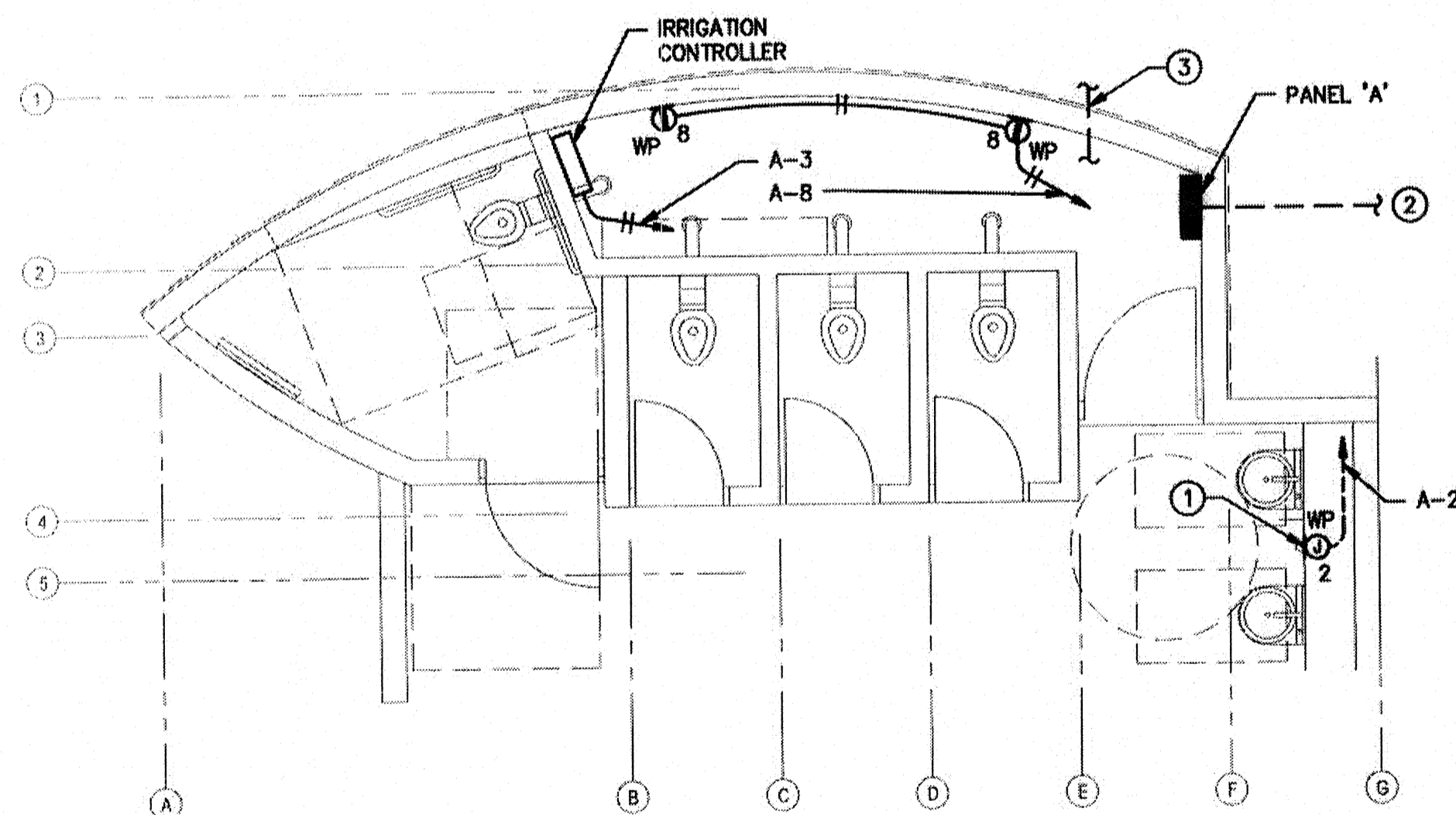
PALISADES PARK COMFORT STATION



KEYNOTES

- ① LIGHT FIXTURE PROVIDED WITH INTEGRAL MOTION SENSOR.
- ② CIRCUIT CONTROLLED VIA PHOTOCELL ON/TIME CLOCK OFF. SEE EXTERIOR LIGHTING CONTROL DIAGRAM DETAIL A/E7.
- ③ WEATHERPROOF OCCUPANCY SENSOR, WATTSTOPPER #EW-200-120-G OR APPROVED EQUAL.
- ④ FOR CONTINUATION SEE SHEET E5.

LIGHTING PLAN 1
SCALE: 1/4" - 1'-0" north



KEYNOTES

- ① WEATHERPROOF JUNCTION BOX FOR CONNECTION OF HAND DRYER. FIELD VERIFY EXACT POINTS OF CONNECTION FOR BLOWER MOTOR AND ACTUATING PUSHBUTTON.
- ② FOR CONTINUATION SEE SHEET E5.
- ③ COLD WATER POINT OF ENTRY. SEE PLUMBING SHEET E3.0 FOR EXACT LOCATION.

POWER PLAN 2
SCALE: 1/4" - 1'-0" north

E6

PLANS FOR THE CONSTRUCTION OF:					
PALISADES PARK COMFORT STATION					
LIGHTING AND POWER PLANS					
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 40 OF 46 SHEETS					W.B.S. S-10026 W.O.
APPROVED FOR CITY ENGINEER	DATE	6/18/13	DESIGNED BY		SECTION HEAD
BY	APPROVED	DATE	FILED	PROJECT MANAGER	
FINAL	MOA	08/02/12		CCS27 COORDINATE	
AS-BUILTS				CCS83 COORDINATE	
CONTRACTOR	DATE STARTED	DATE COMPLETED		36598-40-D	
INSPECTOR					

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

TURPIN & RATTAN
ENGINEERS, INC.
CONSULTING ENGINEERS
4710 RIALM AVENUE
SAN DIEGO, CA 92121-3521
619.466.4324 FAX 619.466.4333
E-MAIL: INFO@TRANDR.COM
TREL # 10120.00

SCALE: HORIZONTAL NO SCALE
VERTICAL NO SCALE



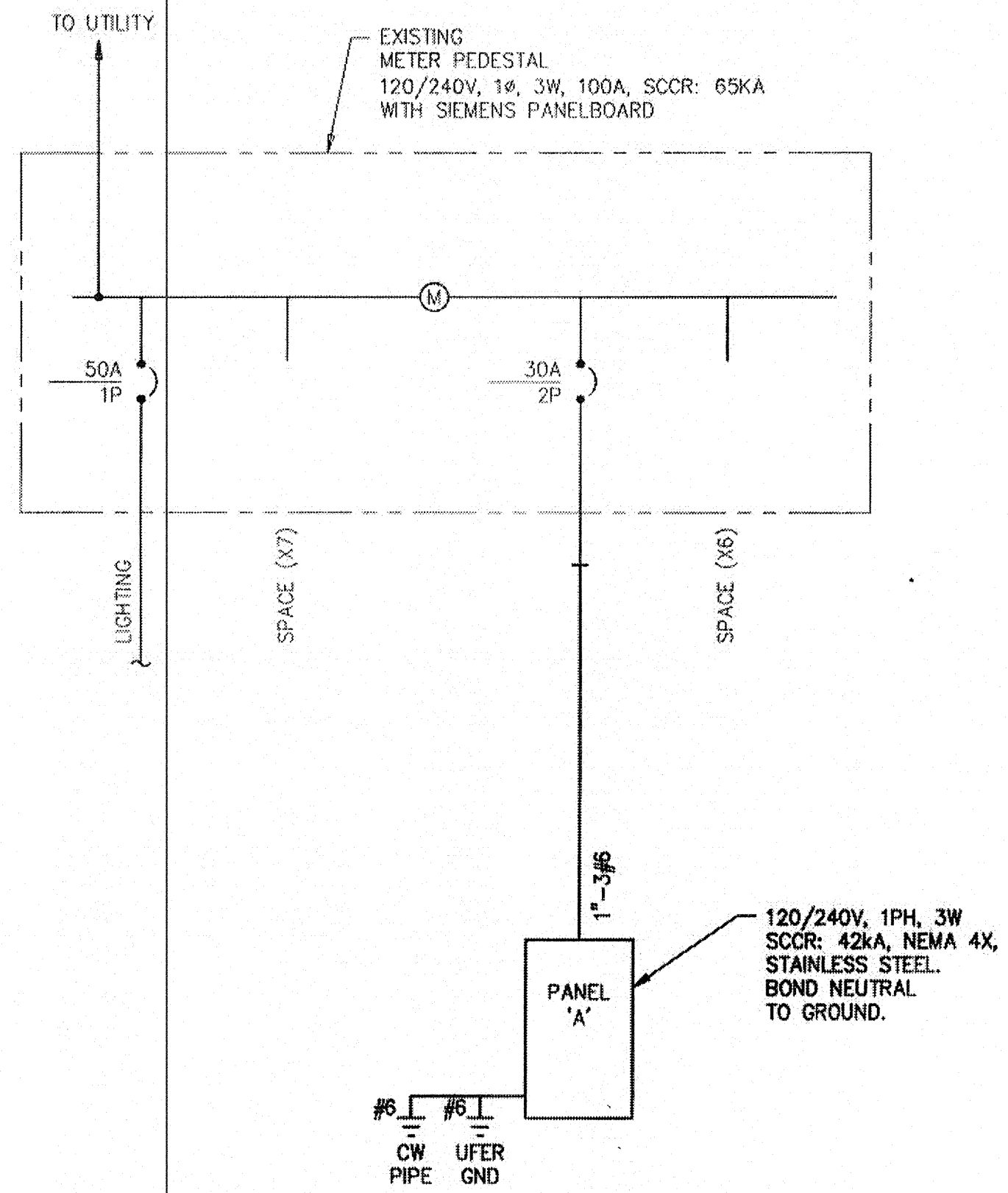
CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

WARNING

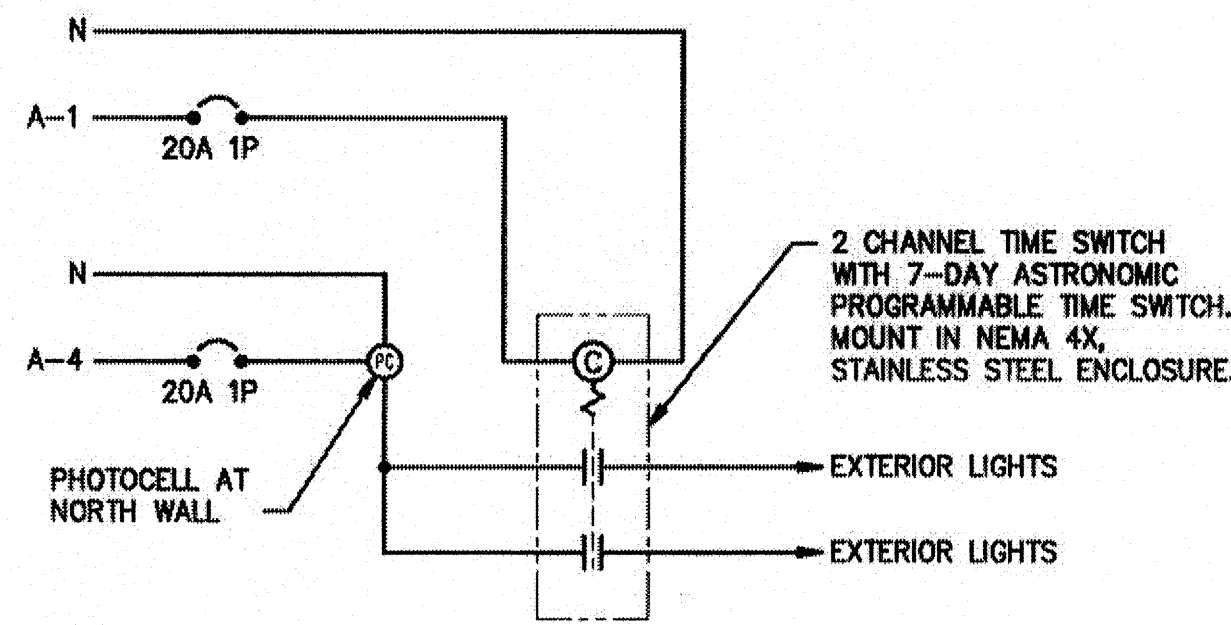
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION

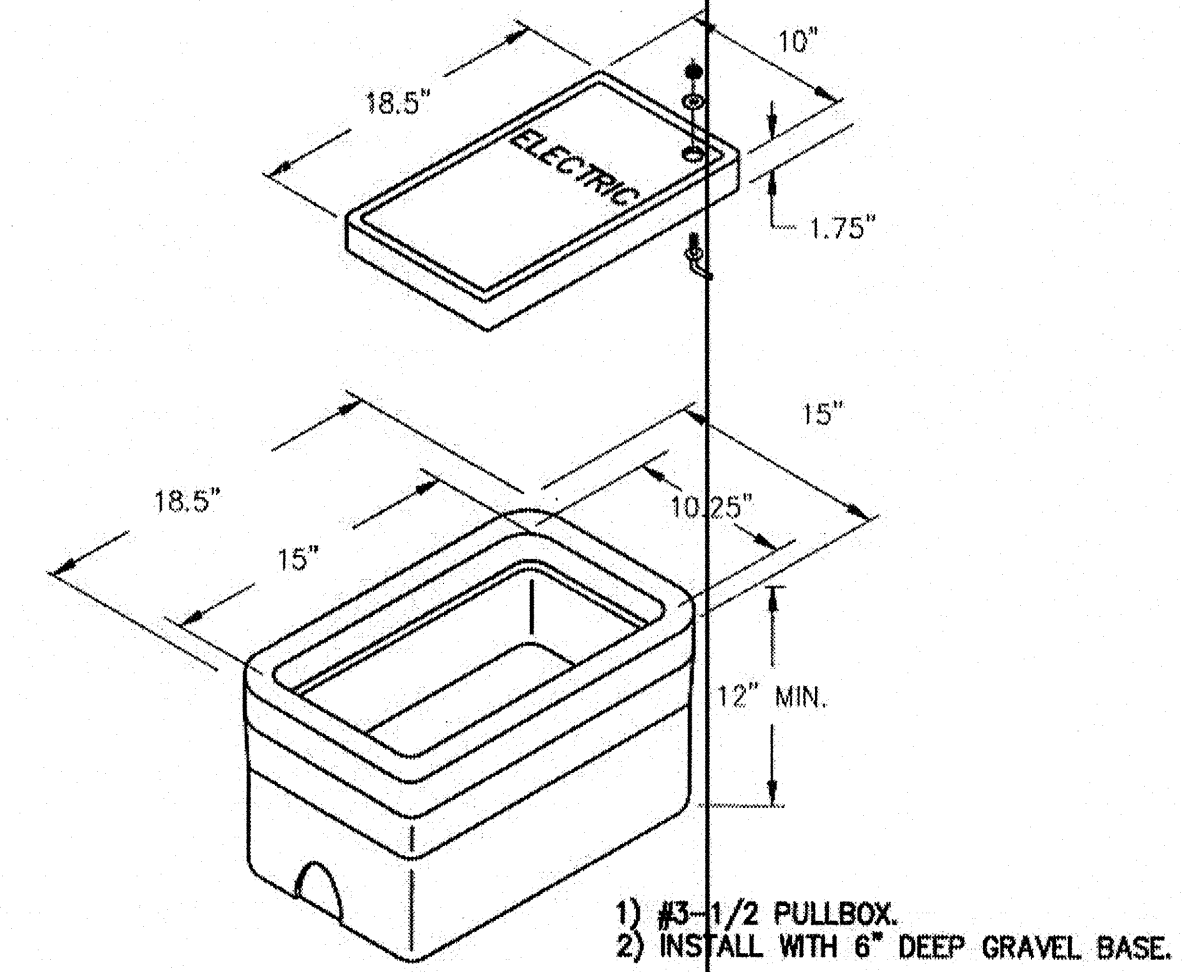


SINGLE LINE DIAGRAM
NO SCALE



ALL AUTOMATIC LIGHTING CONTROL DEVICES MUST BE CERTIFIED BY THE MANUFACTURER AND BE LISTED IN THE CALIFORNIA ENERGY COMMISSION DIRECTORY.

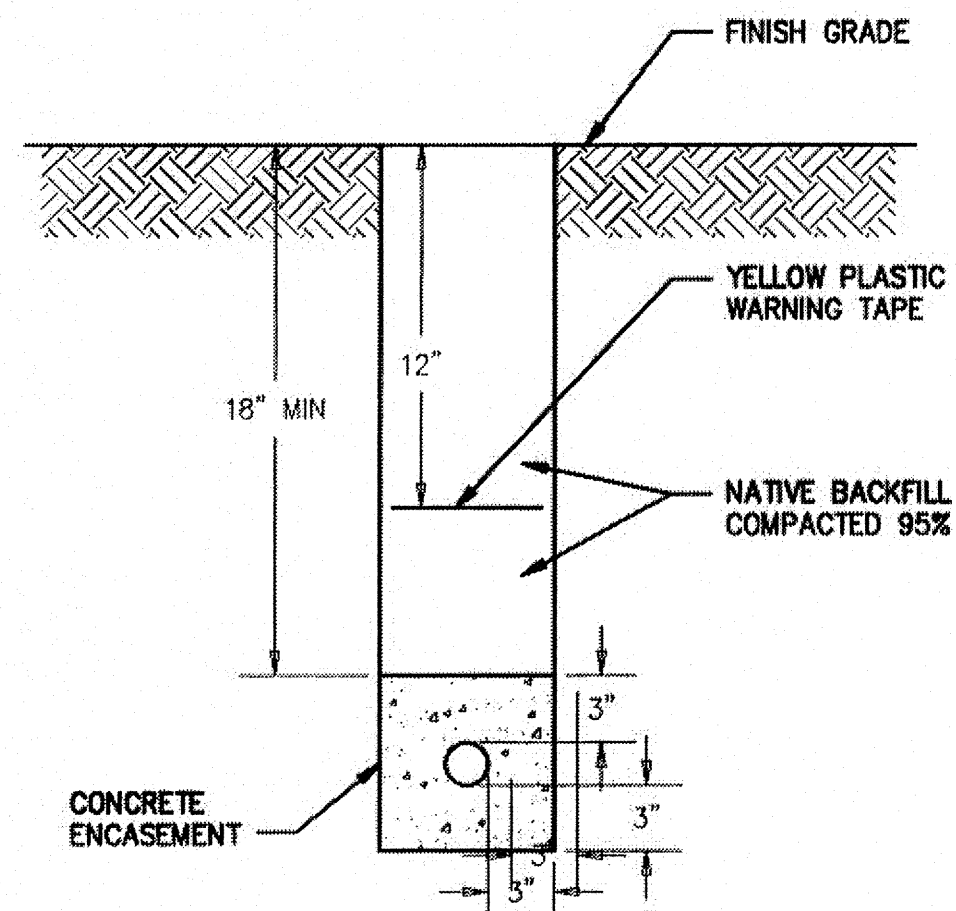
EXTERIOR LIGHTING CONTROL DIAGRAM
NO SCALE



TYPICAL GRADE MOUNTED JUNCTION BOX
NO SCALE

NEMA 4X, STAINLESS STEEL												
MOUNTING: SURFACE				PANEL 'A'					MAIN: 30 AMP/2 POLE **			
ENTER CABINET AT: BOTTOM									TYPE: BOLT-ON			
VOLTAGE: 120/240V, 1ϕ 3W									BUSSING: 100A AIC: 10K			
LOCATION	VOLT-AMPERES		L	T	R	M	E	K	R	M	L	LOCATION
	ϕA	ϕB										
TIME CLOCK & PHOTOCELL	200				2	20	1	1	1	1	1	HAND DRYER
IRRIGATION CONTROLLER		300		1	20	1	3	4	1	20	12	EXTERIOR LIGHTS
SPARE					20	1	5	6	1	20	5	EXTERIOR LIGHTS
SPARE					20	1	7	8	1	20	2	RECEPTACLES
SPARE					20	1	9	10	1	20		SPARE
SPARE					20	1	11	12	1	20		SPARE
SPARE							13	14				SPARE
SPARE							15	16				SPARE
SPARE							17	18				SPARE
SUBTOTAL	200	300										SUBTOTAL
TOTAL VOLT-AMPERES/PHASE ϕA= 1216 VA ϕB= 996 VA												
TOTAL PANEL VOLT-AMPERES: 2212 VA + LCL 128 VA= 2340 VA AMPS= 10												

* CIRCUIT CONTROLLED VIA PHOTOCELL ON/TIME CLOCK OFF.
** PROVIDE LUGS TO ACCOMMODATE #6 AWG CU.

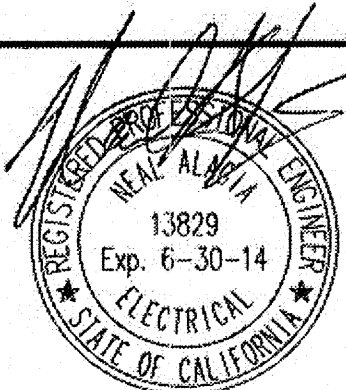


DUCTBANK SECTION
NO SCALE

PLANS FOR THE CONSTRUCTION OF: PALISADES PARK COMFORT STATION SINGLE LINE DIAGRAM, PANEL SCHEDULE AND DETAIL							
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 41 OF 46 SHEETS						W.B.S. S-10026 N.O.	
APPROVED:	6/15/13					DATE	
FOR CITY ENGINEER							
DESCRIPTION	BY	APPROVED	DATE	FILMED	SECTION HEAD		
FINAL	MOA		08/02/12		PROJECT MANAGER		
AS-BUILTS						CCS27 COORDINATE	
CONTRACTOR						DATE STARTED	
INSPECTOR						DATE COMPLETED	
						36598-41-D	

CONSTRUCTION CHANGE / ADDENDUM			CONSULTANT	
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.	

TURPIN & RATTAN
 ENGINEERS
 4719 PALM AVENUE
 LA JOLLA, CA 92037
 PHONE: (619) 485-2400 FAX: (619) 485-2433
 EMAIL: info@trr.com
 TRR # 10120.DD
 SCALE: HORIZONTAL NO SCALE VERTICAL NO SCALE

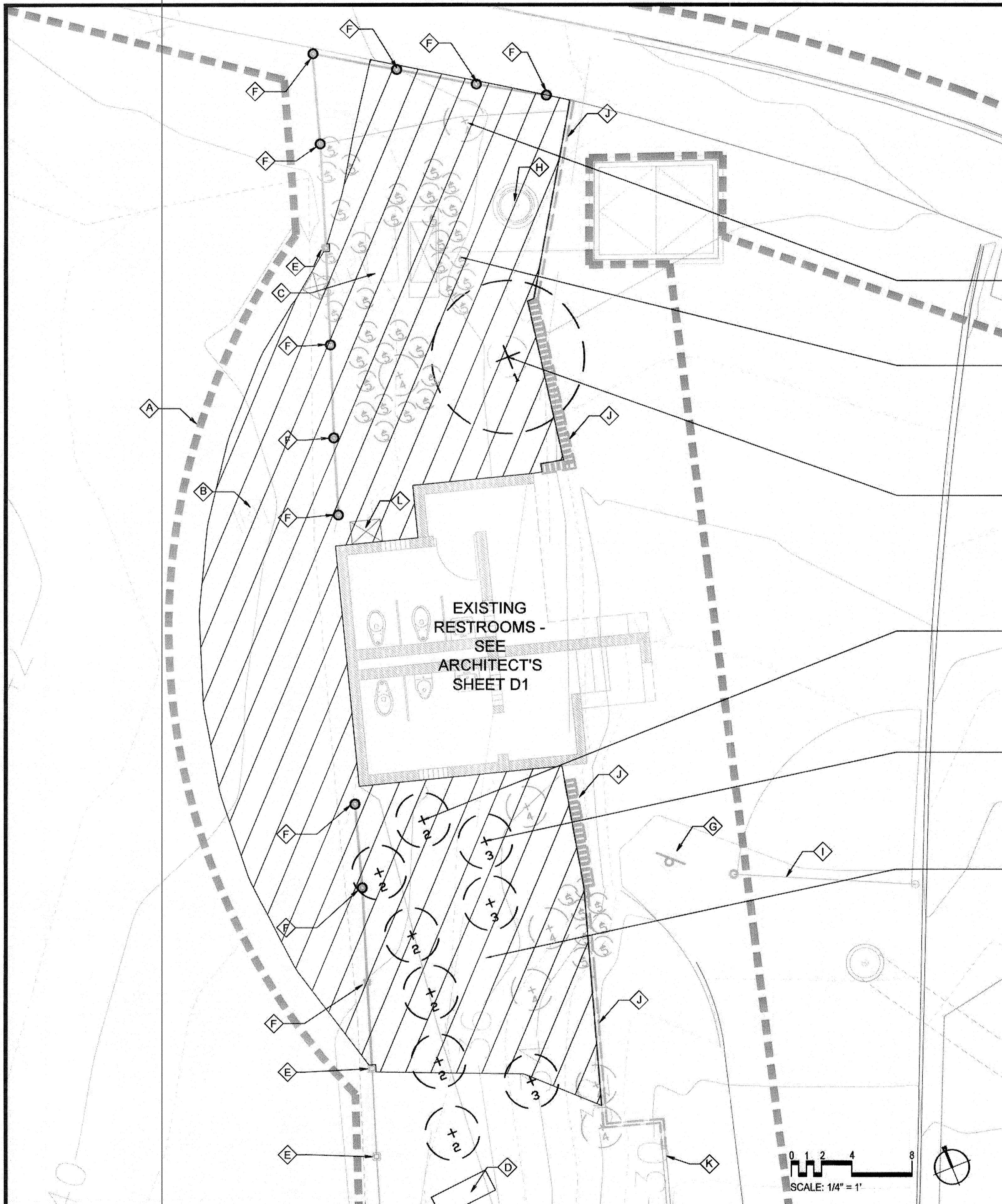


CITY OF SAN DIEGO PUBLIC WORKS PROJECT



WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

PALISADES PARK COMFORT STATION



EXISTING PLANT MATERIAL SCHEDULE

TREES		
SYMBOL	BOTANICAL NAME	COMMON NAME
MEL NES	Melaleuca nesophila	Pink Melaleuca
SHRUBS		
AGA AME	Agave americana	Century Plant
AGA AME VAR	Agave americana 'Variegata'	Century Plant
AGA ATT	Agave attenuata	Foxtail Agave
SEN MAN	Senecio mandraliscae	Blue Senecio

7 AGA ATT 2' H X 2' W
TRANSPLANT PER PLANTING PLAN

SEN MAN 1' H X 3' W
TRANSPLANT PER PLANTING PLAN

1 MEL NES
EXISTING TO BE REMOVED

6 AGA AME 4' H X 4' W
EXISTING TO BE REMOVED

3 AGA AME VAR 3'H X 3'W
EXISTING TO BE REMOVED

DEMOLITION AREA TO BE CLEARED AND GRUBBED ONCE PLANTS TO BE TRANSPLANTED HAVE BEEN SALVAGED.

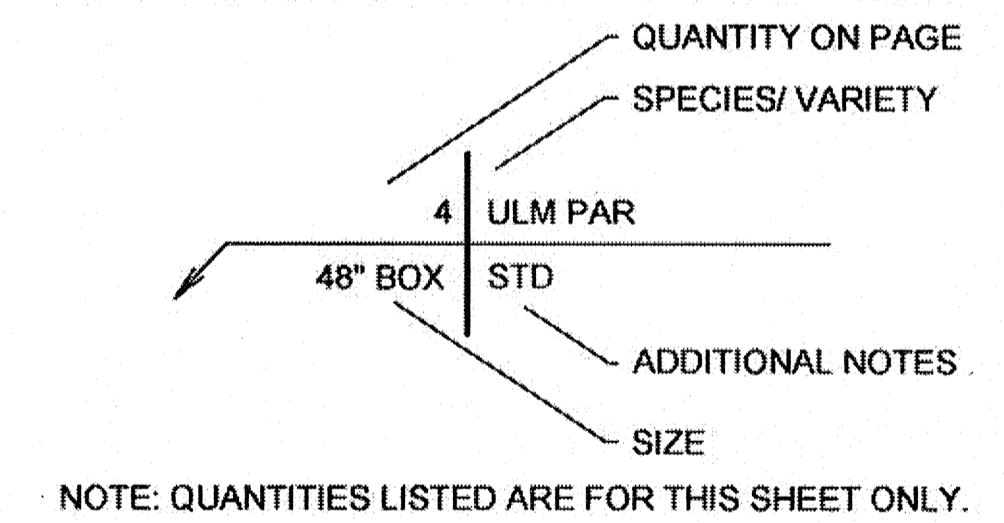
KEY NOTES

- Ⓐ LIMIT OF PROJECT LINE. SEE OTHER DISCIPLINE'S DRAWINGS FOR ADDITIONAL DEMOLITION AND SALVAGE INFORMATION.
- Ⓑ EXISTING 2" IRRIGATION BACKFLOW PREVENTION DEVICE TO BE REMOVED AND RETURNED TO THE CITY.
- Ⓒ UTILITY ENCLOSURE WITH CONCRETE PAD TO REMAIN. CAUTION! CALL DIGALERT.
- Ⓓ BENCH - PROTECT IN PLACE
- Ⓔ 6x6 CHAIN POST TO REMAIN (TYP. SYM.)
- Ⓕ 6x6 CHAIN POST TO BE RELOCATED (TYP. SYM.) - SEE PLANTING PLAN
- Ⓖ SIGN - SEE ARCHITECT'S DRAWINGS
- Ⓗ EXISTING MANHOLE - SEE ARCHITECT'S DRAWINGS
- Ⓘ EXISTING GATE TO REMAIN
- ⓵ EXISTING RETAINING WALL TO BE DEMOLISHED
- ⓶ EXISTING RETAINING WALL TO REMAIN
- ⓷ EXISTING IRRIGATION CONTROLLER TO BE SALVAGED AND RELOCATED PER IRRIGATION PLAN. PROTECT EXISTING CONTROL WIRES FOR RECONNECTION AT NEW CONTROLLER LOCATION. IDENTIFY EXISTING CONTROL WIRES AND VALVES. REMOVE BACK TO LOCATION OUTSIDE AREA OF CONSTRUCTION. STORE AND PROTECT DURING CONSTRUCTION.

SHRUB TRANPLANTING REQUIREMENTS

- THE FOLLOWING PROTECTION FOR EXISTING SHRUBS TO BE TRANSPLANTED WILL BE PROVIDED:
1. TRANSPLANTED SHRUBS SHALL BE GUARANTEED FOR ONE-YEAR BY THE TRANSPLANTING CONTRACTOR, WHO SHALL BE RESPONSIBLE FOR ALL ASPECTS OF THE SALVAGING, TRANSPORTING, STORAGE IRRIGATION & MAINTENANCE OPERATIONS. ANY VARIATION IN THESE RESPONSIBILITIES SHALL BE APPROVED BY THE OWNER IN WRITING.
 2. THE CONTRACTOR SHALL CONTINUOUSLY MAINTAIN ALL BOXED SHRUBS UNTIL THEY ARE TRANSPLANTED AND A PERMANENT IRRIGATION SYSTEM HAS BEEN INSTALLED.
 3. ACTUAL PLANTING SHALL BE PERFORMED DURING THOSE PERIODS WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE IN ACCORDANCE WITH LOCALLY ACCEPTED HORTICULTURAL PRACTICE.
 4. QUANTITIES FOR PLANT MATERIALS ARE SHOWN FOR CONVENIENCE ONLY, AND NOT GUARANTEED. CHECK AND VERIFY COUNT AND SUPPLY SUFFICIENT NUMBER TO FULFILL THE GRAPHIC INTENT OF DRAWINGS. CERTIFY ANY CLARIFICATIONS WITH THE LANDSCAPE ARCHITECT.

PLANT CALLOUT KEY

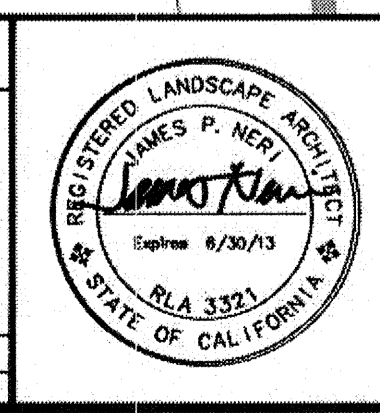


CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

NLA
NERI LANDSCAPE ARCHITECTURE
1008 HORNBLISS STREET, SUITE # 3
SAN DIEGO, CA 92109
619.517.2744-15.2.2.2
WWW.NERILA.COM

SCALE
HORIZONTAL 1/4" = 1'
VERTICAL 1/4" = 1'



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW X

WARNING
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

DESCRIPTION	BY	APPROVED	DATE	FILMED	SECTION HEAD
FINAL	MOA		08/02/12		PROJECT MANAGER
AS-BUILTS					CCS27 COORDINATE
CONTRACTOR INSPECTOR					CCS83 COORDINATE

FUNDING CP/SAP _____ SPEC. NO. _____

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

LANDSCAPE DEMOLITION & SALVAGE PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 42 OF 46 SHEETS

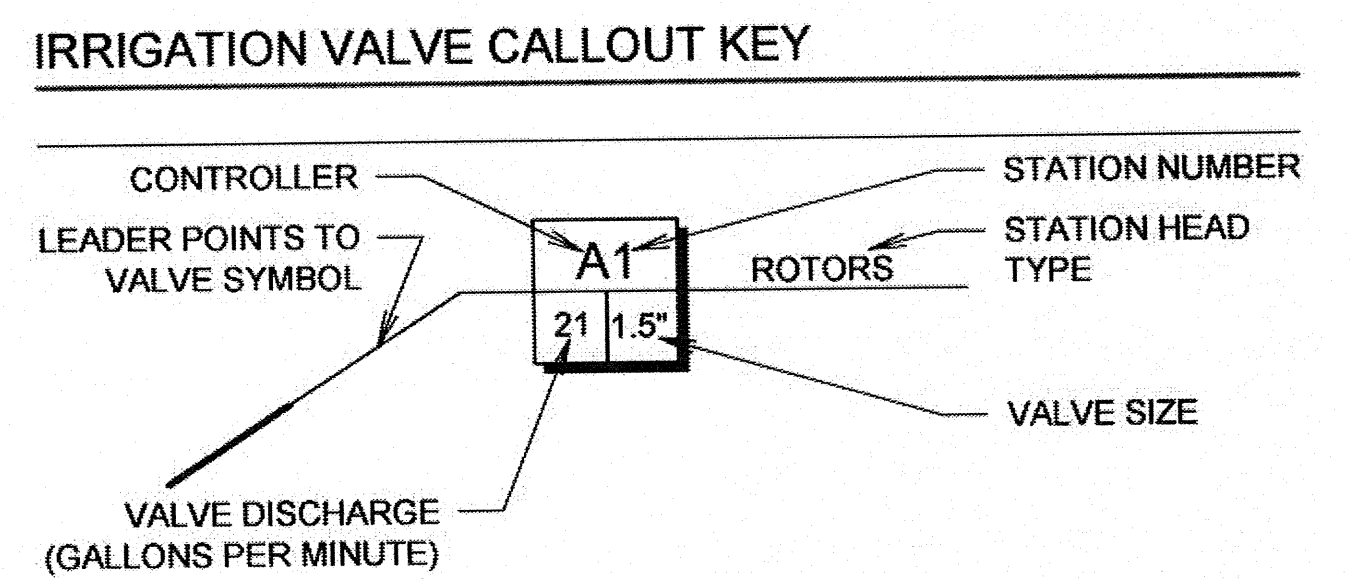
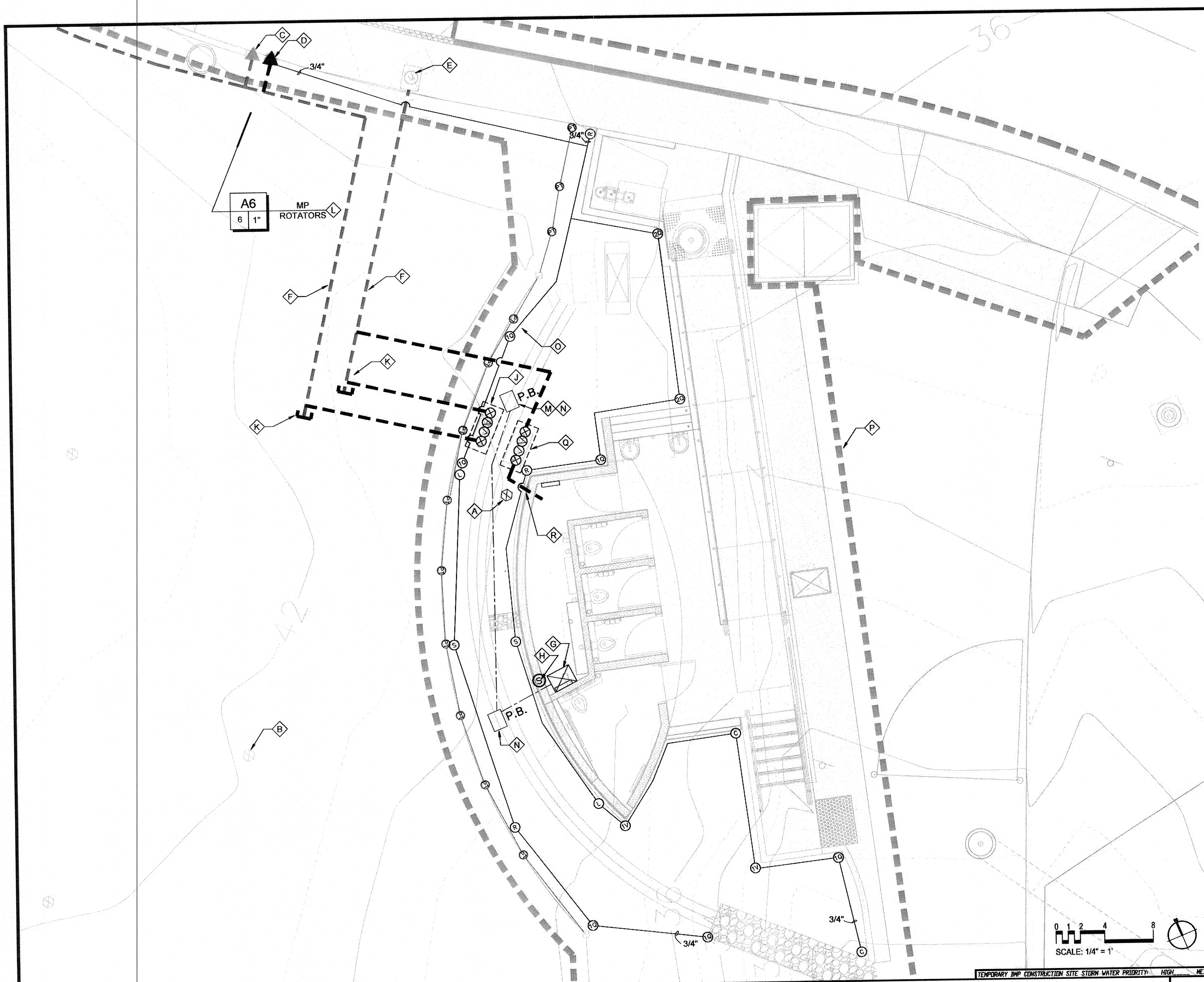
W.B.S. 5-10026
W.O. _____

DATE: 6/18/13

DATE STARTED: _____ DATE COMPLETED: _____

36598-42-D

PALISADES PARK COMFORT STATION



- ### KEY NOTES
- Ⓐ EXISTING HEAD TO BE REPURPOSED.
 - Ⓑ EXISTING HEADS TO REMAIN (TYP. SYMBOL). RECONFIGURE EXISTING TURF HEADS TO ENSURE HEAD-TO-HEAD COVERAGE.
 - Ⓒ EXISTING REMOTE CONTROL VALVE TO REMAIN.
 - Ⓓ NEW REMOTE CONTROL VALVE.
 - Ⓔ EXISTING WATER METER.
 - Ⓕ EXISTING MAINLINE (APPROXIMATE DIAGRAMATIC LOCATION).
 - Ⓖ EXISTING IRRIGATION CONTROLLER TO BE RELOCATED TO INTERIOR UTILITY ROOM OF NEW COMFORT STATION BUILDING. SEE ELECTRICAL FOR POWER.
 - Ⓗ NEW WIRELESS RAIN SENSOR TO BE ATTACHED TO ROOF PARAPET WALL - SEE DETAIL A/L2.1.
 - Ⓘ UNUSED.
 - Ⓙ NEW BACKFLOW PREVENTION DEVICE FOR IRRIGATION SYSTEM WITH NEW ENCLOSURE & NEW CONCRETE PAD (ALL-SPEC ENCLOSURES, MODEL VB-SS-4230 W/ CAGE SETTER MODEL CSVBSS-4230).
 - Ⓚ CAP EXISTING MAINLINE AND CONNECT TO NEW 2" MAINLINE FOR NEW BACKFLOW LOCATION.
 - Ⓛ VERIFY VALVE NUMBER WITH CONTROLLER BEFORE INSTALLING VALVE I.D. TAG AND PAINTING VALVE BOX LID.
 - Ⓜ SPLICE EXISTING CONTROL WIRES TO NEW CONTROL WIRES RUNNING TO RELOCATED CONTROLLER.
 - Ⓝ IRRIGATION WIRE PULL BOXES TO BE INSTALLED AT WIRE SPLICE CONNECTION AND AT EACH CHANGE OF DIRECTION.
 - Ⓞ BACKFILL AND WATER SETTLE SOIL IN TRENCH BEFORE PLANTING (TYP).
 - Ⓟ LIMIT OF PROJECT LINE.
 - Ⓠ NEW BACKFLOW PREVENTION DEVICE FOR BUILDING WITH NEW ENCLOSURE & NEW CONCRETE PAD (ALL-SPEC ENCLOSURES, MODEL VB-SS-4230 W/ CAGE SETTER MODEL CSVBSS-4230).
 - Ⓡ SEE ARCHITECTURAL DRAWINGS FOR POINT OF CONNECTION OF BUILDING BACKFLOW PREVENTION DEVICE TO BUILDING.



TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW X

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

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SAN DIEGO, CA 92109
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SCALE: HORIZONTAL 1/4" = 1'
VERTICAL 1/4" = 1'



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



WARNING
IF THIS BAR DOES NOT MEASURE 1' THEN DRAWING IS NOT TO SCALE

FUNDING CIP/SAP	SPEC. NO.	L2.0
PLANS FOR THE CONSTRUCTION OF:		
PALISADES PARK COMFORT STATION		
IRRIGATION PLAN		
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 43 OF 46 SHEETS		W.B.S. S-10026 W.O. _____
APPROVED FOR CITY ENGINEER	DATE 6/18/13	SIGNED BY _____
DESCRIPTION	BY	APPROVED
FINAL	MOA	08/02/12
DATE	FILMED	SECTION HEAD
		PROJECT MANAGER
AS-BUILTS		CCS27 COORDINATE
		CCS83 COORDINATE
CONTRACTOR INSPECTOR	DATE STARTED	DATE COMPLETED
		36598-43-D

PALISADES PARK COMFORT STATION

IRRIGATION EQUIPMENT LEGEND

SYMBOL	DESCRIPTION	REMARKS	DETAIL
⊖	WATER METER	EXISTING	EXISTING SD W-1 OR W-2
◀	REMOTE CONTROL VALVE	RAIN BIRD MODEL 100-EFB-CP-R (NOTE: DO NOT ATTACH PURPLE HANDLE CLIP)	SD I-14
⊗ G.V.	GATE VALVE W/ ALTERNATE PIPE SLEEVE INSTALLATION	---	SD I-13
⊗	GLOBE VALVE W/ ALTERNATE PIPE SLEEVE INSTALLATION	---	SD I-12
⊗	AUTOMATIC CONTROLLER	EXISTING RAINMASTER RM6 WALL MOUNTED CONTROLLER - SALVAGE & REINSTALL PER DETAIL WITH NEW WIRELESS RAIN SENSOR	SD I-18
---	DIRECT BURIAL CONTROL WIRE	SOLID COPPER - COLOR CODED	SD I-15 OR I-16
P.B.	PULL BOX	LOW VOLTAGE - LOCKING LID/ HIGH VOLTAGE - BOLT DOWN LID	SD I-15
-----	2" & LARGER MAINLINE	2" & LARGER - CLASS 315 PVC W/ SCH 80 FITTINGS OR BELL SOLVENT WELD FOR 3" AND LARGER. 21" BELOW GRADE (JOJ)	SD I-25 OR I-26
-----	1 1/2" AND SMALLER MAINLINE	1 1/2" AND SMALLER - SCH 40 PVC, 3/4" MINIMUM SIZE. 15" BELOW GRADE.	SD I-25
---	LATERAL LINES	SCH 40 PVC, 3/4" MINIMUM SIZE. 15" BELOW GRADE.	SD I-25
⊗	REDUCED PRESSURE BACKFLOW PREVENTER	2" FEBCO 825YA WITH NEW ENCLOSURE & CONCRETE PAD (ALL-SPEC ENCLOSURES MODEL VB-SS-4230 W/ CAGE SETTER MODEL CSVBSS-4230)	SD WR-01 & SDW100
⊗	WIRELESS RAIN SENSOR	IRRITROL MODEL RS-1000 (MODEL IS COMPATIBLE WITH EXISTING CONTROLLER)	A / L3.0
P.O.C.	POINT OF CONNECTION	---	---
---	VALVE MANIFOLD & VALVE BOX ORIENTATION	---	SD I-32

IRRIGATION STREAM ROTATOR HEAD SCHEDULE

ARC	SYM	DESCRIPTION	MANUFACTURER/ MODEL NUMBER	RAD. (FT.)	PSI	GALLONS PER MINUTE					DETAIL
						360°	270°	210°	180°	90°	
360°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP1000-360 (LAWN) HUNTER, PROS-12-PRS40-CV-MP1000-360 (SHRUB)	14'	40	0.75	---	---	---	---	SD I-3
210°-270°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP1000-210 (LAWN) HUNTER, PROS-12-PRS40-CV-MP1000-210 (SHRUB)	14'	40	---	0.57	0.43	---	---	SD I-3
90°-210°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP1000-90 (LAWN) HUNTER, PROS-12-PRS40-CV-MP1000-90 (SHRUB)	14'	40	---	---	0.43	0.37	0.19	SD I-3
360°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP2000-360 (LAWN) HUNTER, PROS-12-PRS40-CV-MP2000-360 (SHRUB)	19'-20"	40	1.47	---	---	---	---	SD I-3
210°-270°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP2000-210 (LAWN) HUNTER, PROS-12-PRS40-CV-MP2000-210 (SHRUB)	19'-20"	40	---	1.10	0.86	---	---	SD I-3
90°-210°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP2000-90 (LAWN) HUNTER, PROS-12-PRS40-CV-MP2000-90 (SHRUB)	19'-20"	40	---	---	0.86	0.74	0.40	SD I-3
360°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP3000-360 (LAWN) HUNTER, PROS-12-PRS40-CV-MP3000-360 (SHRUB)	30'	40	3.64	---	---	---	---	SD I-3
210°-270°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP3000-210 (LAWN) HUNTER, PROS-12-PRS40-CV-MP3000-210 (SHRUB)	30'	40	---	2.73	2.12	---	---	SD I-3
90°-210°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MP3000-90 (LAWN) HUNTER, PROS-12-PRS40-CV-MP3000-90 (SHRUB)	30'	40	---	---	2.12	1.82	0.86	SD I-3
ARC	SYM	DESCRIPTION	MANUFACTURER/ MODEL NUMBER	RAD. (FT.)	PSI	105°	90°	45°			DETAIL
45°-105°	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MPCORNER (LAWN) HUNTER, PROS-12-PRS40-CV-MPCORNER (SHRUB)	14'	40	0.45	0.39	0.19			SD I-3
ARC	SYM	DESCRIPTION	MANUFACTURER/ MODEL NUMBER	WxL	PSI	GPM					DETAIL
---	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MPLCS515 (LAWN) HUNTER, PROS-12-PRS40-CV-MPLCS515 (SHRUB)	5'x15'	40	0.22	LEFT CORNER STRIP				SD I-3
---	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MPSS530 (LAWN) HUNTER, PROS-12-PRS40-CV-MPSS530 (SHRUB)	5'x30'	40	0.44	SIDE STRIP				SD I-3
---	Ⓡ	SHORT DISTANCE POP-UP STREAM ROTOR	HUNTER, PROS-04-PRS40-CV-MPRCS515 (LAWN) HUNTER, PROS-12-PRS40-CV-MPRCS515 (SHRUB)	5'x15'	40	0.22	RIGHT CORNER STRIP				SD I-3

GENERAL NOTES

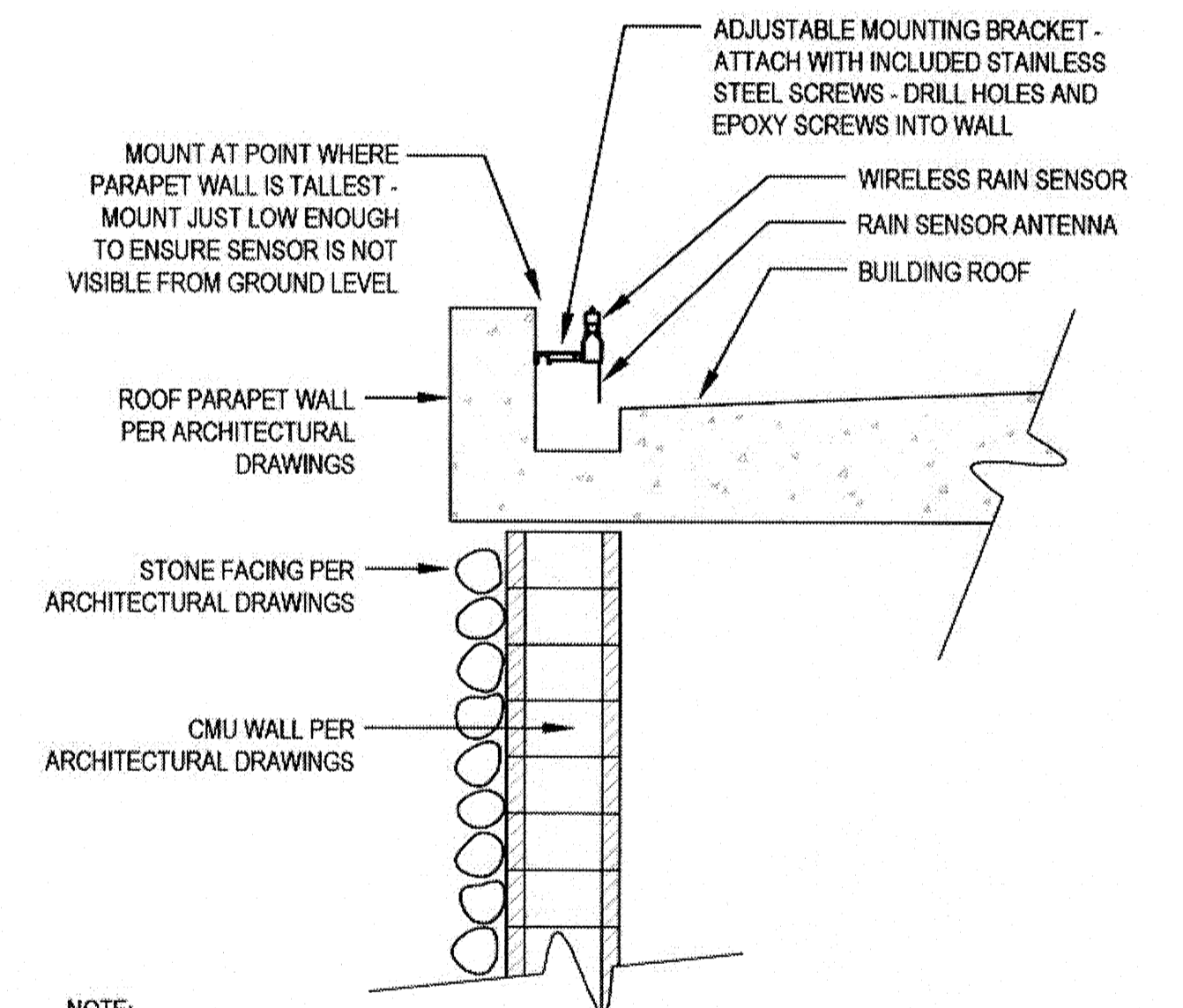
- IRRIGATION SYSTEMS ARE TO BE INSTALLED AS SHOWN ON THE PLANS, AS DIRECTED, IN ACCORDANCE WITH CURRENT LOCAL PLUMBING CODES AS OF THE APPROVED DATE OF THESE PLANS.
- THE CONTRACTOR SHALL MAKE SURE ALL LANDSCAPED AREAS AFFECTED BY THIS CONSTRUCTION RECEIVE 100% IRRIGATION COVERAGE.
- IRRIGATION LINES AND EQUIPMENT ARE SHOWN DIAGRAMMATICALLY. THE CONTRACTOR SHALL INSTALL EQUIPMENT IN PLANTING AREAS UNLESS APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
- THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL UNDERGROUND UTILITIES, STRUCTURES, AND EXISTING IRRIGATION EQUIPMENT IN WORK AREA PRIOR TO ORDERING ANY IRRIGATION MATERIALS AND PROCEEDING WITH THE INSTALLATION OF THE IRRIGATION SYSTEM. IF A CONFLICT EXISTS BETWEEN SUCH OBSTACLES AND THE PROPOSED WORK, CONTRACTOR SHALL PROMPTLY NOTIFY THE LANDSCAPE ARCHITECT TO ARRANGE FOR REQUIRED RELOCATIONS PRIOR TO START OF CONSTRUCTION. IF THE CONTRACTOR FAILS TO NOTIFY THE LANDSCAPE ARCHITECT SHOULD THE LOCATIONS BE FOUND DIFFERENT, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY CHANGES AND ADDITIONS THAT MAY OCCUR TO THE SYSTEMS.
- THE CONTRACTOR SHALL INSTALL MANIFOLDS (QUICK COUPLERS/ HOSE BIBS AND REMOTE CONTROL VALVES) ADJACENT TO WALKS AND CURBS (12" MAX. FROM SUCH EDGES) IN PLANTING AREAS. IN NO CASE SHALL VALVES BE LOCATED IN PAVED AREAS, UNLESS APPROVED IN WRITING BY THE LANDSCAPE ARCHITECT.
- ALL LATERAL END RUNS ARE 3/4" SIZE UNLESS INDICATED OTHERWISE.
- ALL IRRIGATION LINES PASSING UNDER ROADS, THROUGH WALLS, STRUCTURES, ETC. SHALL BE SLEEVED AS SPECIFIED. SLEEVES SHALL BE 2 TIMES THE DIAMETER OF PIPE TO BE SLEEVED, MINIMUM.
- CONTROL WIRES PASSING UNDER ROADS, THROUGH WALLS, STRUCTURES, ETC. SHALL BE INSTALLED AS SPECIFIED IN CONDUIT SLEEVES AT LEAST 2 TIMES THE DIAMETER OF WIRE BUNDLE (2" SIZE MINIMUM). KEEP CONDUIT SEPARATE FROM WATER LINE SLEEVES.
- WHERE LOW HEAD DRAINAGE OCCURS THE CONTRACTOR SHALL INSTALL AN ANTI-DRAIN VALVE UNDER EACH SPRINKLER HEAD. THE ANTI-DRAIN VALVE WILL BE THE SAME DIAMETER SIZE AS THE RISER AND SHALL BE INTEGRATED INTO THE RISER ASSEMBLY. VALVE SHALL BE "HUNTER HCV", OR APPROVED EQUAL UNLESS OTHERWISE SPECIFIED. IN THE CASE OF HEADS WITH BUILT-IN ANTI-DRAIN VALVES, THE MANUFACTURER'S INTEGRATED CHECK VALVE SHALL BE USED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXTENT OF ANY SIMULTANEOUS AND ESSENTIAL WORK BY OTHERS ON THE SITE. CONTRACTORS SHALL COORDINATE THEIR OPERATIONS AND SHALL COOPERATE TO MINIMIZE INTERFERENCE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTING AND DIMENSIONING FROM FIXED OBJECTS, THE EXACT LOCATION OF REMOTE CONTROL WIRING ROUTE, MAINLINE ROUTE, VALVES AND ALL OTHER MAJOR IRRIGATION EQUIPMENT ON THE "AS-BUILT" DRAWINGS. SEE ALSO SPECIFICATIONS.
- THE CONTRACTOR SHALL VERIFY THAT THE EXISTING IRRIGATION CONTROLLER HAS POWER AND SHALL ESTABLISH CONTINUITY IN ALL VALVE WIRES TO THE EXISTING REMOTE CONTROL VALVES.

WATER SOURCE

- THE IRRIGATION POINT OF CONNECTION (P.O.C.) SHALL BE MADE BY THE CONTRACTOR AT THE EXISTING MAINLINE.
- CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND THE STATIC WATER PRESSURE OF 116 PSI (+/- 10) AT POINTS OF CONNECTION PRIOR TO ORDERING ANY IRRIGATION MATERIALS AND PROCEEDING WITH INSTALLING IRRIGATION SYSTEM. IF THE CONTRACTOR FAILS TO NOTIFY THE LANDSCAPE ARCHITECT SHOULD THE STATIC WATER PRESSURE FOUND BE DIFFERENT, CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CHANGES AND ADDITIONS THAT MAY OCCUR TO THE SYSTEMS.
- THE IRRIGATION SYSTEM IS DESIGNED TO OPERATE AT 40 PSI AT THE HEADS.

EXISTING IRRIGATION SYSTEM NOTES

- PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A SET OF THE RECORD DRAWINGS FROM THE OWNER, AND VERIFY SITE LOCATIONS OF ALL EXISTING IRRIGATION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE RESIDENT ENGINEER SHOULD THE EXISTING IRRIGATION BE IN CONFLICT WITH THE PROPOSED SYSTEM.
- AREAS INDICATED ON PLANS AS "EXISTING IRRIGATION TO REMAIN" MAY REQUIRE ADJUSTMENT AND/ OR RELOCATION TO ACHIEVE ADEQUATE COVERAGE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE SUCH ADJUSTMENTS TO THE SATISFACTION OF THE RESIDENT ENGINEER.
- EXISTING IRRIGATION TO REMAIN SHALL BE PROTECTED IN PLACE AND REMAIN OPERABLE DURING CONSTRUCTION. EXISTING SYSTEMS SHALL NOT BE SHUT DOWN FOR MORE THAN 24 HOURS WITHOUT APPROVAL FROM THE RESIDENT ENGINEER. CONTRACTOR SHALL TEMPORARILY RELOCATE EXISTING CONTROLLER, CONTROL WIRES AND ELECTRICAL CONNECTION TO A PROTECTED AREA APPROVED BY THE RESIDENT ENGINEER.
- ALL RELOCATING AND RE-ROUTING OF PIPE SHALL BE GOVERNED BY THE SAME INSTALLATION DETAILS AND SPECIFICATIONS PROVIDED FOR THE NEW SYSTEM.
- EXISTING IRRIGATION EQUIPMENT DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED WITH MATERIAL IN-KIND, AT NO EXPENSE TO THE OWNER.



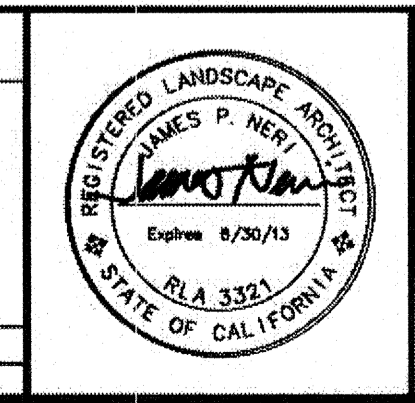
WIRELESS RAIN SENSOR DETAIL
SECTION SCALE: 1" = 1'-0"

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

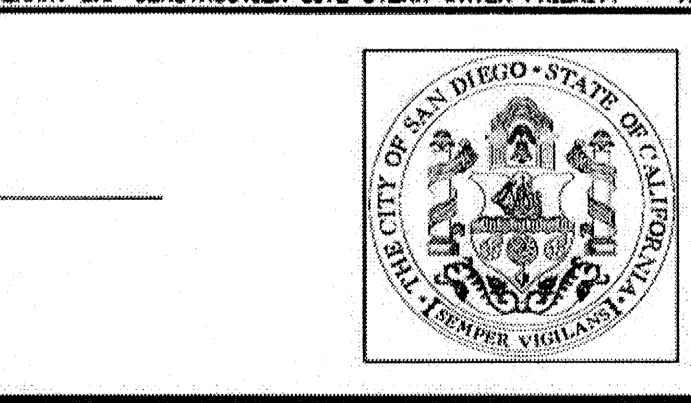
CONSULTANT

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SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

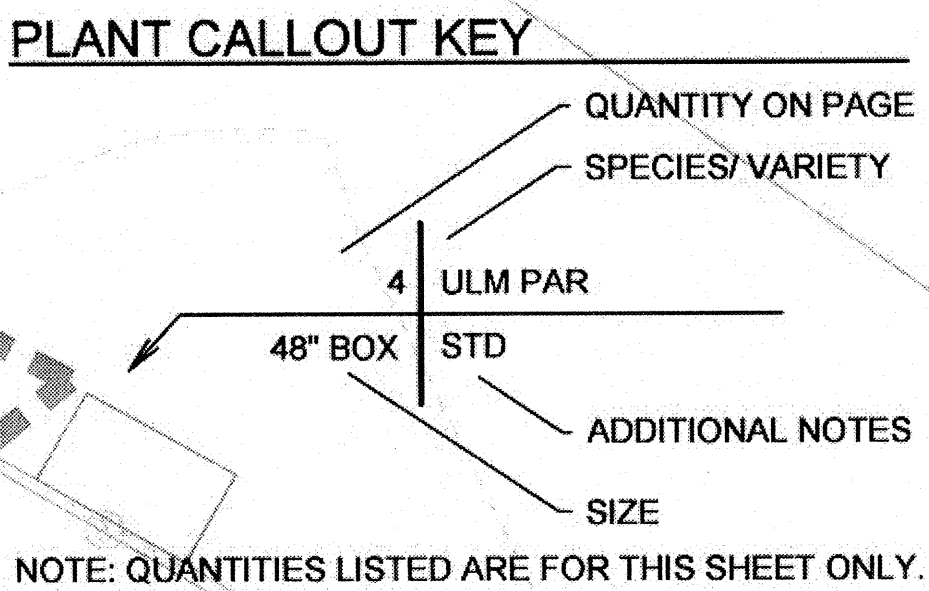
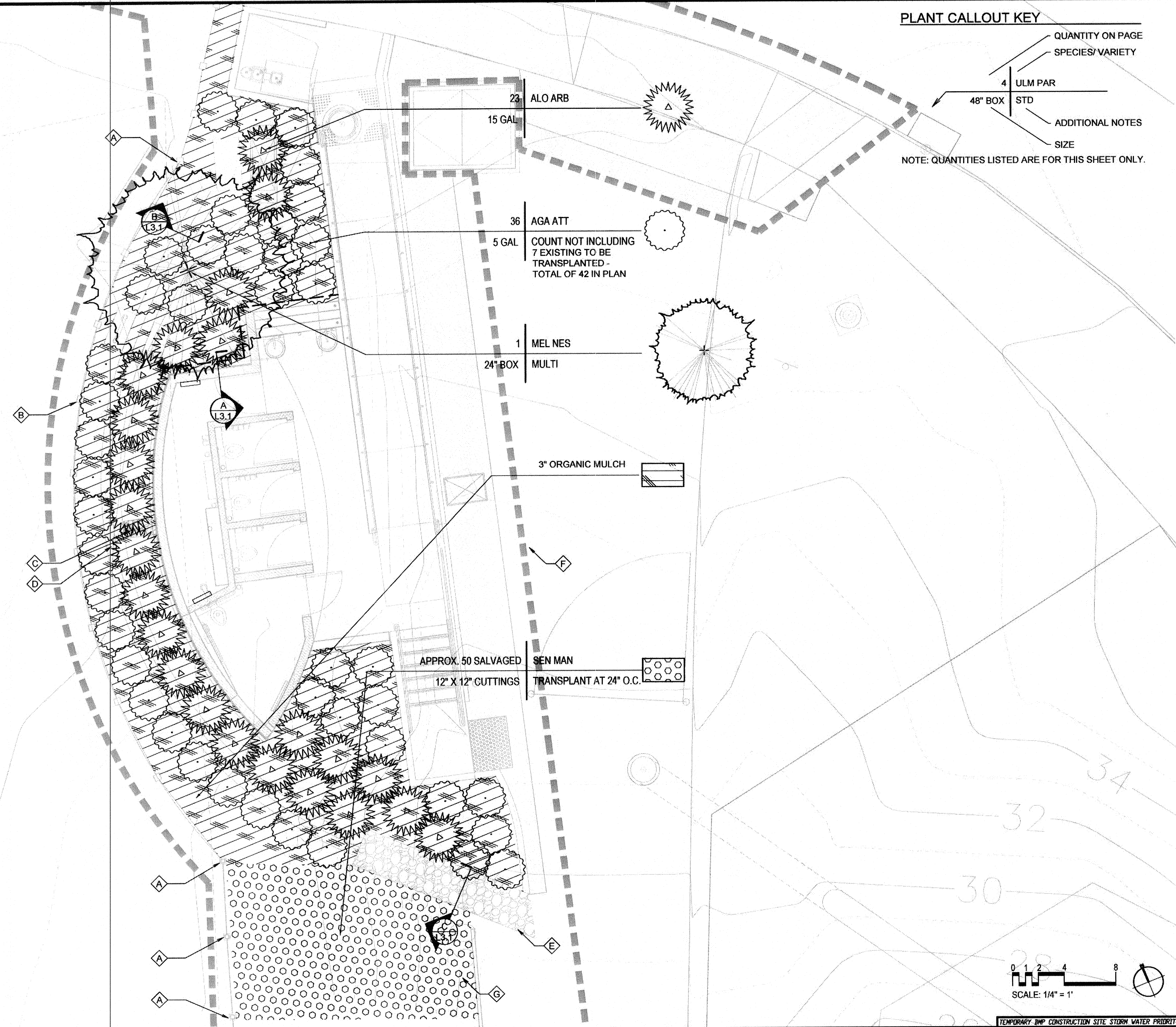


WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

IRRIIGATION SCHEDULES, NOTES & DETAILS					CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 44 OF 46 SHEETS	
DESCRIPTION	BY	APPROVED	DATE	FILED	SECTION HEAD	PROJECT MANAGER
FINAL	MOA		08/02/12			CCS27 COORDINATE
AS-BUILTS						CCS83 COORDINATE
CONTRACTOR INSPECTOR			DATE STARTED	DATE COMPLETED	36598-44-D	

PALISADES PARK COMFORT STATION

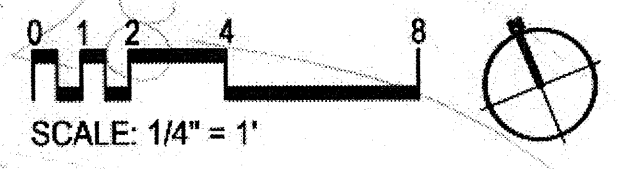


- GENERAL NOTES**
- SEE SPECIFICATIONS FOR ITEMS NOT COVERED ON THESE PLANS. ALL RELEVANT SPECIFICATIONS IN THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ("GREENBOOK") SHALL BE ADHERED TO.
 - THE CONTRACTOR SHALL RECONCILE THE CALLOUT QUANTITIES WITH THE GRAPHIC QUANTITIES AND SHALL PROVIDE PLANTS EQUAL TO THE GRAPHIC QUANTITIES SHOWN ON THE PLANS.
 - PLANT MATERIAL LOCATIONS ON THE PLANTING PLAN ARE APPROXIMATE AND SHALL BE ADJUSTED AS DIRECTED BY THE RESIDENT ENGINEER.
 - BUDS AND BLOOMS ON ALL PLANTS MUST BE PROTECTED AT ALL TIMES, INCLUDING TRANSPORTATION AND INSTALLATION.
 - TREES AND SHRUBS SHALL BE SHAPED AND PRUNED DURING THE MAINTENANCE PERIOD ONLY AS DIRECTED BY THE RESIDENT ENGINEER.
 - ALL TREES TO BE PLANTED A MIN 5' FROM UNDERGROUND UTILITIES.
 - ALL PLANTING AREAS SHALL BE COVERED WITH MULCH TO A MINIMUM DEPTH OF 3 INCHES.
 - PROPOSED LANDSCAPING SHALL NOT CONFLICT WITH EXISTING UTILITIES.
 - PROPOSED UTILITIES SHALL NOT CONFLICT WITH PROPOSED LANDSCAPING.

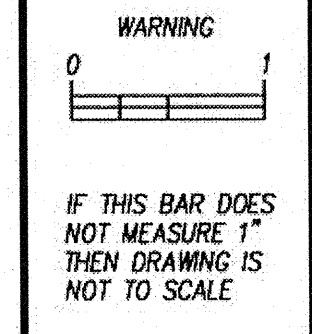
- KEY NOTES**
- Ⓐ EXISTING CHAIN POST TO REMAIN
 - Ⓑ RELOCATE SALVAGED CHAIN POSTS ALONG NEW FENCELINE (TYP. SYMBOL)
 - Ⓒ COBBLE STRIP FROM BASE OF BLDG UNDER ROOF SCUPPER TO SWALE
 - Ⓓ COBBLE-LINED GRAVEL SWALE PER CIVIL'S DRAWINGS
 - Ⓔ COBBLE-LINED RIPRAP PAD PER CIVIL'S DRAWINGS
 - Ⓕ LIMIT OF PROJECT LINE
 - Ⓖ AREA OF TRANSPLANTED SEN MAN TO BE HAND-WATERED DURING MAINTENANCE PERIOD

MINIMUM STREET TREE DISTANCES FROM IMPROVEMENTS:

IMPROVEMENT	MIN. DISTANCE TO STREET TREE
TRAFFIC SIGNALS, STOP SIGN.....	20 FEET
UNDERGROUND UTILITY LINES (EXCEPT SEWER).....	5 FEET
SEWER LINES.....	10 FEET
ABOVE GROUND UTILITY STRUCTURES (TRANSFORMERS, HYDRANTS, UTILITY POLES, ETC.).....	10 FEET
DRIVEWAYS.....	10 FEET
INTERSECTIONS (INTERSECTING CURB LINES OF TWO STREETS).....	25 FEET



TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW X



CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

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SCALE: HORIZONTAL 1/4" = 1'
VERTICAL 1/4" = 1'

**CITY OF SAN DIEGO
PUBLIC WORKS PROJECT**



FUNDING CIP/SAP _____ SPEC. NO. _____

PLANS FOR THE CONSTRUCTION OF:
PALISADES PARK COMFORT STATION

LANDSCAPE PLANTING PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 45 OF 46 SHEETS

W.B.S. S-10026
W.O. _____

APPROVED: _____ DATE: 6/18/13
FOR CITY ENGINEER

SECTION HEAD: _____
PROJECT MANAGER: _____

CCS27 COORDINATE: _____
CCS83 COORDINATE: _____

AS-BUILTS _____
CONTRACTOR INSPECTOR _____ DATE STARTED _____ DATE COMPLETED _____

36598-45-D

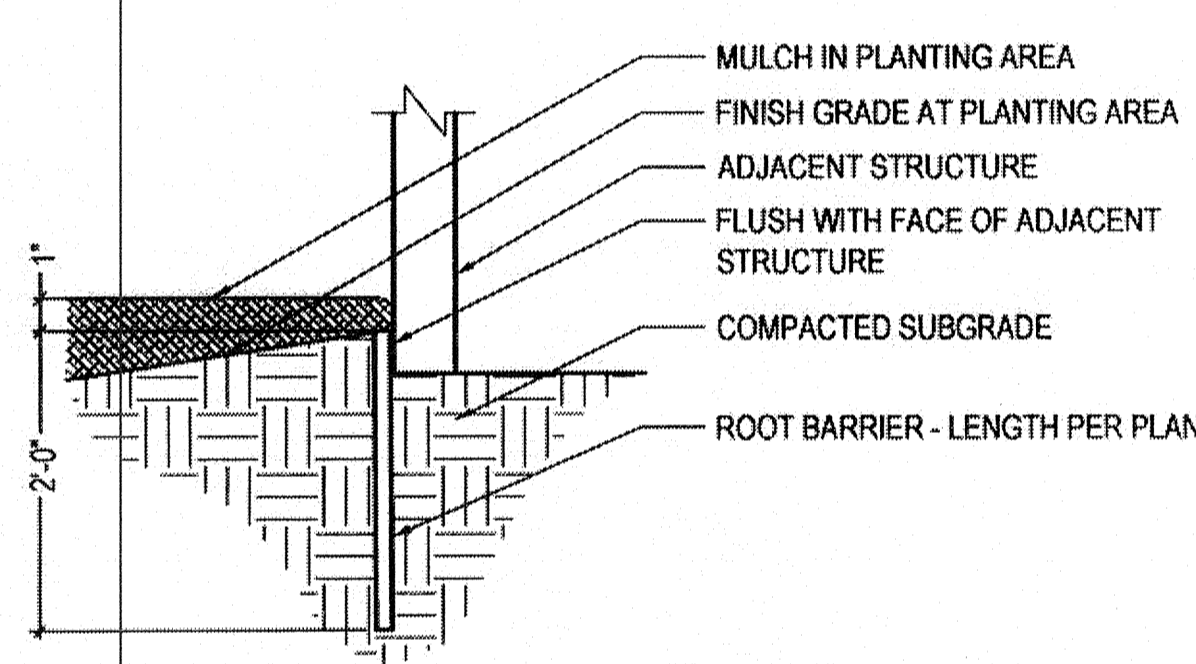
PALISADES PARK COMFORT STATION

PLANT SCHEDULE

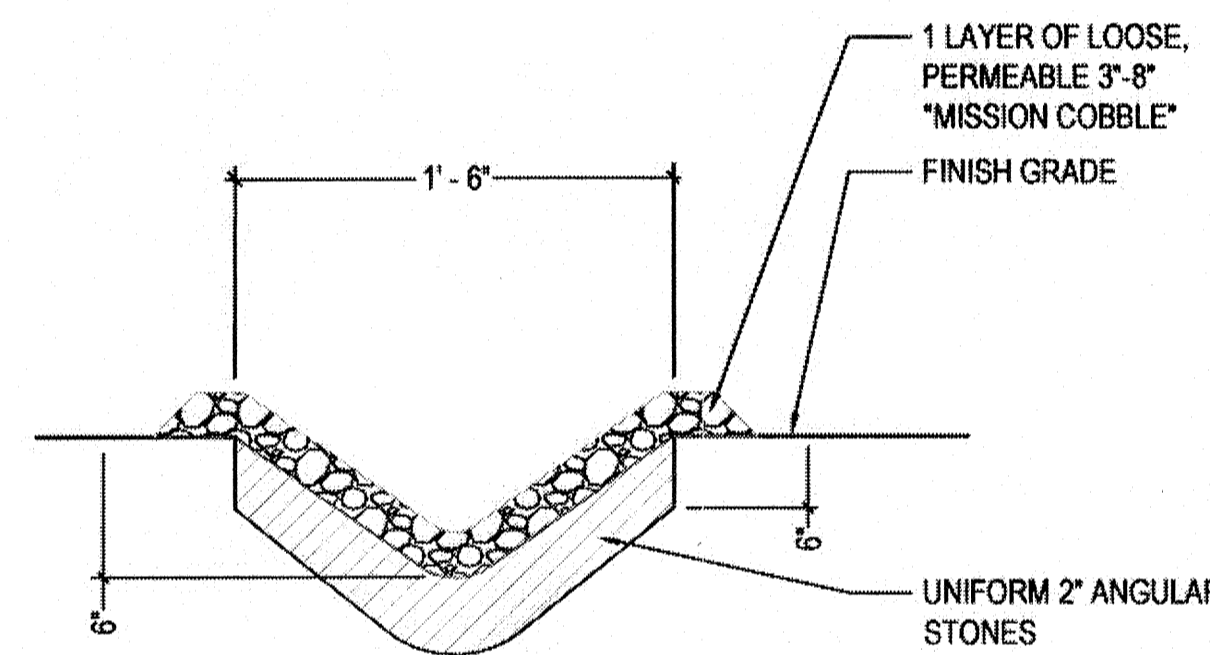
TREES					
SYMBOL	SIZE	BOTANICAL NAME	COMMON NAME	SPECS	REMARKS
MEL NES	24" BOX	Melaleuca nesophila	Pink Melaleuca	5'H, 4"W	MULTI, DOUBLE-STAKE
SHRUBS					
SYMBOL	SIZE	BOTANICAL NAME	COMMON NAME	SPECS	REMARKS
ALO ARB	15 GAL	Aloe arborescens	NCN	18"H, 24"W	FULLY ROOTED, UNSCARRED
AGA ATT	5 GAL	Agave attenuata	Foxtail Agave	18"H, 18"W	FULLY ROOTED, UNSCARRED

FERTILIZER TABLET SCHEDULE

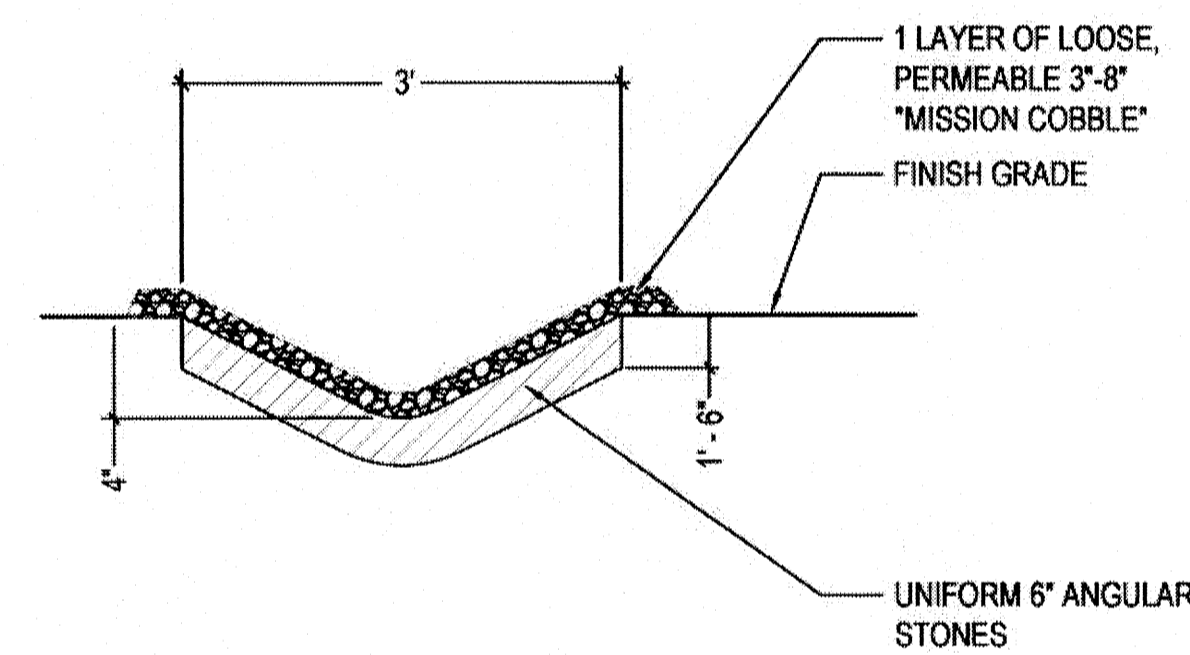
- (4) 7 GRAM TABLETS PER 6" BOX SIZE
- (15) 7 GRAM TABLETS PER 15 GALLON CONTAINER
- (8) 7 GRAM TABLETS PER 5 GALLON CONTAINER
- (3) 7 GRAM TABLETS PER 1 GALLON CONTAINER
- (1) 7 GRAM TABLETS PER 6" POT, PONY PAK, LINER OR GROUND COVER PLANT



A ROOT BARRIER SECTION NOT TO SCALE



B LANDSCAPE SWALE WITH COBBLE SECTION NOT TO SCALE



C RIPRAP PAD WITH COBBLE SECTION NOT TO SCALE

L3.1

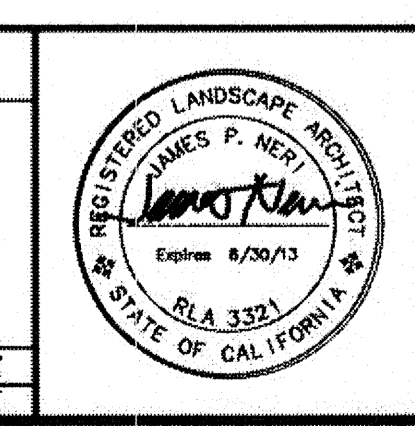
FUNDING CIP/SAP		SPEC. NO.	
PLANS FOR THE CONSTRUCTION OF:			
PALISADES PARK COMFORT STATION			
PLANTING SCHEDULE, NOTES & DETAILS			
CITY OF SAN DIEGO, CALIFORNIA ENGINEERING AND CAPITAL PROJECTS DEPARTMENT SHEET 46 OF 46 SHEETS			W.B.S. 5-10026 W.O. _____
APPROVED	DATE	DATE	SECTION HEAD
<i>[Signature]</i>	6/18/13		<i>[Signature]</i>
FOR CITY ENGINEER	BY	APPROVED	DATE
FINAL	MOA		08/02/12
AS-BUILTS			CCS27 COORDINATE
CONTRACTOR INSPECTOR			CCS83 COORDINATE
DATE STARTED		DATE COMPLETED	
		36598-46-D	

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

CONSULTANT

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SCALE: HORIZONTAL NO SCALE, VERTICAL NO SCALE



CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH MEDIUM LOW X

WARNING
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PALISADES PARK COMFORT STATION