

# City of San Diego

ORIGINAL

CONTRACTOR'S NAME: Fordyce Construction  
ADDRESS: 9932 Prospect Ave. #138, Santee, CA 92071  
TELEPHONE NO.: 619-449-4272 FAX NO.: 619-449-1930  
CITY CONTACT: Clementina Giordano - Contract Specialist, Email: Cgiordano@sandigo.gov  
Phone No. (619) 533-3481, Fax No. (619) 533-3633  
A. Corsi Morgan / RW Bustamante / LJI

## CONTRACT DOCUMENTS



## FOR

## Tierrasanta Community Park Sports Field Lighting

VOLUME 1 OF 2

BID NO.: K-15-1357-DBB-3  
SAP NO. (WBS/IO/CC): S-11011  
CLIENT DEPARTMENT: 1714  
COUNCIL DISTRICT: 7  
PROJECT TYPE: GF

**THIS CONTRACT IS SUBJECT TO THE FOLLOWING:**

- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- BID DISCOUNT PROGRAM (The WHITEBOOK, SLBE-ELBE Program Requirements, Section IV(2))
- PREVAILING WAGE RATES: STATE  FEDERAL
- APPRENTICESHIP

**BID DUE DATE:**

**2:00 PM  
JULY 7, 2015  
CITY OF SAN DIEGO  
PUBLIC WORKS CONTRACTS  
1010 SECOND AVENUE, 14<sup>th</sup> FLOOR, MS 614C  
SAN DIEGO, CA 92101**

# ENGINEER OF WORK

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

Juan Manuel Oncina

1) Registered Architect

5/22/15

Date

Seal:



*Sam M*

2) For City Engineer

05/22/15

Date

C73711

Registered Civil Engineer No.

**TABLE OF CONTENTS**

| <b>DESCRIPTION</b>   | <b>PAGE NUMBER</b> |
|--|--------------------|
| 1. NOTICE INVITING BIDS.....   | 4                  |
| 2. CONTRACT FORMS AGREEMENT:   |                    |
| 1. Contract Forms .....  | 18                 |
| 3. CONTRACT FORMS ATTACHMENTS:   |                    |
| 1. Performance Bond and Labor and Materialmen’s Bond .....                     | 21                 |
| 2. Drug-Free Workplace.....  | 23                 |
| 3. American with Disabilities Act (ADA) Compliance Certification .....         | 24                 |
| 4. Contractor Standards - Pledge of Compliance Certificate .....               | 25                 |
| 5. Affidavit of Disposal Certificate .....                                     | 26                 |
| 4. ATTACHMENTS:  |                    |
| A. SCOPE OF WORK .....   | 28                 |
| B. INTENTIONALLY LEFT BLANK.....   | 30                 |
| C. EQUAL OPPORTUNITY CONTRACTING PROGRAM .....                                 | 31                 |
| D. INTENTIONALLY LEFT BLANK.....   | 35                 |
| E. SUPPLEMENTARY SPECIAL PROVISIONS .....                                      | 36                 |
| TECHNICAL SPECIFICATION.....   | 56                 |
| SUPPLEMENTARY SPECIAL PROVISIONS APPENDICES .....                              | 269                |
| 1. Appendix A - Notice of Exemption and Notice of Right to Appeal.....         | 270                |
| 2. Appendix B - Fire Hydrant Meter Program.....                                | 274                |
| 3. Appendix C - Materials Typically Accepted by Certificate of Compliance..... | 288                |
| 4. Appendix D - Sample City Invoice .....                                      | 290                |
| 5. Appendix E - Location Map .....   | 292                |
| 6. Appendix F - Limited Soil Investigation.....                                | 294                |
| 7. Appendix G - Waste Management Forms .....                                   | 314                |
| 8. Appendix H - Sample of Public Notices.....                                  | 317                |
| F. INTENTIONALLY LEFT BLANK.....   | 319                |

# CITY OF SAN DIEGO, CALIFORNIA

## NOTICE INVITING BIDS

1. **RECEIPT AND OPENING OF BIDS:** Bids will be received at the Public Works Contracts at the location, time, and date shown on the cover of these specifications for performing work on **Tierrasanta Community Park Sports Field Lighting** (Project).
2. **SUMMARY 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 in ATTACHMENT A.
3. **BIDS ARE PUBLIC RECORDS:** Upon receipt by the City, Bids shall become public records subject to public disclosure. It is the responsibility of the respondent to clearly identify any confidential, proprietary, trade secret or otherwise legally privileged information contained within the Bid. General references to sections of the California Public Records Act (PRA) will not suffice. If the Contractor does not provide applicable case law that clearly establishes that the requested information is exempt from the disclosure requirements of the PRA, the City shall be free to release the information when required in accordance with the PRA, pursuant to any other applicable law, or by order of any court or government agency, and the Contractor will hold the City harmless for release of this information.
4. **SUBCONTRACTING PARTICIPATION PERCENTAGES:**
  - 4.1. The City has incorporated **mandatory** SLBE-ELBE subcontractor participation percentages to enhance competition and maximize subcontracting opportunities. For the purpose of achieving the mandatory subcontractor participation percentages, a recommended breakdown of the SLBE and ELBE subcontractor participation percentages based upon certified SLBE and ELBE firms has also been provided to achieve the mandatory subcontractor participation percentages:

|                                  |              |
|----------------------------------|--------------|
| 1. SLBE participation            | <b>3.5%</b>  |
| 2. ELBE participation            | <b>6.5%</b>  |
| 3. Total mandatory participation | <b>10.0%</b> |
  - 4.2. The Bidders are strongly encouraged to attend the Pre-Bid Meeting to better understand the Good Faith Effort requirements of this contract. See the City's document titled "SLBE Program, Instructions For Bidders Completing The Good Faith Effort Submittal" available at: <http://www.sandiego.gov/eoc/>
  - 4.3. The Bid will be declared **non-responsive** if the Bidder fails the following mandatory conditions:
    - 4.3.1. Bidder's inclusion of SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; OR.

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

4.4. For additional Equal Opportunity Contracting Program requirements, see Attachment C.

**5. PRE-BID MEETING:**

5.1. 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 Contracts, Conference Room at 1010 Second Avenue, 14<sup>th</sup> Floor, San Diego, CA 92101 **at 10:00 A.M., on June 17, 2015.**

5.2. All potential bidders are encouraged to attend.

5.3. 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 Contracts at (619) 533-3450 at least 5 Working Days prior to the Pre-Bid Meeting to ensure availability.

**6. CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM:**

6.1. **Prior** to the Award of the Contract or each Task Order, you and your Subcontractors and Suppliers must register with the City's web-based vendor registration and bid management system, BidsOnline™ hosted by PlanetBids System. For additional information go to:

<http://www.sandiego.gov/purchasing/bids-contracts/vendorreg.shtml>.

6.2. 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.

7. **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.

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

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

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

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

8.2. **Penalties for Violations.** Contractor and its subcontractors shall comply with California Labor Code section 1775 in the event a worker is paid less than the prevailing wage rate for the work or craft in which the worker is employed.

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

- 8.3.1.** For contracts entered into on or after April 1, 2015, Contractor and their subcontractors shall furnish records specified in Labor Code section 1776 directly to the Labor Commissioner in the manner required by Labor Code section 1771.4.
- 8.4. Apprentices.** Contractor and its subcontractors shall comply with California Labor Code sections 1777.5, 1777.6 and 1777.7 concerning the employment and wages of apprentices. Contractor is held responsible for the compliance of their subcontractors with sections 1777.5, 1777.6 and 1777.7.
- 8.5. Working Hours.** Contractor and their subcontractors shall comply with California Labor Code sections 1810 through 1815, including but not limited to: (i) restrict working hours on public works contracts to eight hours a day and forty hours a week, unless all hours worked in excess of 8 hours per day are compensated at not less than 1½ times the basic rate of pay; and (ii) specify penalties to be imposed on design professionals and subcontractors of \$25 per worker per day for each day the worker works more than 8 hours per day and 40 hours per week in violation of California Labor Code sections 1810 through 1815.
- 8.6. Required Provisions for Subcontracts.** Contractor shall include at a minimum a copy of the following provisions in any contract they enter into with a subcontractor: California Labor Code sections 1771, 1771.1, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860 and 1861.
- 8.7. Labor Code Section 1861 Certification.** Contractor in accordance with California Labor Code section 3700 is required to secure the payment of compensation of its employees and by signing this Contract, Contractor certifies that “I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers’ compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract.”
- 8.8. Labor Compliance Program.** The City has its own Labor Compliance Program authorized in August 2011 by the DIR. The City will withhold contract payments when payroll records are delinquent or deemed inadequate by the City or other governmental entity, or it has been established after an investigation by the City or other governmental entity that underpayment(s) have occurred. For questions or assistance, please contact the City of San Diego’s Equal Opportunity Contracting Department at 619-236-6000.
- 8.9. Contractor and Subcontractor Registration Requirements.** This project is subject to compliance monitoring and enforcement by the DIR. As of March 1, 2015, no contractor or subcontractor may be listed on a bid or proposal for a public works project unless registered with the DIR pursuant to Labor Code section 1725.5. As of April 1, 2015, a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, or enter into any contract for public work, unless currently registered and qualified to perform public work pursuant to Labor Code section 1725.5. By submitting a bid or proposal to the City, Contractor is certifying that he or she has verified that all subcontractors used on this public work project are registered with the DIR in compliance with Labor Code sections 1771.1 and 1725.5, and Contractor shall provide proof of registration to the City upon request.

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

**9. INSURANCE REQUIREMENTS:**

- 9.1.** 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.
- 9.2.** 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.

**10. PREQUALIFICATION OF CONTRACTORS:**

- 10.1.** 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 links to the online prequalification application are available at:

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

- 10.2.** The completed application must be submitted online to the Public Works Contracts, Prequalification Program no later than 2 weeks prior to the bid opening. For additional information or the answer to questions about the prequalification program, contact David Stucky at 619-533-3474 or [dstucky@sandiego.gov](mailto:dstucky@sandiego.gov).
- 10.3.** As a result of the City's fiduciary requirement to safeguard vendor data, City staff will not be able to provide information regarding contractors' prequalification status over the telephone. Contractors may access real-time information about their prequalification status via their vendor profile on PlanetBids™.

- 11. 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 (when specified)*  | 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: <a href="http://www.sandiego.gov/publicworks/edocref/index.shtml">http://www.sandiego.gov/publicworks/edocref/index.shtml</a> |         |                 |

12. **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.
13. **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.
14. **CONTRACT PRICING FORMAT:** This solicitation is for a Lump Sum contract with Unit Price provisions as set forth in the Bid Proposal Form(s), Volume 2.
15. **SUBMITTAL OF “OR EQUAL” ITEMS:** See Section 4-1.6, “Trade Names or Equals” in The WHITEBOOK and as amended in the SSP.
16. **AWARD PROCESS:**
- 16.1. The Award of this contract is contingent upon the Contractor’s compliance with all conditions precedent to Award.

- 16.2. 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.
- 16.3. This contract will be deemed executed, and effective, only upon the signing of the Contract by the Mayor or designee of the City.
17. **SUBCONTRACT LIMITATIONS:** The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 2-3, "SUBCONTRACTS" in The GREENBOOK and as amended in the SSP which requires the Contractor to self-perform not less than the specified amount. Failure to comply with this requirement shall render the bid **non-responsive** and ineligible for award.
18. **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 Contracts.
19. **SUBMISSION OF QUESTIONS:**
- 19.1. 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 solicitation shall be submitted to:
- Public Works Contracts  
1010 Second Avenue, 14<sup>th</sup> Floor  
San Diego, California, 92101  
Attention: [Contract Specialist listed on the front cover hereof]
- OR:
- Email address of the Contract Specialist listed on the front cover hereof.
- 19.2. Questions received less than 14 days prior to the date for opening of Bids may not be considered.
- 19.3. Clarifications deemed by the City to be material shall be issued by Addenda and uploaded to the City's online bidding service.
- 19.4. 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.
20. **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.

21. **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.
22. **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.
  - 22.1. 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.
  - 22.2. The City may require any Bidder to furnish a statement of experience, financial responsibility, technical ability, equipment, and references.
  - 22.3. 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.
  - 22.4. Bids may be withdrawn by the Bidder prior to, but not after, the time fixed for opening of Bids.
23. **BIDDER'S GUARANTEE OF GOOD FAITH (BID SECURITY):**
  - 23.1. Bidders shall submit Bid Security at bid time. Bid Security shall be in one of the following forms: a cashier's check, or a properly certified check upon some responsible bank; or an approved corporate surety bond payable to the City of San Diego for an amount of not less than 10% of the total bid amount.
  - 23.2. This check or bond, and the monies represented thereby, will be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into the contract and furnish the required final performance and payment bonds.
  - 23.3. The Bidder agrees that in the event of the Bidder's failure to execute this contract and provide the required final bonds, the money represented by the cashier's or certified check will remain the property of the City; and the Surety agrees that it will pay to the City the damages, not exceeding the sum of 10% of the amount of the Bid, that the City may suffer as a result of such failure.
  - 23.4. A Bid received without the specified bid security may be rejected as **non-responsive**.

**24. AWARD OF CONTRACT OR REJECTION OF BIDS:**

- 24.1. This contract may be awarded to the lowest responsible and reliable Bidder.
- 24.2. 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.
- 24.3. 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.
- 24.4. 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.
- 24.5. 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 Contracts 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.”
- 24.6. 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.
- 24.7. 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.
- 24.8. 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.

**25. BID RESULTS:**

- 25.1. 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.
- 25.2. 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.

**26. THE CONTRACT:**

- 26.1.** 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.
- 26.2.** 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.
- 26.3.** 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.
- 26.4.** 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.
- 26.5.** 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.

- 27. 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.

**28. CITY STANDARD PROVISIONS:** This contract is subject to the following standard provisions. See The WHITEBOOK for details.

- 28.1.** The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.
- 28.2.** The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.
- 28.3.** The City of San Diego Municipal Code §22.3004 for Pledge of Compliance.
- 28.4.** The City of San Diego's Labor Compliance Program and the State of California Labor Code §§1771.5(b) and 1776.
- 28.5.** 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.
- 28.6.** The City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).
- 28.7.** The City's Information Security Policy (ISP) as defined in the City's Administrative Regulation 90.63.

**29. PRE-AWARD ACTIVITIES:**

- 29.1.** 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**.
- 29.2.** 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.

**30. REQUIRED DOCUMENT SCHEDULE:**

- 30.1.** 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.
- 30.2.** 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   |
| 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                                      | ALL BIDDERS         | SLBE Good Faith Efforts Documentation  |
| 9.   | WITHIN 3 WORKING DAYS OF BID OPENING WITH GOOD FAITH EFFORT DOCUMENTATION | ALL BIDDERS         | Form AA60 – List of Work Made Available  |
| 10.  | 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.  |
| 11.  | 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  |
| 12.  | 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"> <li>• Joint Venture Agreement</li> <li>• Joint Venture License</li> </ul> |
| 13.  | WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS          | APPARENT LOW BIDDER | Form BB05 - Work Force Report  |

| ITEM | WHEN DUE   | FROM                | DOCUMENT TO BE SUBMITTED                                  |
|------|--|---------------------|---|
| 14.  | WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS | APPARENT LOW BIDDER | Contract Forms - Agreement                                |
| 15.  | WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS | APPARENT LOW BIDDER | Contract Forms - Payment and Performance Bond             |
| 16.  | WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS | APPARENT LOW BIDDER | Certificates of Insurance and Endorsements                |
| 17.  | WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS | APPARENT LOW BIDDER | Contractor Certification - Drug-Free Workplace            |
| 18.  | WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS | APPARENT LOW BIDDER | Contractor Certification - American with Disabilities Act |
| 19.  | WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS | APPARENT LOW BIDDER | Contractors Standards - Pledge of Compliance              |

**CONTRACT FORMS**  
**AGREEMENT**

# CONTRACT FORMS

---

## CONSTRUCTION CONTRACT

This contract is made and entered into between THE CITY OF SAN DIEGO, a municipal corporation, herein called "City", and     **Fordyce Construction, Inc.**    , herein called "Contractor" for construction of **Tierrasanta Community Park Sports Field Lighting; Bid No. K-15-1357-DBB-3**, in the amount of     **Seven Hundred Five Thousand Three Hundred Nineteen Dollars and 00/100 (\$705,319.00)**    , which is comprised of the Base Bid.

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) That certain documents entitled **Tierrasanta Community Park Sports Field Lighting**; on file in the office of the Public Works Department as Document No. **S-11011**, 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 **Tierrasanta Community Park Sports Field Lighting**; Bid Number **K-15-1357-DBB-3**, 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)**

---

**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 authorizing such execution.

**THE CITY OF SAN DIEGO**

**APPROVED AS TO FORM**

Jan I. Goldsmith, City Attorney

By Stephen Samara

By Mark W. Place

Print Name: Stephen Samara,  
Principal contract Specialist

Print Name: Mark W. Place  
Deputy City Attorney

Date: 9/21/15

Date: 9/22/15

**CONTRACTOR**

By Brian Fordyce

Print Name: Brian Fordyce

Title: President

Date: July 30, 2015

City of San Diego License No.: B1995003597

State Contractor's License No.: U08529

# CONTRACT FORMS

## ATTACHMENTS

## CONTRACT FORMS ATTACHMENTS PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

---

### FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

Fordyce Construction, Inc., a corporation, as principal, and International Fidelity 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 Seven Hundred Five Thousand Three Hundred Nineteen and 00/100 (\$705,319.00) for the faithful performance of the annexed contract, and in the sum of Seven Hundred Five Thousand Three Hundred Nineteen and 00/100 (\$705,319.00) for the benefit of laborers and materialmen designated below.

### Conditions:

If the Principal shall faithfully perform the annexed contract **Tierrasanta Community Park Sports Field Lighting; Bid Number K-15-1357-DBB-3**, 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.

\*Premium subject to  
change based on final  
contract price.\*

**CONTRACT FORMS ATTACHMENTS (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 July 23, 2015

Approved as to Form

Fordyce Construction, Inc.  
Principal

By Brian Fordyce

Brian Fordyce  
Printed Name of Person Signing for Principal

Jan I. Goldsmith, City Attorney

By [Signature]  
Deputy City Attorney

International Fidelity Insurance Company  
Surety

By [Signature]  
Bart Stewart, Attorney-in-fact

Approved:

By [Signature]  
Mayor or Designee

13400 Sabre Springs Parkway, Suite 170  
Local Address of Surety

San Diego, CA 92128  
Local Address (City, State) of Surety

(858) 513-1795  
Local Telephone No. of Surety

Premium \$ 10,553.00

Bond No. SDIFSU0677191

# POWER OF ATTORNEY

## INTERNATIONAL FIDELITY INSURANCE COMPANY ALLEGHENY CASUALTY COMPANY

ONE NEWARK CENTER, 20TH FLOOR NEWARK, NEW JERSEY 07102-5207

KNOW ALL MEN BY THESE PRESENTS: That INTERNATIONAL FIDELITY INSURANCE COMPANY, a corporation organized and existing under the laws of the State of New Jersey, and ALLEGHENY CASUALTY COMPANY a corporation organized and existing under the laws of the State of Pennsylvania, having their principal office in the City of Newark, New Jersey, do hereby constitute and appoint

MOLLY CASHMAN, BART STEWART

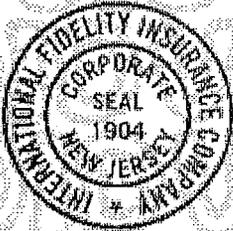
Encinitas, CA.

their true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise, and the execution of such instrument(s) in pursuance of these presents, shall be as binding upon the said INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY, as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by their regularly elected officers at their principal offices.

This Power of Attorney is executed, and may be revoked, pursuant to and by authority of the By-Laws of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY and is granted under and by authority of the following resolution adopted by the Board of Directors of INTERNATIONAL FIDELITY INSURANCE COMPANY at a meeting duly held on the 20th day of July, 2010 and by the Board of Directors of ALLEGHENY CASUALTY COMPANY at a meeting duly held on the 15th day of August, 2000:

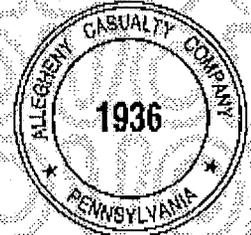
"RESOLVED, that (1) the President, Vice President, Chief Executive Officer or Secretary of the Corporation shall have the power to appoint, and to revoke the appointments of, Attorneys-in-Fact or agents with power and authority as defined or limited in their respective powers of attorney, and to execute on behalf of the Corporation and affix the Corporation's seal thereto; bonds, undertakings, recognizances, contracts of indemnity and other written obligations in the nature thereof or related thereto; and (2) any such Officers of the Corporation may appoint and revoke the appointments of joint-control custodians, agents for acceptance of process, and Attorneys-in-fact with authority to execute waivers and consents on behalf of the Corporation; and (3) the signature of any such Officer of the Corporation and the Corporation's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity or other written obligation in the nature thereof or related thereto; such signature and seals when so used whether heretofore or hereafter, being hereby adopted by the Corporation as the original signature of such officer and the original seal of the Corporation, to be valid and binding upon the Corporation with the same force and effect as though manually affixed."

IN WITNESS WHEREOF, INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY have each executed and attested these presents on this 22nd day of July, 2014.



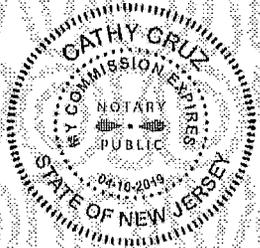
STATE OF NEW JERSEY  
County of Essex

ROBERT W. MINSTER  
Chief Executive Officer (International Fidelity Insurance Company) and President (Allegheny Casualty Company)



On this 22nd day of July 2014, before me came the individual who executed the preceding instrument, to me personally known, and, being by me duly sworn, said he is the therein described and authorized officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY, that the seals affixed to said instrument are the Corporate Seals of said Companies; that the said Corporate Seals and his signature were duly affixed by order of the Boards of Directors of said Companies.

IN TESTIMONY WHEREOF, I have hereunto set my hand affixed my Official Seal, at the City of Newark, New Jersey the day and year first above written.



A NOTARY PUBLIC OF NEW JERSEY  
My Commission Expires April 16, 2019

### CERTIFICATION

I, the undersigned officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Sections of the By-Laws of said Companies as set forth in said Power of Attorney, with the originals on file in the home office of said companies, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 23rd day of July, 2015

MARIA BRANCO, Assistant Secretary

# ALL- PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California }

County of San Diego }

On 7/23/15 before me, Brittany Aceves, Notary Public,  
(Here insert name and title of the officer)

personally appeared Bart Stewart,  
who proved to me on the basis of satisfactory evidence to be the person(s) whose  
name(s) (s) 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.

*[Handwritten Signature]*

Notary Public Signature



(Notary Public Seal)

### ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

\_\_\_\_\_

(Title or description of attached document)

\_\_\_\_\_

(Title or description of attached document continued)

Number of Pages \_\_\_\_\_ Document Date \_\_\_\_\_

### CAPACITY CLAIMED BY THE SIGNER

- Individual (s)
- Corporate Officer
- \_\_\_\_\_
- (Title)
- Partner(s)
- Attorney-in-Fact
- Trustee(s)
- Other \_\_\_\_\_

### INSTRUCTIONS FOR COMPLETING THIS FORM

*This form complies with current California statutes regarding notary wording and, if needed, should be completed and attached to the document. Acknowledgments from other states may be completed for documents being sent to that state so long as the wording does not require the California notary to violate California notary law.*

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he~~/she/~~they~~, is /~~are~~) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
  - ❖ Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
  - ❖ Indicate title or type of attached document, number of pages and date.
  - ❖ Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document with a staple.

## CONTRACTOR CERTIFICATION

---

### DRUG-FREE WORKPLACE

PROJECT TITLE: Tierrasanta Community Park Sports Field Lighting

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;

Fordyce Construction, Inc.

(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 

Printed Name Brian Fordyce

Title President

## CONTRACTOR CERTIFICATION

---

### AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

PROJECT TITLE: Tierrasanta Community Park Sports Field Lighting

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;

Fordyce Construction, Inc.  
(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 Brian Fordyce

Printed Name Brian Fordyce

Title President

## CONTRACTOR CERTIFICATION

### CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

PROJECT TITLE: Tierrasanta Community Park Sports Field Lighting

I declare under penalty of perjury that I am authorized to make this certification on behalf of Fordyce Construction, Inc., 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 30<sup>th</sup> Day of July, 2015.

Signed Brian Fordyce

Printed Name Brian Fordyce

Title President

**AFFIDAVIT OF DISPOSAL**

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

**Tierrasanta Community Park Sports Field Lighting**

(Name of Project)

as particularly described in said contract and identified as Bid No. **K-15-1357-DBB-3**; SAP No. (WBS/IO/CC) **S-11011**, 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

# ATTACHMENTS

**ATTACHMENT A**  
**SCOPE OF WORK**

## SCOPE OF WORK

1. **SCOPE OF WORK:** This project provides for the construction of lighting systems for the multi-purpose sports fields at the Tierrasanta Community Park. ADA Improvements & upgrades to the existing comfort station, drinking fountain accessible travel of path from parking lot, to sports fields are required in order to comply with all ADA standards.
  - 1.1. The Work shall be performed in accordance with:
    - 1.1.1. The Notice Inviting Bids and Plans numbered **36821-1-D** through **36821-31-D**, inclusive.
2. **CONSTRUCTION COST:** The City's estimated construction cost for this contract is **\$596,000**.
3. **LOCATION OF WORK: The location of the Work is as follows:**

11220 Clairemont Mesa Blvd. San Diego, CA 92124. See Appendix E – Location Map.
4. **CONTRACT TIME:** The Contract Time for completion of the Work, including the Plant Establishment Period, shall be **132 Working Days**.
5. **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.
  - 5.1. The City has determined the following licensing classification for this contract:
    - CLASS A

**ATTACHMENT B**  
**INTENTIONALLY LEFT BLANK**

**ATTACHMENT C**  
**EQUAL OPPORTUNITY CONTRACTING PROGRAM**

## EQUAL OPPORTUNITY CONTRACTING PROGRAM REQUIREMENTS

1. To The WHITEBOOK, Chapter 10, Sections D and E, DELETE each in its 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.

**ATTACHMENT D**  
**INTENTIONALLY LEFT BLANK**

**ATTACHMENT E**  
**SUPPLEMENTARY SPECIAL PROVISIONS**

## **SUPPLEMENTARY SPECIAL PROVISIONS**

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 are **7:00 AM to 3:30 PM.**

### **SECTION 2 - SCOPE AND CONTROL OF WORK**

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

1. You must perform, with your own organization, Contract work amounting to at least 50% 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 award.
2. The self performance percentage requirement will be waived for contracts when a “B” License is required or allowed.

#### **2-5.3.1 General.** To the City Supplement, ADD the following

7. For products for which an AML is available, products listed in the AML shall be used. A submittal review will be conducted for products not identified on an AML on a case-by-case basis when:
  - a) The product type or category is not in the AML.
  - b) The AML does not list at least two available manufacturers of the product.
  - c) The material or manufacturer listed in the AML is no longer available. Documentation to substantiate the product is no longer available or in production is required as part of the submittal.

In the case of conducting a submittal review when required by the Plans or Special Provisions, or when requested by the Engineer, all submittals shall be accompanied by the City's submittal form.

The Product Submittal Form is available for download at:

<http://www.sandiego.gov/publicworks/edocref/index.shtml>

**2-9.1 Permanent Survey Markers.** To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Pursuant to Division 3, Chapter 15 of the Business and Professions Code, the Contractor shall not disturb survey monuments that "control the location of subdivisions, tracts, boundaries, roads, streets, or highways, or provide horizontal or vertical survey control" until they have been tied out by a Registered Land Surveyor or Registered Civil Engineer authorized to practice land surveying within the State of California.

The Contractor shall submit to the Engineer a minimum of 7 Days prior to the start of the Work a list of controlling survey monuments which may be disturbed. The Agency (or the owner on a Private Contract) will:

- a) set survey points outside the affected work area that reference and locate each controlling survey monument that may be disturbed,
- b) file a Corner Record or Record of Survey with the County Surveyor after setting the survey points to be used for re-establishment of the disturbed controlling survey monuments, and
- c) file a Corner Record of Record of Survey with the County Surveyor after re-establishment of the disturbed controlling survey monuments.

**2-9.2 Survey Service.**

Surveys must list the basis of bearings as tied to Record of Survey 14492 or equivalent, based on the California Coordinate System of 1983, Zone 6, U.S. Survey feet, epoch 1991.35, along with a completed calibration sheet (blank form will be supplied by City Surveys). The vertical datum used must be NGVD 29 (based on values published in the City vertical bench book).

All cad work must be done to existing City of San Diego Computer Aided Design and Drafting (CADD) standards and must be in city seed files (.job, .txt, .dgn, .alg, .raw, .fwd, .dtm, .pdf, .docx, .xlsx, .tif, and .jpg). All survey files must be completed in accordance with existing City CADD standards and must adhere to City's microstation level and attribute structure. Resource files will be sent to Contractor if requested.

Survey files must include but not limited to the following items:

- a. Street center line and (record width) right-of-way lines

- b. Project geometry (.alg) files (this will be generated for use in InRoads)
- c. 3D surface model (.dtm, break line and spot elevation) file
- d. Spot elevations of the new utility main at each intersection, midblock and for any change in grade
- e. Monuments
- f. Curb lines (top curb and gutter)
- g. All other appurtenances including but not limited to water valves, meters, vaults, manholes, fire hydrants, utility boxes, cleanouts and poles”

#### **SECTION 4 - CONTROL OF MATERIALS**

**4-1.3.4 Inspection Paid For By the Contractor.** To the City Supplement, ADD the following:

- 1. Special Inspection for Structural.
- 2. . Inspections for Electrical and Mechanical.

**4-1.3.6 Preapproved Materials.** To the City Supplement, ADD the following:

- 3. You shall submit in writing a list of all products to be incorporated in the Work that are on the AML.

**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 later than 5 Working Days after the determination of the Apparent Low Bidder** and on the City’s Product Submittal Form available at.

<http://www.sandiego.gov/publicworks/edocref/index.shtml>

#### **SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK**

**6-1.1 Construction Schedule.** To item 20, ADD the following:

The 90 calendar days for Plant Establishment Period is included in the stipulated Contract Time.

#### **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 the Contract.

**7-3.1 Policies and Procedures.**

1. You must procure the insurance described below, at its 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 the Contract, e.g., your indemnity obligations, 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 the Contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of the Contract may be treated by the City as a material breach of the Contract.

**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.

**7-3.3 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 Approved Surplus Lines Insurers (LASLI 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.

**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.

**7-3.5 Policy Endorsements.**

**7-3.5.1 Commercial General Liability Insurance**

**7-3.5.1.1 Additional Insured.**

- a) 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.
- b) 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.

- c) 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.
- d) 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 your 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.

**7-3.6 Deductibles and Self-Insured Retentions.** You must pay for all deductibles and self-insured retentions. You must disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.

**7-3.7 Reservation of Rights.** The City reserves the right, from time to time, to review your insurance coverage, limits, deductibles and self-insured retentions to determine if they are acceptable to the City. The City will reimburse you, without overhead, profit, or any other markup, for the cost of additional premium for any coverage requested by the Engineer but not required by this contract.

**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.

7-3.9 **Excess Insurance.** Policies providing excess coverage must follow the form of the primary policy or policies e.g., all endorsements.

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 the Contractor) for all of your employees or Subcontractors who provide professional engineering services under this contract, you must keep or must require its 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 **Workers' Compensation Insurance and Employers Liability Insurance.**

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

| <u>Workers' Compensation</u> | <u>Statutory Employers Liability</u> |
|------------------------------|--------------------------------------|
| 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 the 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 must 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:

3. The contractor shall obtain all required Development Services Department (DSD) permits prior to the start of construction:

Structural

Mechanical

Electrical

4. The contractor shall obtain two permits from local Cal/OSHA office prior to visiting DSD for permit issuance:

Cal/OSHA- Construction Activity Permit for trenches or excavations 5 feet or deeper into which a person is required to descent.

Cal/OSHA - Construction Activity Permit for construction or demolition of structures (light poles) more than 3 stories high or the equivalent height of 36 feet.

**7-8.6 Water Pollution Control.** ADD the following:

1. Based on a preliminary assessment by the City, the Contract is subject to WPCP.

**7-10.2.2.3 Engineered Traffic Control Plans Provided by the Contractor.** To the City Supplement, ADD the following:

Engineered "D" size TCP are required for the following areas:

1. Pedestrian ramps at Clairemont Mesa Drive

**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.

**7-16 COMMUNITY LIAISON.** To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

**ADD:  
7-16**

**COMMUNITY OUTREACH.**

**7-16.1**

**General.**

1. To ensure consistency with the City's community outreach plan for the project, the City will work with the Contractor to inform the public (which includes, but is not limited to, property owners, renters, homeowners, business owners, recreational users, and other community members and stakeholders) of construction impacts. Efforts by the Contractor to mitigate construction impacts by communicating with the public require close coordination and cooperation with the City.
2. The Contractor will perform the community outreach activities required throughout the Contract Time. The Contractor shall assign a staff member who will perform the required community outreach services.
3. The Contractor shall closely coordinate the Work with the businesses, institutions, residents and property owners impacted by the Project.

Example duties of the Contractor include notifying businesses, institutions, and residents of the commencement of construction activities not less than 5 days in advance, coordinating access for vehicular and pedestrian traffic to businesses, institutions, and residences impacted by the Project, reporting of Contractor activities at all Project progress meetings scheduled by the Engineer, attending the Project Pre-construction Meeting, attending 2 community meetings, responding to community questions and complaints related to Contractor activities, and documenting, in writing, as well as logging in all inquiries and complaints received into the City's Public Contact Log located on the City's SDSshare site:

<http://sdshare/forums/ecp/PITS/picr/Lists/Public%20Contact%20Log/AllItems.aspx>

4. The Contractor shall execute the Information Security Policy Acknowledgement Form - For Non-City Employees within 15 days of the award of the Contract if:
  - a) The contact information for the Contractor is made available on any outreach materials or;
  - b) The Contractor will be the primary point of contact to resolve project related inquiries and complaints.
5. Electronic Communication.

All inquiries and complaints will be logged in to the City's SDSshare site within 24 hours of receipt of inquiries and complaints.

Any updates or a resolution of inquiries, and complaints shall be documented in the City's SDSshare site within 24 hours.

Copies of email communications shall be saved, individually, on to the City's SDSshare site as an Outlook Message Format (\*.msg).

All graphics, photos, and other electronic files associated with the inquiries and or complaints shall be saved into the individual record.

**7-16.1.1 Quality Assurance.**

1. During the course of community outreach, the Contractor shall ensure that the character of all persons that conduct community outreach (distributing door hangers, attending community meetings, interacting with the public, etc.) on behalf of the Contractor shall:
  - a. Have the ability to speak and comprehend English and/or Spanish, as appropriate for the community or public they are informing,
  - b. Possess and display easily verifiable and readable personal identification that identifies the person as an employee of the Contractor,
  - c. Have the interpersonal skills to effectively, professionally, and tactfully represent the project, Contractor, and City to the public.

**7-16.1.2 Submittals.**

1. The Contractor shall submit to the Resident Engineer, for review and approval, all drafts of letters, notices, postcards, door hangers, signs, mailing lists, proposed addresses for hand-delivery, and any other notices and letters that are to be mailed and or distributed to the public.
  - a) Prior to distributing or mailing, the Contractor shall submit final drafts of letters, notices, postcards, door hangers, signs, and any other notices and letters to the Resident Engineer for final review and approval. Submit a PDF copy of the approved door hangers to the Engineer.
  - b) After distributing or mailing, the Contractor shall submit verification of delivery and any copies of returned notices to the Resident Engineer. Submit a PDF copy of the approved letters and notices to the Engineer.
2. The Contractor will use the City's SDSshare site to identify and summarize communications (via phone, in person, and email) with the public within 24 hours of receipt, even if the Contractor's response to the individual is still incomplete. The Contractor will upload to the City's SDSshare site copies of all written, electronic, and verbal communications and conversations with the public.

**7-16.2 Community Outreach Services.**

**7-16.2.1 Public Notice by Contractor.**

1. The Contractor shall post Project Identification Signs in accordance with section 7-10.6.2
2. The Contractor shall notify businesses, institutions, property owners, residents or any other impacted stakeholders, within a minimum 300 feet radius of the Project, of construction activities and utility service interruptions not less than 5 days in advance.
3. The Contractor shall furnish and distribute public notices in the form of door hangers using the City's format to all occupants and/or property owners along streets:
  - a. Where Work is to be performed at least 5 days before starting construction or survey activities or impacting the community as approved by the Resident Engineer.
  - b. Within 5 days of the completion of your construction activities where work was performed, the Contractor shall distribute public notices in the form of door hangers, which outlines the anticipated dates of Asphalt Resurfacing or Slurry Seal.
  - c. No less than 48 hours in advance and no more than 72 hours in advance of the scheduled resurfacing.
4. The Contractor shall leave the door hanger notices on or at the front door of each dwelling and apartment unit and at each tenant of commercial buildings abutting each of the street block segments. Where the front doors of apartment units are inaccessible, distribute the door hanger notices to the apartment manager or security officer.
5. Door Hanger Material: The Contractor shall use Blanks/USA brand, Item Number DHJ5B6WH, 1 ¼" Holes (removed), 2-up Jumbo Door Hanger in Bristol White, or approved equal.
6. Mailed Notice Material: The Contractor shall use Cougar by Domtar, Item Number 2834 or approved equal.
7. For all Work on private property, the Contractor shall contact each owner and occupant individually a minimum of 15 days prior to the Work. If the Work has been delayed, the Contractor shall re-notify owners and occupants of the new Work schedule, as directed by the Resident Engineer.
8. A sample of public notices is included in the Contract Appendix.

**7-16.2.2 Communications with the Public.**

1. The Contractor shall coordinate access for vehicular and pedestrian traffic to businesses, institutions, and residences impacted by the Project.
2. The Contractor shall provide updates on construction impacts to the Resident Engineer. The Contractor shall notify the Resident Engineer in advance about time-sensitive construction impacts and may be required to distribute construction impact notices to the public on short notice.
3. The Contractor shall incorporate community outreach activities related to construction impacts in the baseline schedule and update the Resident Engineer with each week's submittal of the Three-Week Look Ahead Schedule.
4. At the request of the Resident Engineer, the Contractor shall attend and participate in project briefings at community meetings.
5. The Contractor shall coordinate with the Resident Engineer on all responses and actions taken to address public inquiries and complaints within 24-hours that they are received.

**7-16.2.3 Communications with Media.**

1. The City may allow members of the media access to its construction site(s) on a case-by-case basis only.
2. Occasionally, members of the media may show up at construction sites, uninvited. Members of the media (including, but not limited to newspaper, magazine, radio, television, bloggers, and videographers) do not have the legal right to be in the construction site without the City's permission.
3. In the event that media representatives arrive near or on the construction site(s), the Contractor shall keep them off the site(s), in a courteous and professional manner, until a Public Information Officer is available to meet them at an approved location.
4. The Contractor shall report all members of the media visits to the Resident Engineer as quickly as possible, so that the City's Public Information Officer can meet with the members of the media at the construction site(s).
5. If the City allows members of the media to access a construction site, the Contractor shall allow the City to escort the media representatives while they are on the construction site and shall ensure their safety.
6. The Contractor shall require media representatives to sign in and out of the Site Visitor Log and to use Personal Protective Equipment.
7. The Contractor has a right to speak to members of the media about its company and its role on the project. All other questions shall be referred to the City.

**7-16.4 Payment.** The Payment for the Community Outreach Service is included in the various Bid items. The payment for exclusive community liaison is in the bid item for “Exclusive Community Liaison Services.”

**7-20 ELECTRONIC COMMUNICATION.** ADD the following:

Virtual Project Manager will be used on this contract.

#### **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 212 - LANDSCAPE AND IRRIGATION MATERIALS**

**212-1.2.4 Organic Soil Amendment.** ADD the following:

Type 4 organic soil amendment (compost) shall be derived from Green Material (yard waste and/or food waste) that is composted in accordance with California Code of Regulations, Title 14, Chapter 3 Article 7, 17868.3 (15-day Process to Further Reduce Pathogens and kill weed and other seeds). Incorporated into the soil, compost improves soil texture; increases both nutrient and water holding capacity; and reduces the need for commercial fertilizer. Where applicable, Organic Soil Amendment can qualify as a component of LEED certification.

Type 4 organic soil amendment must come from a compost facility that tests its compost on a quarterly basis and meets the requirements listed in Table 212-1.2.4(B). Contractor shall provide a copy of the most recent quarterly test results, and a current representative sample of the compost to be used on the project, to the City, prior to approval and the compost being used.

The City of San Diego’s Miramar Greenery produces Type 4 organic soil amendment (compost) and complies with the U.S. Composting Council’s Seal of Testing Assurance Program. The Miramar Greenery is located within the City’s Miramar Landfill at State Hwy. 52 and Convoy St. in San Diego.

<http://www.sandiego.gov/environmental-services/miramar/greenery/>

Table 212-1.2.4 (B)

| Test Criteria  | Acceptable Range | Unit of Measure  | TMCC Test Method   |
|----------------|------------------|--|--|
| pH             | 6.0 - 8.0        |  | 04.11-A 1:5 Slurry pH                                    |
| Soluble salts  | 0 - 10           | dS/m (mmhos/cm)  | 04.10-A 1:5 Slurry Method                                |
| Organic Matter | 30 - 75%         | % dry weight basis   | 05.07-A Loss-on-ignition Organic Matter Method (LOI)     |
| Stability      | ≤ 8              | mg CO <sub>2</sub> /g OM/day   | 05.08-B carbon Dioxide Evolution Rate                    |
| Maturity       | > 80% emergence  | average % of control   | 05.05-A Germination and vigor                            |
| Pathogens      |                  |  |  |
| Fecal coliform | Pass             | Pass/Fail per U.S. EPA Class A standard, 40CFR 503.32(a)                 | 07.01-B Fecal coliforms                                  |
| Salmonella     | Pass             | Pass/Fail per U.S. EPA Class A standard, 40CFR 503.32(a)                 | 07.02 Salmonella   |
| Heavy Metal    | Pass             | Pass/Fail per U.S. EPA Class A standard, 40CFR 503.13(a) Tables 1 and 3. | 04.06-Heavy Metals standards, and Hazardous Elements.    |
| Particle Size  | ≥ 90%            | % dry weight passing through 11mm  | 02.02-B Sample Sieving for Aggregate Size Classification |

**ADD:**

**212-3.2.2.3 Trench Marker Tape.** To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

- a) Trench marker tape shall be 6” wide and consist of a minimum 5.0 mil, five-ply 100% virgin polyethylene which is acid, alkaline and corrosion resistant. Elongation properties and tensile strength of not less than 7,800 psi shall be in accordance with ASTM D882-80A. The trench marker tape for water lines shall have a minimum 20 gauge solid aluminum foil core, adhered to a 2.55 mil polyethylene backing.
- b) Tape color and legend shall be placed beneath the top protective layer subject to the following:
  1. Blue with “Caution Potable Water Line Buried Below” for Water mainlines and over pipe sleeves.
  2. Purple with “Caution Recycled/Reclaimed Water Line Buried Below” for recycled water irrigation mainlines.
  3. Red with “Caution Electric Line Buried Below” for electrical lines servicing the irrigation system, including, but not limited to, 110/220v power to irrigation controllers and pumps, communication cables and irrigation direct burial control wires to remote control valves.
  4. Green with “Caution Sewer Line Buried Below” for Sewer mainlines and over pipe sleeves.

### **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 Class 2 Aggregate Base in accordance with 200-2.2, "Crushed Aggregate Base."

5. Recycled base material shall conform to Crushed Miscellaneous Base Material in accordance with 200-2.4, "Crushed Miscellaneous Aggregate Base."
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 Class 2 Aggregate Base in accordance with 200-2.2, "Crushed Aggregate Base." Recycled base material shall conform to Crushed Miscellaneous Base Material in accordance with 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 replacing 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. The areas and quantities shown on the road segments and in appendices are given only for the Contractor’s aid in planning the Work and preparing Bids. The Engineer will designate the limits to be removed and these designated areas shall be considered to take precedent over the area shown in an Appendix to the Contract Documents. The quantities shown in the appendices are based on a street assessment survey and may vary.

3. 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.
4. 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.
5. Milling shall be included in the Bid item for Asphalt Pavement Repair unless separate Bid item has been provided.
6. 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.

**302-5.2.1 Measurement and Payment.** To the City Supplement, item c), ADD the following:  
Imported Subgrade material shall be paid per bid item "Imported Backfill".

#### **SECTION 308 – LANDSCAPE AND IRRIGATION INSTALLATION**

**308-7 GUARANTEE.** To the City Supplement, DELETE in its entirety.

**308-7 PAYMENT.** ADD the following:

Work related to tree maintenance shall be included in the Bid items as follows:

- Tree Trimming (EA)
- Root Pruning (EA)
- Root Barrier (EA)

**308-8 PAYMENT.** To the City Supplement, DELETE in its entirety.

#### **SECTION 700 – EXTENDED REVEGETATION, MAINTENANCE, AND MONITORING**

**700-1.7.2 Project Biologist.** To the City Supplement, ADD the following:

The City will retain a qualified Project Biologist to perform biological monitoring work for this contract. You must coordinate your activities and Schedule with the activities and schedules of the Biologist Monitor.

Prior to any work near of existing trees or removal or trimming occurring during the breeding season for raptors and/or any birds protected under the Migratory Bird Treaty Act (January 1 to September 1), the City will retain a biologist to perform a pre-construction nesting survey. The survey shall be conducted within 10 calendar days prior to the start of any tree removal or trimming.

#### SECTION 705 – WATER DISCHARGES

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

**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.”

#### 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 a **Notice of Exemption and Notice of Right to Appeal**; for **Tierrasanta Community Park Sports Field Lighting**, as referenced in the Contract Appendix. You must comply with all requirements of the a **Notice of Exemption and Notice of Right to Appeal g** as set forth in the Contract Appendix A.

Compliance with the City’s environmental document is included in the various Bid items, unless a bid item has been provided.

#### END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

# TECHNICALS

MAY 18, 2015

**TIERRASANTA SPORTS FIELD LIGHTING  
AND  
ADA BARRIER REMOVAL PROJECT**

**TECHNICAL SPECIFICATION**

## TABLE OF CONTENTS

### **SPECIFICATIONS**

#### **Existing Conditions**

02 4100 – Demolition

#### **Concrete**

03 3000 - Cast-in-Place Concrete

#### **Metals**

05 5000 - Metal Fabrications

#### **Thermal and Moisture Protection**

07 9200 - Joint Sealants

#### **Openings**

08 7100 - Door Hardware

#### **Finishes**

09 9000 - Painting and Coating

#### **Specialties**

10 1400 – Signage

10 2113.15 – Stainless Steel Toilet Compartments

10 2800 – Toilet, Bath and Utility Room Accessories

#### **Special Construction**

13 0541 – Seismic Restraint Requirements for Non-Structural Components

#### **Plumbing**

22 0511 – Common Work Results for Plumbing

22 1100 – Facility Water Distribution

22 1300 - Facility Sanitary and Vent Piping

22 4000 – Plumbing Fixtures

#### **Electrical**

26 0500 – General Electrical Requirements

26 0510 – Basic Electrical Materials and Methods

26 0519 – Wires and Cables

26 0526 – Grounding and Bonding

26 0543 – Raceways and Fittings

26 0573 – Overcurrent Protective Devices

26 2416 – Panelboards

MAY 18, 2015

26 5668 – Sports Lighting

**Earthwork**

31 1000 – Site Clearing

31 2200 – Grading

31 2316 – Excavation

31 2316.13 – Trenching

31 2323 – Fill

**Exterior Improvements**

32 1313 – Concrete Paving

32 3113 – Galvanized Chain Link Fences and Gates

**END OF TABLE OF CONTENTS**

## SECTION 02 4100

### DEMOLITION

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Selective demolition existing improvements.
- B. Selective demolition of built site elements.
- C. Abandonment and removal of existing utilities and utility structures.
- D. Selective removal of items for salvage by City.
- E. Selective removal of items for reinstallation.

##### 1.02 RELATED REQUIREMENTS

- A. 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK' provisions for Demolition and Site Clearing operations. Including, but not limited to the following:
  - 1. Section 7-9 – Protection and Restoration of Existing Improvements.
  - 2. Section 702 – Construction and Demolition Waste Management.
  - 3. Section 703 – Encountering or Releasing Hazardous Materials.
  - 4. Section 706 – Cleanup and Dust Control.
  - 5. Section 707 – Resource Discoveries.
  - 6. Section 708 – Asbestos.
- B. Coordinate with Drawings for additional scope and instructions.

##### 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; current edition.

##### 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 permanently removed and that are not otherwise indicated to be removed, salvage or reinstalled.
- 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 removed and reinstalled.
- E. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

- F. Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to City. Include fasteners and/or brackets needed for reattachment elsewhere.
- G. 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.
- H. 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 City that may be uncovered during demolition remain the property of the City.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to City.
  - 2. Comply with 2012 City Supplement 'The WHITEBOOK', Section 707 for Resource Discoveries.

#### **1.06 INFORMATIONAL SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 2-5.3 for Shop Drawings and Submittals. Information submittals listed below shall be submitted to Engineer prior to demolition activities, unless otherwise noted.
- 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.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition work, with starting and ending dates for each activity. Ensure City's and Tenant's on-site operations are uninterrupted.
  - 2. Temporary interruption of utility services. Indicate time period utility services will be interrupted.
  - 3. Coordination for shutoff, capping, continuation or re-routing of utility services.
  - 4. Coordination of City or Tenant's continuing occupancy of portions of existing building and of City's partial occupancy of completed Work.
- 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. Inventory: Submit a list of items to be salvaged and deliver to City prior to start of demolition.
- F. Pre-demolition Photographs: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by demolition operations. Submit to Engineer before the Work begins.
- G. Post-demolition Photographs: Sufficiently detailed, of conditions of trees and plantings,

adjoining buildings and construction, and site improvements that might be misconstrued as damage caused by demolition operations. Submit to Engineer at completion of Demolition activities.

- H. Statement of Refrigerant Recovery (when refrigerant present and indicated as part of existing improvements to be removed): 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. Submit to Engineer at completion of Refrigerant Recovery, when applicable to project.

#### **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 selective demolition. Comply with hauling and disposal regulations of authorities have jurisdiction.
- D. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.
- E. Pre-demolition Conference: Conduct conference at Project site. Meet with City, Engineer, Tenant and Contractor. 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 selective demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.
  - 6. Review procedures for noise control and dust control.
  - 7. Review items to be salvaged and returned to City.

#### **1.08 PROJECT CONDITIONS**

- A. City and Public will occupy portions of park immediately adjacent to selective demolition area. Conduct selective demolition so Park operations will not be disrupted. Construct a temporary barrier between area of Work and area in use by occupants/ park users.
  - 1. Provide not less than 72 hours notice to City of activities that will affect City's or Park's operations.
  - 2. Maintain access to existing walkways, exits or other occupied of used facilities. Do not close or obstruct without written permission from authorities having jurisdiction.
  - 3. Coordinate utility outages to not disrupt building operations. Shut downs and cross-overs are to take place on weekends as arranged with Engineer.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by City as far as practical.
- C. City assumes no responsibility for buildings and structures to be demolished.
- D. Prior to building demolition, City will identify all items to be salvaged. Provide 48 hours notice prior to demolition activities.

MAY 18, 2015

- E. Notify Engineer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- F. Storage or sale of removed items or materials on-site is not permitted.
- G. Hazardous Materials:
  - 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. Notify Engineer immediately. Hazardous materials will be removed by City under separate contract.
  - 3. City 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.
- H. 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 City and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- I. Salvable Improvements: Carefully remove items indicated to be salvaged and store on City's premises where indicated.
- J. Utility Locator Service: Notify utility locator service for underground utilities before site clearing.
- K. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
- L. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

## **PART 2 PRODUCTS**

### **2.01 MATERIALS**

- A. Fill Material: Comply with Section 31 2323 - Fill.

## **PART 3 EXECUTION**

### **3.01 SCOPE**

- A. Remove selective portions of the existing building as indicated on Drawings.
- B. Remove selective portions of the existing site as indicated on Drawings.
- C. Remove selective utilities and utility structures as indicated on Drawings. Coordinate with private utility company as required by each service provider's standards.
- D. Remove paving and curbs as indicated and as required to accomplish new work.
- E. Within area of new construction, remove foundation walls and footings to a minimum of 5 feet below finished grade.
- F. Refer to Drawings for further clarification of scope of demolition and site-clearing requirements.
- G. Remove other items indicated, for salvage, reinstallation, 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 selective demolition operations.
- C. Review Record Documents (if available) of existing construction provided by City. City does not guarantee the existing conditions are same as those indicated in 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 operations.
- E. Verify that hazardous materials have been abated / remediated before proceeding with building demolition operations.
- F. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report with recommendation to Engineer.
- G. Record existing conditions by use of preconstruction photographs and video. Submit to Engineer per requirements in Informational Submittals subsection.

### **3.03 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS**

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. City will arrange to shut off indicated services/systems when requested by Contractor.
  - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

### **3.04 PREPARATION**

- A. Remove refrigerant (if an existing condition) from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction before starting demolition.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.

5. Comply with 2012 Standard Specifications for Public Works Construction ‘The GREENBOOK’ and 2012 City Supplement ‘The WHITEBOOK’, Section 7-1.2 for Temporary Utilities.”
- D. Temporary Shoring: Provide and maintain shoring, bracing and structural support as required to preserve stability and prevent movement, settlement or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished. Strengthen or add new supports when required during progress of selective demolition.
- E. 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 City.
  4. Transport items to storage area designated by City.
  5. Protect items from damage during transport and storage.
- F. Protect and maintain benchmarks and survey control points from disturbance during construction.
- G. Locate and clearly flag trees and vegetation to remain or to be relocated.
- H. Protect existing site improvements to remain from damage during construction.
  1. Restore damaged improvements to their original condition, as acceptable to Engineer.

### **3.05 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- A. Comply with 2012 Standard Specifications for Public Works Construction ‘The GREENBOOK’ and 2012 City Supplement ‘The WHITEBOOK’, 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.

### **3.06 PROTECTION**

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries and other building facilities during demolition operations.
- B. Existing Items to Remain: Protect existing improvements 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:
  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 selective demolition area and to and from occupied portions of building.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  5. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise and

dirt migration to occupied portions building.

- E. Remove temporary barriers and protections when hazards no longer exist.

### **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 Engineer.
- C. Protect existing structures, finishes 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 Engineer; 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 SELECTIVE DEMOLITION, GENERAL**

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level.
  - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  - 5. Maintain adequate ventilation when using cutting torches.
  - 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  - 7. Remove framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  - 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse.
  - 2. Protect items from damage during storage.
  - 3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### **3.09 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS**

- A. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- B. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.

### **3.10 REPAIRS**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 7-9 for Protection and Restoration of Existing Improvements.

MAY 18, 2015

- 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.

### **3.11 WASTE MANAGEMENT AND RECYCLING DEMOLISHED MATERIALS**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 702 for Construction and Demolition Waste Management.
- 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.

### **3.12 CLEANING**

- A. Clean adjacent structures, improvements and surfaces of dust, dirt and debris caused by selective 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. Foundations, floors and slabs on grade.
- D. Accessories and 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 9200 - Joint Sealers.
- B. Section 32 1313 – Concrete Paving: Concrete pavement and walks.
- C. Comply with Drawings including general notes, details and project specific instructions.

**1.03 REFERENCE STANDARDS**

- A. ACI 117 – Specifications for Tolerances for Concrete Construction and Materials.
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.
- C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International.
- D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International.
- E. ACI 305R - Specification for Hot Weather Concreting.

MAY 18, 2015

- F. ACI 306.1 - Cold Weather Concreting; American Concrete Institute International.
- G. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International.
- H. ASTM C 31 – Standard Specification for Making and Curing Concrete Test Specimens in the Field.
- I. ASTM C 33 - Standard Specification for Concrete Aggregates.
- J. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- K. ASTM C 42 - Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- L. ASTM C 88 - Standard Test Method for Soundness of Aggregates by use of Sodium Sulphate or Magnesium Sulphate.
- M. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete.
- N. ASTM C 143/C 143M - Standard Test Method for Slump of Hydraulic-Cement Concrete.
- O. ASTM C 150 - Standard Specification for Portland Cement.
- P. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete.
- Q. ASTM C 172 – Standard Practice for Sampling Freshly Mixed Concrete.
- R. ASTM C 173 – Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
- S. ASTM C 260 – Standard Specification for Air-Entraining Admixtures for Concrete.
- T. ASTM C 289 - Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method).
- U. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
- V. ASTM C 494 - Standard Specification for Chemical Admixtures for Concrete.
- W. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
- X. ASTM C 845 - Standard Specification for Expansive Hydraulic Cement.
- Y. ASTM C 881/C 881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete.

- Z. ASTM C 989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.
- AA. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete.
- BB. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
- CC. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
- DD. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixers.
- EE. ASTM C1567 - Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregate (Accelerated Mortar-Bar Method).
- FF. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
- GG. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- HH. ASTM E1155 - Standard Test Method for Determining  $F_F$  Floor Flatness and  $F_L$  Floor Levelness Numbers.
- II. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- JJ. ASTM E 1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

#### **1.04 SUBMITTALS**

- A. Comply with GREENBOOK Standard Specifications for Public Works Construction and City Supplement, current editions, Section 2-5.3 for Shop Drawings and Submittals.
- B. Shop Drawings:
  - 1. Indicate locations of cast-in-place concrete Work and accessory items such as vapor barriers.
  - 2. Steel Reinforcement: 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,
  - 3. Embedded items.
  - 4. How Work will interface with adjacent Work.
  - 5. Construction Joint Layout: Indicate proposed construction joints required. Location of construction joints is subject to approval of the Engineer.

- C. Mix Design Data: Submit concrete mix designs as specified herein and in Article 2.04.
1. Submit name, address and telephone number of the concrete production facility which the contractor intends to engage to design the concrete mixes. Submit name and qualifications of the proposed concrete technologist.
  2. Mix Design: Submit a concrete mix design for each strength and type of concrete indicated in the drawings or specified. Include:
    - a. minimum compressive strength
    - b. water/cement ratio
    - c. maximum slump
    - d. air content percentage
    - e. source
    - f. size and amount of coarse aggregate
    - g. proposed admixtures
    - h. mix proportions of all aggregates
    - i. Clearly indicate locations where each mix design will be used.
  3. Test Reports: Submit copies of test reports showing that the proposed mixes produce concrete with the strengths and properties specified. Include tests for cement, aggregates and admixtures. Provide gradation analysis.
- D. Material Certificates: Submit certification that each of the following conforms to the standards indicated:
1. Portland cement: ASTM C150.
  2. Normal weight concrete aggregates: ASTM C33.
  3. Lightweight concrete aggregates: ASTM C330.
  4. Aggregates: Submit evidence that the aggregate is not reactive in the presence of cement alkalis. In the absence of evidence, aggregate shall be tested per ASTM C289. If results of test are other than innocuous, aggregates shall be tested per ASTM C1567 as reported per ACI 318 as modified by CBC, Section 1903A.3.
  5. Curing materials.
  6. Reinforcement and accessories.
- E. Product Data and Manufacturer Installation Instructions: Submit manufacturers' data on each

MAY 18, 2015

type of manufactured products indicated showing compliance with specified requirements.

1. Admixtures.
  2. Waterstops.
  3. Floor and slab treatments.
  4. Vapor Barriers.
  5. Proposed bar supports
- F. Product Certificates: Adjacent or interfacing systems that interface directly with concrete, certifying that curing compounds are compatible with respective system and signed by manufacturers of :
1. Waterproofing system(s)
  2. Roofing system(s)
  3. Floor-covering system(s)
- G. Material Samples: Submit the following:
1. Samples illustrating concrete finishes and hardeners, minimum 12-inch by 12-inch.
  2. Samples of underslab vapor barrier.
  3. 4 inch long samples of waterstops and construction joint devices.
- H. Qualification Data: For installer and manufacturer.
- I. Minutes of Pre-installation Conference.
- J. Batch tickets for Concrete containing Integral Waterproofing Admixtures: Batch tickets from concrete plant, validating inclusion of integral waterproofing admixture components into concrete mix.
- K. Field Quality Control and Material Test Reports.
- L. Project Record Documents/Contractor AS-BUILTS: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: A qualified installer; who specializes in performing the work of this section with minimum five years experience.
- 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.

- C. Concrete Testing Agency Qualifications: An independent agency, approved by City, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- D. 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.
- E. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code – Reinforcing Steel."
- F. Perform work of this section in accordance with ACI 301 and ACI 318, unless specifically modified by requirements in the Contract Documents.
- G. Pre-installation Conference: Before starting concrete construction, conduct conference at Project site.
  - 1. Meet with City, Engineer, 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-barrier installation, floor and slab flatness and levelness measurement, concrete repair procedures and concrete protection.

#### **1.06 DELIVERY, STORAGE AND HANDLING**

- A. Store cement and aggregate materials so as to prevent their deterioration or intrusion by foreign matter. Deteriorated or contaminated materials shall not be furnished.
- B. Packaged materials shall bear the manufacturers and brand name label, and shall be stored in their original unbroken package in a weather tight place until ready for use in the work.

MAY 18, 2015

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

#### **1.07 PROJECT CONDITIONS**

- A. Cold Weather Requirements: Batching, mixing, delivering and placing of concrete in cold weather shall comply with the applicable requirements of ACI 306.1.
- B. Hot Weather Requirements: Batching, mixing, delivering and placing of concrete in hot weather shall comply with the applicable requirements of ACI 305R.
- C. Concrete temperature of freshly mixed concrete shall be determined per ASTM C1064.

### **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; 1/4 inch radius. 1/8 inch radius at paving/walking surfaces.
- 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. Reinforcing Bars: ASTM A 615/A 615M, grade 60, deformed.
- B. Low-Alloy Steel Reinforcing Bars: ASTM A 706/A 706M, deformed.
- C. Stirrup Steel: ASTM A 82/A 82M steel wire, unfinished.
- D. 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.
    - c. No brick or porous materials shall be used to support foundation steel off the ground. This includes 'dobies' unless precast and provided with supporting documentation of cement type and compressive strength.
  4. Provide stainless steel components for placement within 1-1/2 inches of weathering surfaces.

### 2.03 MATERIALS

- A. Cement: ASTM C 150, Portland Cement. Type V, low alkali, with color additive.
- B. Aggregates: Conform to the following standards:
  - 1. Normal weight concrete: ASTM C 33, Class 1N aggregate or better, graded.
  - 2. Lightweight concrete: ASTM C330, with fine aggregates per ASTM C33.
  - 3. Aggregate shall be tested for Potential Alkali Reactivity of Cement-Aggregate Combinations per ASTM C289.
  - 4. Maximum Course-Aggregate size: 3/4 inches nominal for Foundations and Mass; 3/4 inch for slabs on grade, walls and all other concrete.
- C. Water: Water for concrete mixes, curing and cleaning shall be potable and not detrimental to concrete.
- D. Admixtures: Shall be shown capable of maintaining essentially the same composition and performance throughout the work as the product used in establishing concrete proportions in accordance with ACI 318, Section 3.6. Provide admixtures certified by manufacturer(s) to be compatible with other admixtures.
  - 1. Admixtures containing chlorides or sulfides are not permitted.
  - 2. Air-entraining admixtures shall comply with ASTM C 260. Air-entrained admixtures shall not be used for floor slabs to receive steel trowel finish.
  - 3. Admixtures for water reduction and setting time modification shall conform to ASTM C494.
  - 4. Admixtures for producing flowing concrete shall conform to ASTM C1017.
- E. Fly Ash: ASTM C 618, Class F.
- F. Silica Fume: ASTM C 1240, amorphous silica.
- G. Underslab Vapor Barrier: Polyolefin-based 15 mils minimum thickness, meeting or exceeding ASTM E1745, Class A, stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs, 10 feet minimum width. Permeance shall be less than 0.01 perms [grains/(ft<sup>2</sup>\*hr\*inHg)] as determined by ASTM E96 or ASTM F1249 and after mandatory conditioning tests per ASTM E154 Sections 8, 11, 12, & 13. Include accessories including tape and/or mastic. Single ply polyethylene is prohibited.
  - 1. Stego Wrap by Stego Industries LLC.
  - 2. Perminator by W.R. Meadows.
  - 3. Ecoshield-E by Epro.
  - 4. Approved equal.
    - a. Comply with GREENBOOK Standard Specifications for Public Works Construction and City Supplement, current editions, Section 4-1.6 for Trade Names or Equals.

5. Accessory Products: Vapor barrier manufacturer's recommended seam tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations in vapor barrier.
- H. 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.
- I. 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.
- J. Curing Paper: Shall conform to ASTM C171 and consist of two sheets of kraft paper cemented together with a bituminous material in which are embedded cords or strands of fiber running in both directions. The paper shall be light in color, shall be free of visible defects, with uniform appearance.
- K. Grout: ASTM C1107, non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing a minimum compressive strength of 7,000 psi at 7 days; of consistency suitable for application and a 30 minute working time.

#### **2.04 CONCRETE MIX**

- 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.
  2. Mix shall be signed and sealed by a Civil or Structural Engineer currently registered in the State of California.
- B. Strength of Concrete: Strengths and types of concretes shall be as indicated in the Drawings. Unless otherwise indicated or specified, concrete shall be provided with minimum 28-day strength of 3000 psi (f'c).
- C. Concrete proportioning shall be determined on the basis of field experience and/or trial mixtures shall in accordance with ACI 318, Section 5.3. Proportions of materials shall provide workability and consistency to permit concrete to be placed readily into forms and around reinforcement under conditions of placement to be employed, without segregation or excessive bleeding.
- D. Water to Cement ratio shall not exceed 0.50.
- E. 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.

MAY 18, 2015

- F. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- G. Admixtures: Use admixtures only with approval of Engineer. Submit proposed admixtures per part 1.04, this section, for consideration and approval of Engineer. 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 required to be watertight, and concrete with a water to cementitious materials ratio below 0.50.
- H. Do not retemper mix or add water in field.
- I. 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.
- J. 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.

## **2.05 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. Expansion Joint Fillers: 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 9200.

## **2.06 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.

## **PART 3 EXECUTION**

### **3.01 GENERAL**

- A. Surfaces to receive concrete shall be free of debris, standing water, and any other deleterious substances before start of concrete placing.
- B. Time of Placing: Do not place concrete until reinforcement, conduits, outlet boxes, anchors, hangers, sleeves, bolts, and other embedded materials are securely fastened in place. Contact the Inspector at least 24 hours before placing concrete; do not place concrete until inspected by the

MAY 18, 2015

City Inspector and Engineer.

- C. Pouring Record: A record shall be kept on the Project site of time and date of placing concrete in each portion of structure. Such record shall be maintained on the Project site until Substantial Completion and shall be available for examination by the Engineer.

### 3.02 TOLERANCES

- A. Concrete construction tolerances shall be as specified in ACI 117.

### 3.03 PREPARATION

- A. Vapor Barrier: Before installation of screeds and slab reinforcement, install vapor barrier under slabs on grade, as indicated in the drawings.
  - 1. Place, protect, and repair sheet vapor barrier according to ASTM E 1643 and manufacturer's written instructions.
  - 2. Place vapor retarder sheeting with the longest dimension parallel with the direction of the concrete pour.
  - 3. Laps or seams shall be overlapped 6 inches, or as recommended by manufacturer. Laps and penetrations shall be sealed with the manufacturer's recommended tape and/or mastic.
  - 4. Engineer will inspect and mark areas of damage and insufficient installation of the vapor barrier sufficiently in advance of concrete placement.
    - a. Deficiencies shall be corrected before concrete is placed.
    - b. Patch damaged areas with vapor barrier overlapping four sides 6 inches and adhering with tape.
- B. Embedded Items, Reglets and Rebates: 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. Coordinate dimensions and locations required with other related Work.
  - 3. Install dovetail anchor slots in concrete structures as indicated.
  - 4. If concrete slabs on grade adjoin a wall or other perpendicular concrete surface, form a reglet in wall to receive and carry horizontal concrete Work. Reglet shall be full thickness of the slab and shall be 3/4 inch wide, unless otherwise indicated. Requirement does not apply to exterior walks, unless specifically indicated.
- C. Anchor Slots: Embedded anchor slots in concrete walls to receive masonry veneer shall be set vertically in forms, 24 inches maximum on centers measured horizontally. Anchor slots shall be No. 24 gage galvanized sheet steel with removable fiber filler to prevent seepage of cement in slot.

- D. Screeds: Install screeds accurately and maintain at required grade or slab elevations after steel reinforcement has been installed, but before starting to place concrete. Install screeds adjacent to walls and in parallel rows not to exceed 8 feet on centers.
- E. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- F. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.
- 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 9200 for finish joint sealant 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.

### **3.04 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.

### **3.05 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 Engineer.

### **3.06 STEEL REINFORCEMENT**

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
  - 1. Do not cut or puncture vapor barrier. Repair damage and reseal vapor barrier 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.

### **3.07 INSTALLATION**

A. Conveying and Placing:

1. Concrete shall be placed only under direct observation of the Engineer. Notify Engineer not less than 24 hours prior to commencement of placement operations. Do not place concrete outside of regular working hours, unless the Engineer has been notified at least 48 hours in advance.
2. Place concrete in accordance with ACI 304R.
3. Place concrete for floor slabs in accordance with ACI 302.1R.
4. Concrete shall be conveyed from mixer to location of final placement by methods that will prevent separation or loss of materials.
5. Concrete shall be placed as nearly as practicable to its final position to avoid segregation due to re-handling or flowing. No concrete that has partially hydrated or has been contaminated by foreign materials shall be placed, nor shall re-tempered concrete or concrete which has been remixed after initial set be placed.
6. In placing concrete in columns, walls or thin sections, provide openings in forms, elephant trunks, tremies or other recognized devices, to prevent segregation and accumulation of partially hydrated concrete on forms or metal reinforcement above level of concrete being placed. Such devices shall be installed so that concrete will be dropped vertically. Unconfined vertical drop of concrete from end of such devices to final placement surface shall not exceed 6 feet.
7. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
8. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Engineer.
9. 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.
  - a. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
  - b. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
  - c. 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.
  - d. Top surfaces of vertically formed lifts shall be level.

10. 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.
  - a. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners of forms.
  - b. Maintain reinforcement in position on chairs during concrete placement.
  - c. Where conditions make consolidation difficult or where reinforcement is congested, batches of mortar containing same proportions of cement, sand, and water as provided in the concrete, shall first be deposited in the forms to a depth of at least one inch.
11. Do not interrupt successive placement; do not permit cold joints to occur.

B. Cold Weather:

1. Provide adequate equipment for heating concrete materials and protecting concrete during freezing or near-freezing weather. All ground with which concrete is to come in contact shall be free from frost. No frozen materials or materials containing ice shall be used.
2. The temperature of concrete at the time of placement shall not be below the minimum temperatures given in Table 3.1 of ACI 306.1.
3. Concrete shall be maintained at a temperature of at least 50° F. for not less than 72 hours after placing or until it has thoroughly hardened. Cover concrete and provide sufficient heat as required. When necessary, aggregates shall be heated before mixing. Special precautions shall be taken for protection of transit-mixed concrete.

C. Hot Weather:

1. Concrete to be placed during hot weather shall comply with the requirements of ACI 318, Section 5.13.
2. Maintain concrete temperatures indicated in Table 2.1.5 of ACI 305R to prevent the evaporation rate from exceeding 0.2 pound of water per square feet of exposed concrete per hour.
3. Cool concrete using methods indicated in ACI 305R Appendix B.
4. Place and cure concrete as specified in ACI 305R Chapter 4.

D. Compaction and Screeding:

1. Tamp freshly placed concrete with a heavy tamper until at least 3/8 inch of mortar is brought to surface. Concrete shall then be tamped with a light tamper and screeded with a heavy straightedge until depressions and irregularities are eliminated, and surface is true to finish grades or elevations. Remove excess water and debris.
2. Where slabs are to receive separate cement finish or mortar setting bed, continued tamping to raise mortar to surface is not performed. Laitance shall be removed by brushing with a stiff brush or by light sandblasting to expose clean top surface of coarse aggregate.

3. Screed slabs on grade level, maintaining surface flatness of maximum 1/4 inch in 10 ft.
4. Screed slab surfaces with a straightedge and strike off to correct elevations.
5. Slope surfaces uniformly to drains where required.

E. Floating and Troweling:

1. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
2. 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.
  - a. 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.
3. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten 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.
  - a. 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.
4. 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.
5. When concrete has hydrated sufficiently, it shall be floated to a compact and smooth surface. After floating, wait until concrete has reached proper consistency before troweling. Top surfaces shall receive at least 2 troweling operations with steel hand trowel. Prior to and during final troweling, apply a fine mist of water frequently with an atomizing type fog sprayer. Omit troweling for slabs to receive a separate cement finish.
6. Interior finish slabs: Final troweling shall provide a hard, impervious, and non-slip surfaces, free from defects and blemishes. Finished surface shall be within tolerances indicated in Article 3.02. Avoid burnishing. Do not add cement or sand to absorb excess moisture.
  - a. After floating, and while the surface is still plastic, provide a fine textured finish by drawing a fine fiber bristle broom uniformly over the surface in one direction only.
  - b. Sloped Floors: In area with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal. Floors sloped for drainage should be brushed in the direction of flow.

7. Exterior Paving and Concrete Walks: Finish as specified above, except surface shall be given a non-slip broom finish to match Sample reviewed by the Engineer. 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
8. Vertical concrete surfaces: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Finish smooth and free from marks or other surface defects. Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
9. 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.

F. Curing:

1. Length of time, temperature and moisture conditions for curing concrete shall be in accordance with ACI 308.1.
2. 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.
3. 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.
4. 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.
5. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
6. Immediately after finishing, cover monolithic floor slabs with curing paper. Lap paper 4 inches at joints and seal with waterproof sealer. Cement edges to finish. Repair or replace paper damaged during construction operations.

G. Filling, Leveling and Patching:

1. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer 's approval.
2. 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.

3. 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.
4. 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.
  - a. 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.
  - b. After concrete has cured at least 14 days, correct high areas by grinding.
  - c. 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.
  - d. 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.
  - e. 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.
  - f. 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.
  - g. 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.
5. Repair materials and installation not specified above may be used, subject to Engineer's approval
6. Concrete slabs exhibiting high or low spots and indicated to receive resilient floor covering or soft floor covering, shall have surfaces repaired. High spots shall be honed, or ground with power-driven machines to required tolerances. Low spots shall be filled with latex underlayment, installed in strict accordance with manufacturer's written recommendations.
7. Holes resulting from form ties or sleeve nuts shall be solidly packed, through exterior walls,

by pressure grouting with cement grout, as specified, unless otherwise noted. Grouted holes on exposed surfaces shall be screeded flush and finished to match adjoining surfaces. Provide other miscellaneous concrete filling indicated or required to complete the Work.

H. Finishing:

1. Soda and Acid Wash: Concrete surfaces to receive plaster, paint or other finish, and which have been formed by oil coated forms, shall be scrubbed with a solution of 1-1/2 pounds of caustic soda to one gallon of water. Surfaces where smooth wood or waste molds have been furnished shall be scrubbed with a solution of 20 percent muriatic acid. Wash with clean water after scrubbing.
2. Sacking: Exposed concrete curbs, walls and other surfaces shall be sacked by an application of Portland cement grout, floated and rubbed. Sacking shall not be performed until patching and filling of holes has been completed. Entire sacking operation for any continuous area shall be started and completed within the same day.
  - a. Mix one part Portland cement and 1-1/2 parts fine sand with sufficient water to produce a grout having consistency of thick paint. Wet surface of concrete sufficiently to prevent absorption of water from grout. Apply grout uniformly with a brush or spray gun, then immediately float surface with a cork or other suitable float, scouring wall vigorously.
  - b. While grout is still plastic, finish surface with a sponge-rubber float, removing excess grout. Allow surface to dry thoroughly, then rub vigorously with dry burlap to completely remove dried grout. No visible film or grout shall remain after rubbing with burlap.
3. Sandblasting: Exterior concrete surfaces to receive stucco finish, where plywood or other smooth forms have been provided, shall be uniformly sand-blasted with sharp quartz sand under sufficient air pressure to remove dirt, form oil and other foreign materials, and roughen surface to provide adequate bond with stucco finish. Such surfaces shall be thoroughly washed with clean water after sandblasting.

**3.08 CONCRETE SURFACE REPAIRS**

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer '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 Engineer's approval.

### 3.09 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 Engineer.
  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 9200 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.

### **3.10 FIELD QUALITY CONTROL**

- A. Testing and Inspecting: Contractor shall engage a third party, City-approved 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 Engineer, 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 Engineer 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 Engineer. 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 Engineer.
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. Defective Concrete:

1. Should strength of any grade of concrete, for any portion of the Work indicated by tests of molded cylinders and core tests, fall below minimum 28 days strength specified or indicated, concrete will be deemed defective Work and shall be replaced or adequately strengthened in a manner acceptable to the Engineer.
2. Concrete Work that is not formed as indicated, is not true within 1/250 of span, not true to intended alignment, not plumb or level where so intended, not true to intended grades and levels, contains sawdust shavings, wood or embedded debris, or does not fully conform to Contract provisions, shall be deemed to be defective Work and shall be removed and replaced at no expense to City.

**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 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. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, 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. Steel Sections: AISC W Shapes comply with ASTM A 992.
- D. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.
- E. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- F. Steel Tubing: ASTM A 500, Grade B cold-formed structural tubing.
- G. Plates: ASTM A 283.
- H. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black finish.
- I. Slotted Channel Framing: ASTM A 653, Grade 33.
- J. Slotted Channel Fittings: ASTM A 1011/A 1011M.
- K. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.
- L. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- M. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- N. 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 2012 City Supplement, Section 4-1.6 for Trade Names or Equals.
- 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. Hot Dip Galvanize miscellaneous framing and supports unless otherwise indicated.
- D. Prime miscellaneous framing and supports with zinc-rich primer where final finish indicated to be paint.

## **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.

## 2.11 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.

## **2.12 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.

MAY 18, 2015

- B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 09 9000 Painting and Coating.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

### **3.04 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 07 9200**

**JOINT SEALANTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

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

**1.02 RELATED REQUIREMENTS**

- A. 2013 California Green Building Standards Code.

**1.03 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 Rule No.1168; current edition; [www.aqmd.gov](http://www.aqmd.gov).

**1.04 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data:
  - 1. Sealant: Chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
  - 2. Primers.
  - 3. Bond Breakers.
  - 4. Backstops.
- C. Selection Samples: Provide manufacturer's set of available colors.
- D. Verification 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.

### 1.05 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.
- C. Verify that each of the sealants are compatible for use with project joint substrates.

### 1.06 FIELD CONDITIONS

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

### 1.07 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](http://www.bostik-us.com). Or approved equal.
  - 2. Pecora Corporation; Product 890 NST: [www.pecora.com](http://www.pecora.com). Or approved equal.
  - 3. BASF Construction Chemicals-Building Systems; Product Omniseal 50: [www.chemrex.com](http://www.chemrex.com). Or approved equal.
  - 4. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.
- B. Polyurethane Sealants:
  - 1. Bostik Inc; Product CHEM-CALK 900 (vertical) and 955 SL (horizontal): [www.bostik-us.com](http://www.bostik-us.com). Or approved equal.
  - 2. Pecora Corporation; Product DynaTrol I XL: [www.pecora.com](http://www.pecora.com). Or approved equal.
  - 3. BASF Construction Chemicals-Building Systems; Product NP-2: [www.chemrex.com](http://www.chemrex.com). Or approved equal.
  - 4. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.
- C. Polysulfide Sealants:
  - 1. Pecora Corporation; Product Synthacalk GC2+: [www.pecora.com](http://www.pecora.com). Or approved equal.
  - 2. BASF Construction Chemicals-Building Systems; Product Sonalastic Polysulfide Sealant: [www.chemrex.com](http://www.chemrex.com). Or approved equal.
  - 3. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.
- D. Butyl Sealants:
  - 1. Bostik Inc; Product CHEM-CALK 300: [www.bostik-us.com](http://www.bostik-us.com). Or approved equal.
  - 2. Pecora Corporation; Product BC-158: [www.pecora.com](http://www.pecora.com). Or approved equal.
  - 3. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.

- E. Acrylic Emulsion Latex Sealants:
  - 1. Bostik Inc; Product CHEM-CALK 600 ACRYLIC LATEX: [www.bostik-us.com](http://www.bostik-us.com). Or approved equal.
  - 2. Pecora Corporation; Product AC-20 +SILICONE: [www.pecora.com](http://www.pecora.com). Or approved equal.
  - 3. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.
- F. Preformed Compressible Foam Sealers:
  - 1. Sandell Manufacturing Company, Inc; Product Polyseal: [www.sandellmfg.com](http://www.sandellmfg.com). Or approved equal.
  - 2. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.

## 2.02 SEALANTS

- A. Sealants and Primers - General: Provide products having volatile organic compound (VOC) content within limits as indicated in 2013 California Green Building Standards Code.
  - B. Type A - General Purpose Exterior Sealant: Polyurethane.
    - Vertical Applications: Provide ASTM C 920, Type S or M, Grade NS, Class 25, Use NT.
    - Horizontal Applications: Provide ASTM C 920, Type S or M, Grade P, Class 25, Use T.
      - 1. Color: as selected.
      - 2. Joint Locations:
        - a. Joints and recesses formed where frames and subsills of windows, doors, louvers and vents join masonry, concrete or metal frames. Use sealant at both exterior and interior surfaces of exterior wall penetrations.
        - b. Joints between concrete and other materials.
        - c. Joints between new and existing exterior masonry walls.
        - d. Masonry joints where shelf angles occur.
        - e. Joints in wash surfaces of stone work.
        - f. Expansion and control joints.
        - g. Interior face of expansion joints in exterior concrete or masonry walls where metal expansion joint covers are not required.
        - h. Voids where items pass through exterior walls.
        - i. Metal reglets where flashing is inserted into masonry joints, and where flashing is penetrated by coping dowels.
        - j. Metal-to-metal joints where sealant is indicated or specified.
        - k. Joints between ends of gravel stops , fascias, copings and adjacent walls.
        - l. Other 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.
    - b. Seats of metal thresholds at exterior doors.
- 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. Bond Breaker: Provide type and consistency as recommended by sealant manufacturer to prevent adhesion to backing or to bottom of joint.

- D. Joint Backing/Backstop: Provide neoprene, butyl, polyurethane, or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer. Provide 25 to 33 percent oversized backing for closed cell and 40 to 50 percent oversized backing for open cell material, unless otherwise indicated. Ensure backstop material is compatible with sealant. Do not use oakum and other types of absorptive materials as backstops.
1. Rubber: Conform to ASTM D 1056, Type 1, open cell, Class A, round cross section cellular rubber sponge backing. Use Class B where exposed to oil or fuel. Use Type 2 closed cell in locations where moisture may migrate to backing.
  2. PVC: Conform to ASTM D 1667, Grade VO 12, open cell foam, round cross section for Polyvinyl chloride (PVC) backing. Do not use open cell foam in moist areas or below grade.
  3. Synthetic Rubber: Conform to ASTM C 509, Option 1, Type 1 preformed rods for synthetic rubber backing.
  4. Neoprene: Conform to ASTM D 1056, closed cell expanded neoprene cord Type 2, Class C, for neoprene backing.
  5. Butyl Rubber Based: Provide butyl rubber based sealants of single component, solvent release, color as selected, conforming to ASTM C 1311.
  6. Silicone Rubber Base: Provide silicone rubber based sealants of single component, solvent release, color as selected, conforming to ASTM C 920, non-sag, Class 25.

### **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 backstops where indicated, and where not indicated by joint cavities exceed the acceptable maximum joint width-to-depth ratio as indicated by manufacturer for each product. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified.

MAY 18, 2015

- E. Primer: Immediately prior to application of the sealant, clean out loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete masonry units, wood and other porous surfaces in accordance with sealant manufacturer's instructions. Do not apply primer to exposed finish surfaces.
- F. Install bond breaker where joint backing is not used. Carefully apply bond breaker to avoid contamination of adjoining surfaces of breaking bond with surfaces other than those covered by the bond breaker.
- G. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- H. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- I. Tool joints concave.
- J. 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.
- K. 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. Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.
  - 1. Masonry and Other Porous Surfaces: Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer. Allow excess sealant to cure for 24 hours, then remove by wire brushing or sanding.
  - 2. Metal and other Non-Porous Surfaces: Remove excess sealant with a solvent-moistened cloth.

### **3.05 PROTECTION**

- A. Protect sealants until cured. Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled.

**END OF SECTION**

**SECTION 08 7100**

**DOOR HARDWARE**

**PART 1 -GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Door Hardware, including electric hardware.
  - 2. Cylinders for doors fabricated with locking hardware.
- B. Related Sections:
  - 1. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 2-11 for Inspections.
  - 2. Section 07 9200 - Joint Sealers – exterior thresholds
  - 3. Section 32 3113 – Galvanized Chain Link Fences and Gates
- 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. Installation.
  - 6. Rough hardware.
  - 7. Conduit, junction boxes & wiring.
  - 8. Folding partitions, except cylinders where detailed.
  - 9. Sliding aluminum doors, except cylinders where detailed.
  - 10. Access doors and panels, except cylinders where detailed.
  - 12. Corner Guards.
  - 13. Wrought Iron railing gates and supports.

**1.2 REFERENCES:**

- A. Use date of standard in effect as of Bid date.
- B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
- C. BHMA – Builders Hardware Manufacturers Association
- D. DHI – Door and Hardware Institute

MAY 18, 2015

- E. 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
  - 4. NFPA 101 – Life Safety Code
- F. UL – Underwriters Laboratories
  - 5. UL10C – Positive Pressure Fire Tests of Door Assemblies.
  - 6. UL 305 – Panic Hardware
- G. WHI – Warnock Hersey Incorporated
- H. 2013 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: Comply with Standard Specifications for Public Works Construction ‘The GREENBOOK’ and City Supplement ‘The WHITEBOOK’, latest editions, 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.
  13. Date of jobsite visit.
- 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 Engineer for resolution.
  - E. Substitutions. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 4-1.6 for Trade Names or Equals. 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 City, Engineer 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. 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 Engineer.
- 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 Engineer'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.
- D. Prior to submittal, carefully inspect existing conditions at each opening to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, door thickness and sill condition material. If conflict or incompatibility between the specified/scheduled hardware and existing conditions, submit request for direction from Engineer. Include date of jobsite visit in the submittal.
  - 1. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

**1.7 WARRANTY:**

- A. Comply with 2012 Standard Specifications for Public Works Construction ‘The GREENBOOK’ and 2012 City Supplement ‘The WHITEBOOK’, Section 6-8.3 for Warranty
- B. Special Warranty: 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. Electronic Locks One Year
  - 4. Exit Devices Three years mechanical  
One year electrical
  - 5. Closers: Ten years mechanical  
Two years electrical
  - 6. Hinges: One year
  - 7. Continuous Hinges Life of the Installation
  - 8. 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. Doors/doorways as part of an accessible route shall comply with CBC Sections 11B-404.
- B. The clear opening width for a door shall be 32” minimum. For a swinging door it shall be measured between the face of the door and the stop, with the door open 90 degrees. There shall be no projections into it below 34” and 4” maximum projections into it between 34” and 80” above the finish floor or ground. Door closers and stops shall be permitted to be 78” minimum above the finish floor or ground. CBC Section 11B-404.2.3
- C. Handles, pulls, latches, locks, and other operable parts on accessible doors shall comply with CBC Section 11B-309.4 and shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Operable parts of such hardware shall be 34” minimum and 44” maximum above finish floor or ground. Where sliding doors are in

the fully open position, operating hardware shall be exposed and usable from both side. CBC Section 11B-404.2.7

- D. The force for pushing or pulling open a door shall be as follows: CBC Section 11-B404.2.9.
  - 1. Interior hinged doors, sliding or folding doors, and exterior hinged doors: 5 pounds (22.2N) maximum.
  - 2. Required fire doors: the minimum opening force allowable by the DSA authority, not to exceed 15 pounds (67N).
  - 3. The force required to activate any operable parts, such as retracting latch bolts or disengaging other devices, shall be 5 pounds (22.2N) maximum to comply with CBC Section 11B-309.4.
- E. Door closing speed shall be as follows: CBC Section 11B-404.2.8
  - 1. Closer shall be adjusted so that the required time to move a door from an open position of 90 degrees to a position of 12 degrees from the latch is 5 seconds min.
  - 2. Spring hinges shall be adjusted so that the required time to move a door from an open position of 70 degrees to the closed position is 1.5 seconds minimum.
- F. Thresholds shall comply with CBC Section 11B-404.2.5
- G. Floor stops shall not be located in the path of travel and 4” maximum from walls. DSA Policy 99-08.
- H. Hardware (including panic hardware) shall not be provided with “Night Latch” (NL) function for accessible doors and gates unless the following conditions are met per DSA Interpretation 10-08 DSA/AC (External), revised 4/28/09. Such conditions must be clearly demonstrated and indicated in the specifications:
  - 1. Such hardware has a ‘dogging’ feature.
  - 2. It is dogged during the time the facility is open.
  - 3. Such ‘dogging’ operation is performed only by employees as their job function (non-public use).
- I. Pair of doors: limit swing of one leaf to 90 degrees so that a clear floor space is provided beyond the arc of the swing for the wall-mounted tactile sign. CBC Section 11B-703.4.2.1

**PART 2 - PRODUCTS**

**2.1 MANUFACTURERS:**

- A. Listed acceptable alternate manufacturers: submit for review products with equivalent function and features of scheduled products.

| ITEM:                | MANUFACTURER:             | ACCEPTABLE SUB: |
|----------------------|---------------------------|-----------------|
| Hinges               | (IVE) Ives                | Bommer          |
| Continuous Hinges    | (IVE) Ives                | Zero            |
| Locks and Key System | (BES) Best Access Systems | No sub          |
| Auto Flush Bolts     | (IVE) Ives                | DCI             |
| Coordinators         | (IVE) Ives                | DCI             |
| Closers              | (LCN) LCN                 | Norton 7500     |
| Silencers            | (IVE) Ives                | Trimco          |
| Push & Pull Plates   | (IVE) Ives                | Trimco          |
| Kickplates           | (IVE) Ives                | Trimco          |
| Stops & Holders      | (IVE) Ives                | Trimco          |
| Overhead Stops       | (GLY) Glynn-Johnson       | None available  |
| Thresholds           | (NGP) NGP                 | Zero            |
| Seals & Bottoms      | (NGP) NGP                 | Zero            |

**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 Engineer 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 Engineer 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 Engineer if required width exceeds 8 inches.
2. At masonry construction, coordinate with the anchoring and hollow metal supplier prior to frame installation by placing a strip of insulation on the back of the hollow metal frame behind the rabbet section. When the frame is grouted in place, the backing will allow drilling and tapping without dulling or breaking the installer's bits..

### **2.3 LOCKSETS, LATCHSETS, DEADBOLTS:**

- A. Mortise Locksets and Latchsets: Shall be Schlage L9000 Series 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.
    - b. Inside lever applied by screwless shank mounting – no exposed trim mount screws.
    - c. Outside and inside trim thru-bolted together and through the door.
  4. Spring-loaded fusible link provides fail secure mode in case of fire.
  5. Floating mounting tabs automatically adjusts to fit a beveled door edge.
  6. Field reversible handing without opening lock case.
  7. External spring cages allow for simple trim retrofit.
  8. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.
  9. Thumbturns: accessible design not requiring pinching or twisting motions to operate.
  10. Deadbolts: stainless steel 1-inch throw.
  11. Electric operation: Manufacturer-installed continuous duty solenoid.
  12. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
  13. Certifications:
    1. ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
    2. ANSI/ASTM F476-84 Grade 31 UL Listed.
- B. Extra Heavy Duty Cylindrical Locks and Latches: BEST 9K series.

1. Chassis: cylindrical design, corrosion-resistant plated cold-rolled steel, through-bolted.
2. Locking Spindle: stainless steel, integrated spring and spindle design.
3. Latch Retractors: forged steel. Balance of inner parts: corrosion-resistant plated steel, or stainless steel.
4. Latchbolt: solid steel.
5. Backset: 2-3/4" typically, more or less as needed to accommodate frame, door or other hardware.
6. Lever Trim: accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to door face.
7. Electric operation: Manufacturer-installed continuous duty solenoid.
8. Strikes: 16 gage curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
9. Certifications:
  - a. ANSI A156.2, 1994, Series 4000, Grade 1.
  - b. UL listed for A label and lesser class single doors up to 4ft x 8ft.

#### **2.4 EXIT DEVICES / PANIC HARDWARE**

- A. General features: Shall be Von Duprin 98AX and 35AX Series as scheduled.
  1. Independent lab-tested 1,000,000 cycles and have operational force to depress panic bar not to exceed 5# force.
  2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
  3. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment. Meeting: State Fire Marshal Standard 12-10-3, Section 12-10-302
  4. No exposed screws to show through glass doors.
  5. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
  6. Releasable in normal operation with 5-lb. maximum operating force.
    - a. Panics / Exit Devices shall bear label as UL Certified to comply with CBC Sec. 11B-309.4 .
  7. Exterior doors scheduled with XP-series devices: Static load force resistance of at least 2000 pounds.
  8. Where devices span over door lite frame and the face of the selected lite manufacturer's frame is raised from the face of the door, furnish panic hardware manufacturer's fitted shims or glass-bead kits at no additional cost to the project.
  9. Comply with CBC S 1003.3.1.9 and 1008.1.9.

B. Specific features:

1. Non-Fire Rated Devices: cylinder dogging.
2. Lever Trim: breakaway type, forged brass or bronze escutcheon min .130" thickness, compression spring drive, match lockset lever design.
3. Rod and latch guards with sloped full-width kickplates for doors fitted with surface vertical rod devices with bottom latches.
4. Fire-Labeled Devices: UL label indicating "Fire Exit Hardware". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
5. California 5# Operational Force Labeled Devices: UL label indicating "Meets California Building Code (2013) Sec. 11B309.4". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
6. Impact recessed devices: 1-1/4 inch projection when push-pad is depressed. Sloped metal end caps to deflect carts, etc. No pinch points to catch skin between touchbar and door.
7. Delayed Egress Devices: Function achieved within single exit device component, including latch, delayed locking device, request-to-exit switch, nuisance alarm, remote alarm, key switch, indicator lamp, relay, internal horn, door position input, external inhibit input plus fire alarm input. NFPA 101 "Special Locking Arrangement" compliant.
8. Electrically Operated Devices: Single manufacturer source for electric latch retraction devices, electrically controlled trim, power transfers, power supplies, monitoring switches and controls.
9. Removable Mullions: Removable with single turn of building key. Securely reinstalled without need for key. Furnish storage brackets for securely stowing the mullion away from the door when removed.

## 2.5 CLOSERS

A. Surface Closers:

1. Full rack-and-pinion type cylinder with removable full metal 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. Adjustable to open with not more than 5.0lbs pressure to open at exterior doors and 5.0lbs at interior doors. As allowed per California Building Code, Section 11B-404.2.9, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15lbs.

7. When provided, the sweep period of the closer shall be adjusted to comply with California Building Code, Section 11B-404.2.8. Door closers and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.
  8. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
  9. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
  10. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
  11. Exterior doors: seasonal adjustments not required for temperatures from 120 degrees F to -30 degrees F, furnish checking fluid data on request.
  12. Non-flaming fluid, will not fuel door or floor covering fires.
  13. Pressure Relief Valves (PRV) not permitted.
  14. Supply Special Rust Inhibitor (SRI) at corrosive environments. This special corrosion resistant pretreatment, when added to the powder coat finish, gives the closer a tremendous advantage over a potentially corrosive environment.
- B. Overhead Concealed Closers: Power transmitted to door separately from hanging means. Closer spindle does not support the door. Cast iron cylinders with hydraulically checked rack and pinion construction and single piece forged pistons. Separate non-critical sweep and latch speed valves.
1. (2030) concealable in 1-3/4inch x 4inch tube, single-lever arm & track power transmission, concealed-in-track bumpers where scheduled.

## 2.6 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: Rounded and relieved 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 City 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: Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 4-1.6 for Trade Names or Equals.
  2. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
  3. Non-corroding fasteners at in-swinging exterior doors.
  4. Sound control openings: Use components tested as a system using nationally accepted standards by independent laboratories. Ensure that the door leafs have the necessary sealed-in-place STC ratings. Fasten applied seals over bead of sealant.
  5. Fire-rated Doors, Resilient Seals: UL10C / UBC Standard 7-2 compliant. Coordinate with selected door manufacturers' and selected frame manufacturers' requirements. Where rigid housed resilient seals are scheduled in this section and the selected door manufacturer only requires an adhesive-mounted resilient seal, furnish rigid housed seal at minimum, or both the rigid housed seal plus the adhesive applied seal. Adhesive applied seals alone are deemed insufficient for this project where rigid housed seals are scheduled.
  6. Fire-rated Doors, Intumescent Seals: Furnished by selected door manufacturer. Furnish fire-labeled opening assembly complete and in full compliance with UL10C / UBC Standard 7-2. Where required, intumescent seals vary in requirement by door type and door manufacture -- careful coordination required
- F. Automatic door bottoms: low operating force units. Doors with automatic door bottoms plus head and jamb seals cannot require more than two pounds operating force to open when closer is disconnected.
- G. Thresholds: As scheduled and per details. Comply with CBC Section 11B-404.2.5. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 4-1.6 for Trade Names or Equals.
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. Flat saddle type thresholds shall have a minimum wall thickness of .125".
  3. Fire-rated openings, 90min or less duration: use thresholds to interrupt floor covering material under the door where that material has a critical radiant flux value less than 0.22 watts per square centimeter, per NFPA 253. Use threshold unit as scheduled. If none scheduled, request direction from Engineer.
  4. Fire-rated openings, 3hour duration: Thresholds, where scheduled, to extend full jamb depth.
  5. Acoustic openings: Set units in full bed of Division-7-compliant, leave no air space between threshold and substrate.
  6. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.

- 7. 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.
- H. Exposed Through-Bolts: Do not use SNB, grommet nuts, sleeve nuts or other such clamping type fasteners, intent is for minimal exposed hardware. 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.
- I. Silencers: Interior hollow metal frames, 3 for single doors, 2 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.

**2.7 FINISH:**

- A. Generally BHMA 630 Satin Stainless
- 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.

**2.8 KEYING REQUIREMENTS:**

- A. Key System: BEST 7 pin IC core System no substitute.
  - 1. Furnish 10 construction keys.
  - 2. Furnish 3 construction split control keys.
  - 3. Key Cylinders: furnish 6-pin solid brass construction.
- B. Cylinders/cores: keyed at factory of lock manufacturer where permanent records are maintained.
- C. Permanent keys: use secured shipment direct from point of origination to the City.
  - 1. For estimate: 4 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 Engineer 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 11B-404.2.7.
  - 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 Engineer.
  - 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 Engineer.
  - 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 Engineer 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 City 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 City'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. Final inspection: Installer to provide letter to City 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 City'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.
- B. Certification, Testing and Quality Control: Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 2-11 for Inspection. . All doors hardware and installation will be inspected by the Engineer.

**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.
- C. Hardware items specified to receive antimicrobial coating may be cleaned with a mild detergent, air-dry or dried with a soft cloth. Avoid harsh abrasive cleaners and abrasive cleaning pads.

**3.7 SCHEDULE OF FINISH HARDWARE**

- A. See door schedule in drawings for hardware set assignments.
- B. Manufacturers and their abbreviations used in this schedule:
  - ADA Adams Rite
  - BES Best Access Systems
  - GLY Glynn-Johnson

MAY 18, 2015

IVE Ives  
FAL Falcon Closers  
LCN LCN Closers  
NGP National Guard Products  
SCE Schlage Electronic Security  
SCH Schlage Lock Company  
VON Von Duprin

C. Schedule Groups:

DSA clarification notes on two-handed operation:

1. Locks “80” function are only allowed on openings for mechanical and technical personnel (i.e. service, IT, mechanical rooms)
2. Panic /exit hardware with “NL” function must have dogging function.

MAY 18, 2015

SpeXtra # 175357

Heading 001

|   |     |          |                                |
|---|-----|----------|--------------------------------|
| 1 | SGL | Door G01 | EXTERIOR GROUNDS / BALL FIELDS |
| 1 | SGL | Door G02 | EXTERIOR GROUNDS / BALL FIELDS |
| 1 | SGL | Door G03 | EXTERIOR GROUNDS / BALL FIELDS |
| 1 | SGL | Door G04 | EXTERIOR GROUNDS / BALL FIELDS |

Each Assembly to have:

|   |    |                   |                              |     |     |
|---|----|-------------------|------------------------------|-----|-----|
| 4 | EA | HW HINGE          | 3CB1HW SH 5 X 4.5 NRP SEC    | 630 | IVE |
| 1 | EA | PANIC HARDWARE    | AX-98-NL-OP-110MD-WH-SNB-SEC | 630 | VON |
| 1 | EA | RIM CYLINDER      | 1E72 S2 RP3                  | 626 | BES |
| 1 | EA | LOCK PROTECTOR    | K-BXED-V990NL                | 600 | KEE |
| 1 | EA | DOOR PULL         | VR910 NL                     | 630 | IVE |
| 1 | EA | SURFACE CLOSER    | 4041 DEL SHCUSH SRI TBSRT    | 689 | LCN |
| 1 | EA | CUSH SHOE SUPPORT | SRI 4040-30                  | 689 | LCN |
| 1 | EA | BLADE STOP SPACER | SRI 4040-61                  | 689 | LCN |

Provide the fasteners for each product item to coordinate with the door thickness and the frame configuration.

Free Egress at all times. Pressing Push Bar retracts latchbolts. Trim always locked, entrance by optional trim when key retracts latchbolt from pull side. Dogging by hex key, locks down the pushbar or crossbar so the latchbolt remains retracted.

Self-Closing. Templating allows Spring CUSH Arm to stop the door's swing between 85 and 110 degrees with hold-open feature. Delays closing from maximum opening to approximately 70 degrees. 1 minute maximum delay time.

Accessories

Accessories

Heading 002

NOT USED

Heading 003

|   |     |          |                                       |
|---|-----|----------|---------------------------------------|
| 1 | SGL | Door E02 | EXTERIOR GROUNDS / 102<br>MAINTENANCE |
|---|-----|----------|---------------------------------------|

Each Assembly to have:

|   |    |                   |                           |     |     |
|---|----|-------------------|---------------------------|-----|-----|
| 1 | EA | SURFACE CLOSER    | 4041 DEL SHCUSH SRI TBSRT | 689 | LCN |
| 1 | EA | CUSH SHOE SUPPORT | SRI 4040-30               | 689 | LCN |
| 1 | EA | BLADE STOP SPACER | SRI 4040-61               | 689 | LCN |

Self-Closing. Templating allows Spring CUSH Arm to stop the door's swing between 85 and 110 degrees with hold-open feature. Delays closing from maximum opening to approximately 70 degrees. 1 minute maximum delay time.

Accessories

Accessories

Heading 004

MAY 18, 2015

1 SGL Door 101 EXTERIOR GROUNDS / 101 WOMEN'S  
1 SGL Door 103 EXTERIOR GROUNDS / 103 MEN'S

Each Assembly to have:

|   |    |                       |   |     |     |
|---|----|-----------------------|---|-----|-----|
| 4 | EA | HINGE                 | 3CB1 SH 5 X 4.5 NRP                                   | 630 | IVE |
| 1 | EA | CLASSROOM<br>HOLDBACK | 45H7XRHB 14R<br>LATCH HOLD BACK-SECURITY<br>FASTENERS | 626 | BES |
| 1 | EA | LOCK BOX              | K-BXMOR1-10GLOC                                       | 600 | KEE |
| 1 | EA | PUSH PLATE            | 8200 3" X 12"   | 630 | IVE |
| 1 | EA | DOOR PULL             | VR910 NL<br>PREP FOR BEST LOCKSET                     | 630 | IVE |
| 1 | EA | WALL STOP/HOLDER      | WS40<br>MTD AT NEAR HEAD OF DOOR<br>DOOR- LATCH SIDE  | 626 | IVE |

Provide the fasteners for each product item to coordinate with the door thickness and the frame configuration.

**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: Use paint system described for the substrates to be finished.
    - 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, to match background surfaces, 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.

**1.02 RELATED REQUIREMENTS**

- A. 2013 California Green Building Standards Code
- B. Section 05 5000 - Metal Fabrications: Shop-primed items.

**1.03 DEFINITIONS**

MAY 18, 2015

- 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.
- H. SSPC-SP 1 - Solvent Cleaning.
- I. SSPC-SP 2 - Hand Tool Cleaning.
- J. SSPC-SP 3 - Power Tool Cleaning.
- K. SSPC-SP 13 / NACE No. 6 Surface Preparation for Concrete.
- L. EPA-Method 24
- M. CARB (California Air Resources Board)

#### **1.05 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Provide data on all finishing products, including:
  - 1. Product characteristics
  - 2. Surface preparation instructions and recommendations
  - 3. Primer requirements and finish specification
  - 4. Storage and handling requirements and recommendations
  - 5. Application methods
  - 6. Cautions
  - 7. VOC Content
- C. Verification Samples: Submit two "draw-down" samples on paper, 8-1/2x11 inch in size illustrating actual 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

MAY 18, 2015

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 City'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.
- D. **Coating Maintenance Manual:** Upon conclusion of the project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

#### **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 General Services/Facilities Division Maintenance Standards.**
- D. **Anti-graffiti coating system must comply with City Parks and Recreation Division Guidelines.**
- E. **Quality:** Paint shall be of manufacturer's highest, premium, or 'best', quality appropriate for the substrate and project conditions. No construction grade paint shall be used on City projects or facilities.
- F. **Submit CARB (California Air Resources Board) complying products only.**

#### **1.08 SOURCE QUALITY CONTROL**

- A. **Testing of Paint Materials:** City reserves the right to invoke the following procedure:
  - 1. **City 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. City may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove non-complying 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.
- B. Submit CARB (California Air Resources Board) complying products only.

#### **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. Provide products by one of the following:
  1. The Sherwin-Williams Company
  2. Dunn Edwards.
  3. Vista Paint.
  4. Frazee Paint.

5. ICI Paint.
6. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.

Proposed substitutions must meet or exceed the base manufacturer product, and be approved by the City Facilities Maintenance Department.

B. Paints:

1. Base Manufacturer: The Sherwin-Williams Company; 101 Prospect Avenue NW Cleveland, OH 44115; Tel: (800) 321-8194; Fax: (216) 566-1392; [www.sherwin-williams.com](http://www.sherwin-williams.com); or approved equal.

C. Transparent Finishes - Wood:

1. Base Manufacturer: The Sherwin-Williams Company; 101 Prospect Avenue NW Cleveland, OH 44115; Tel: (800) 321-8194; Fax: (216) 566-1392; [www.sherwin-williams.com](http://www.sherwin-williams.com); or approved equal.

D. Transparent Finishes - Concrete/Masonry:

1. Base Manufacturer: H & C Decorative Concrete Products: [www.hcconcrete.com](http://www.hcconcrete.com); or approved equal.

E. Anti-Graffiti Coating System:

1. Base Manufacturer: Monopole, Inc.: [www.monopoleinc.com](http://www.monopoleinc.com); or approved equal.

**2.02 PAINTS AND COATINGS - GENERAL**

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

1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
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.

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. Colors: As indicated on drawings
1. Extend colors to surface edges; colors may change at any edge as directed by Engineer.
  2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.

### **2.03 ACCESSORIES**

- A. Accessory Materials: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per manufacturer's specifications.

### **2.04 SCHEDULE INDEX – EXTERIOR SURFACES**

- A. CONCRETE
1. Anti-graffiti system
- B. CONCRETE – Floors and steps
1. Acrylic Water-Based System with silica sand broadcast
  2. Epoxy / urethane finish with silica sand broadcast
- C. METAL – Non Ferrous
1. Latex Systems
- D. METAL - Ferrous
1. Latex Systems
- E. WOOD - Siding
1. Latex Systems
  2. Stain-Water-Reducible System
- F. WOOD – Railing System
1. Stain - Solid Color Acrylic
  2. Semi-Transparent-Waterborne Alkyd/Acrylic

### **2.05 PAINT SYSTEMS – EXTERIOR**

- A. CONCRETE - ANTI-GRAFFITI SYSTEM - Masonry/Concrete, 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.
  5. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals. Any proposed Substitutions MUST meet or exceed published performance criteria for the above graffiti control system AND be approved by City for use on project.

- B. CONCRETE – Floors and steps
  - 1st Coat: Macropoxy 646-100 Fast Cure Epoxy, B58-620 Series (5-10 DFT)
  - Between Coats: Broadcast fine silica sand until refusal. Remove excess prior to 2nd coat.
  - 2nd Coat: Acrolon 100, B65 Series (3-4 mils DFT).
- C. METAL - Non Ferrous
  - 1. Latex Systems
    - a. Semi-Gloss Finish
      - 1st Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B66-650 Series
      - 2nd Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B65-650 Series (4 mils wet, 1.5 mils dry per coat)
- D. METAL - Ferrous
  - 1. Latex Systems
    - a. Semi-Gloss Finish
      - 1st Coat: S-W Pro Industrial® Pro-Cryl® Primer, B66-310 Series (2-4 mils dry)
      - 2nd Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B66-650 Series
      - 3rd Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B66-650 Series (4 mils wet, 1.5 mils dry per coat)
- E. WOOD - Siding
  - 1. Latex Systems
    - a. Satin
      - 1st Coat: S-W Exterior Latex Wood Primer, B42W8041 (4 mils wet, 1.4 mils dry)
      - 2nd Coat: S-W A-100 Acrylic Latex Satin, 82 Series
      - 3rd Coat: S-W A-100 Acrylic Latex Satin, 82 Series (4 mils wet, 1.5 mils dry per coat)
- F. WOOD – Guard and Railing System
  - 1. Latex Systems
    - a. Semi-Gloss
      - 1st Coat: PrepRite ProBlock Primer B51W8020
      - 2nd Coat: A-100 Acrylic Latex Gloss, A8 Series
      - 3rd Coat: A-100 Acrylic Latex Gloss, A8 Series

**2.06 SCHEDULE INDEX – INTERIOR SURFACES**

- A. METAL - Non Ferrous
  - 1. Latex Systems
- B. METAL - Ferrous
  - 1. Latex Systems
- C. WOOD
  - 1. Latex Systems
- D. DRYWALL
  - 1. Latex Systems

**2.07 PAINT SYSTEMS – INTERIOR**

- A. METAL – Non Ferrous
  - 1. Latex Systems
    - a. Semi-Gloss Finish
      - Low Odor – Zero VOC Finish
      - 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series

MAY 18, 2015

- (5-10 mils wet, 2-4 mils dry)
- 2nd Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B66-650 Series
- 3rd Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B66-650 Series  
(4 mils wet, 1.7 mils dry per coat)

B. METAL - Ferrous

1. Latex Systems

a. Semi-Gloss Finish

Low Odor - Zero VOC Finish

- 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series  
(5-10 mils wet, 2-4 mils dry)

2nd Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B66-650 Series

- 3rd Coat: S-W ProIndustrial Acrylic Latex Semi-Gloss, B66-650 Series  
(4 mils wet, 1.7 mils dry per coat)

C. WOOD

1. Latex Systems

a. Semi-Gloss Finish

Low Odor - Zero VOC Finish

- 1st Coat: S-W Premium Wall & Wood Primer, B28W8111  
(4 mils wet, 1.8 mils dry)

2nd Coat: S-W ProMar® 200 Zero VOC Latex Eg-Shel, B31-2600 Series

- 3rd Coat: S-W ProMar® 200 Zero VOC Latex Eg-Shel, B31-2600 Series  
(4 mils wet, 1.6 mils dry per coat)

D. DRYWALL

1. Latex Systems

a. Semi-Gloss Finish

Low Odor – Zero VOC Finish

- 1st Coat: S-W ProMar 200 Zero VOC Latex Primer, B28W2600  
(4 mils wet, 1.8 mils dry)

2nd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series

- 3rd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series  
(4 mils wet, 1.6 mils dry per coat)

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Do not begin application of coatings until substrates have been properly prepared. Notify Engineer of unsatisfactory conditions before proceeding.
- 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 Engineer 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.
- G. Proceed with work only after conditions have been corrected, and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

### 3.02 SURFACE 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. Aluminum:  
Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP1, Solvent Cleaning.
- I. Block (Cinder and Concrete):  
Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement, and hardeners. Concrete and mortar must be cured at least 30 days at 75°F, unless the manufactures products are designed for application prior to the 30 day period. The pH of the surface should be between 6 and 9, unless the products to be used are designed to be used in high pH environments. On tilt-up and poured-in-place concrete, commercial detergents and abrasive blasting may be necessary to prepare the surface. Fill bug holes, air pockets, and other voids with a cement patching compound.
- J. Brick:  
Brick must be free of dirt, loose and excess mortar, and foreign material. All brick should be allowed to weather for at least one year followed by wire brushing to remove efflorescence.
- K. Concrete, SSPC-SP13 or NACE 6:  
This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems. The requirements of this standard are applicable to all types of cementitious surfaces including cast-in-place concrete floors and walls, precast slabs, masonry walls, and shotcrete surfaces. An acceptable prepared concrete surface should be free of contaminants, laitance, loosely adhering concrete, and dust, and should provide a sound, uniform substrate suitable for the application of protective coating or lining systems.
- L. Cement Composition Siding/Panels:

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Pressure clean, if needed, with a minimum of 2100 psi pressure to remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, and peeling or defective coatings. Allow the surface to dry thoroughly. The pH of the surface should be between 6 and 9, unless the products to be used are designed to be used in high pH environments such as Loxon-® .

M. Copper and Stainless Steel:

Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP 2, Hand Tool Cleaning.

N. Drywall—Exterior:

Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting. Exterior surfaces must be spackled with exterior grade compounds.

O. Exterior Composition Board (Hardboard):

Some composition boards may exude a waxy material that must be removed with a solvent prior to coating. Whether factory primed or unprimed, exterior composition board siding (hardboard) must be cleaned thoroughly and primed with an alkyd primer.

P. Galvanized Metal:

Clean per SSPC-SP1 using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP7 is necessary to remove these treatments.

Q. Steel: Structural, Plate, etc.:

Should be cleaned by one or more of the ten surface preparations described below. These methods were originally established by the Steel Structures Painting Council in 1952, and are used throughout the world for describing methods for cleaning structural steel. Visual standards are available through the Steel Structures Painting Council; ask for SSPC-VIS 1-89. A brief description of these standards together with numbers by which they can be specified follow.

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).

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.

1. Solvent Cleaning, SSPC-SP1:

Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.

2. Hand Tool Cleaning, SSPC-SP2:

Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this

- process. Before hand tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
3. Power Tool Cleaning, SSPC-SP3:  
Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before power tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
  4. White Metal Blast Cleaning, SSPC-SP5 or NACE 1:  
A White Metal Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
  5. Commercial Blast Cleaning, SSPC-SP6 or NACE 3:  
A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
  6. Brush-Off Blast Cleaning, SSPC-SP7 or NACE 4:  
A Brush-Off Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP 1 or other agreed upon methods.
  7. Power Tool Cleaning to Bare Metal, SSPC-SP11:  
Metallic surfaces that are prepared according to this specification, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted. Prior to power tool surface preparation, remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1, Solvent Cleaning, or other agreed upon methods.
  8. Near-White Blast Cleaning, SSPC-SP10 or NACE 2:  
A Near White Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 5 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
  9. High- and Ultra-High Pressure Water Jetting for Steel and Other Hard Materials SSPC-SP12 or NACE 5:  
This standard provides requirements for the use of high- and ultra-high pressure water jetting to achieve various degrees of surface cleanliness. This standard is limited in scope to the use of water only without the addition of solid particles in the stream.
  10. Water Blasting, NACE Standard RP-01-72:  
Removal of oil grease dirt, loose rust, loose mill scale, and loose paint by water at pressures of 2,000 to 2,500 psi at a flow of 4 to 14 gallons per minute.

R. Stucco:

Must be clean and free of any loose stucco. If recommended procedures for applying stucco are followed, and normal drying conditions prevail, the surface may be painted in 30 days. The pH of the surface should be between 6 and 9, unless the products to be used are designed to be used in high pH environments such as Loxon® .

S. Wood:

Must be clean and dry. Prime and paint as soon as possible.

1. 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.
2. 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.
3. 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.

T. Vinyl Siding, EIFS, Synthetic Stucco, Architectural Plastics, and Fiberglass:

Clean thoroughly by scrubbing with a warm, soapy water solution. Rinse thoroughly. Do not paint vinyl siding with any color darker than the original color, unless the product and color are designed for such use. Painting with darker colors may cause siding to warp.

U. Drywall—Interior:

Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting.

V. Plaster:

Must be allowed to dry thoroughly for at least 30 days before painting, unless the manufactures products are designed for application prior to the 30 day period. Room must be ventilated while drying; in cold, damp weather, rooms must be heated. Damaged areas must be repaired with an appropriate patching material. Bare plaster must be cured and hard. Textured, soft, porous, or powdery plaster should be treated with a solution of 1 pint household vinegar to 1 gallon of water. Repeat until the surface is hard, rinse with clear water and allow to dry.

W. Glue-Laminated Beams: Prior to finishing, wash surfaces with solvent, remove grease and dirt.

X. Metal Doors to be Painted: Prime metal door all sides and edge surfaces.

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

**WARNING!** Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

### 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 as necessary until cured film achieves complete hide and 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. Apply coatings at spreading rate required to achieve the manufacturer's recommended dry film thickness. A minimum total dry film thickness of 10-16 mils and a surface with 10 or less pinholes per square foot is required for a waterproofing system.
- I. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.
- J. Sand wood and metal surfaces lightly between coats to achieve required finish.
- K. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.
- L. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- M. Exterior Woodwork: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 2 weeks.
- N. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.
- O. Inspection: The coated surface must be inspected and approved by the Engineer just prior to each coat.

### **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.

MAY 18, 2015

- 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: City 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 Engineer, 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 from damage until completion of project.
- B. Touch-up damaged coatings after Substantial Completion, following manufacturer's recommendation for touchup and repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

**END OF SECTION**

## SECTION 10 1400

### SIGNAGE

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Interior etched metal, non-illuminated directional, control and information surface mount signage as complete integrated modular system.

##### 1.02 RELATED REQUIREMENTS

- A. Section 32 3113 – Galvanized Chain Link Fences and Gates.

##### 1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2003.
- B. Federal Register Part II, Architectural and Transportation Barriers Compliance Board, 36 CFR Part 1191: Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities - Americans with Disabilities Act Accessibility Guidelines; 2010.

##### 1.04 DEFINITIONS

- A. Braille: California 'Contracted Grade 2 Braille'. 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. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 2-5.3 for Shop Drawings and Submittals.
  1. NOTE: Contractor to provide one additional complete signage submittal to the City Access Compliance Office for review and approval.
- 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 Engineer at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
  2. Submit for approval by 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.
  4. Signage schedule complete with location of each sign and required copy; include floor plans, if required.
- 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. Samples will not be returned for use on the Project.
- H. Manufacturer's Installation Instructions: Include installation templates and attachment devices.
- I. Manufacturer Statement: Manufacturer's signed statement regarding compliance with QUALITY ASSURANCE Article.
- I. Closeout Submittal: Furnish appropriate checklist for aiding in reordering after Date of Substantial Completion. Maintenance data and cleaning requirements for exterior surfaces.
- J. Closeout Submittal: Provide confirmation letter stating that the Braille used in fabricated signs has been inspected by the manufacturer for compliance with California's Contracted Grade 2 Braille specifications and requirements as specified above and in CBC 11B-703.3.

#### **1.07 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Performed work required under this section of this magnitude and

scope for minimum of five years.

### 1.08 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.

### 1.09 REGULATORY REQUIREMENTS

- A. Signage shall comply with requirements of the California Building Code and ADA Standards.
- B. Inspection: Signs and identification devices shall be field inspected after installation and approved by the enforcing agency prior to the issuance of a final certificate of occupancy per Chapter 1, Division II, Section 111, or final approval where no certificate of occupancy is issued. The inspection shall include, but not be limited to, verification that Braille dots and cells are properly spaced and the size, proportion and type of raised characters area in compliance with these regulations. CBC 11B-703.1.1.2.
- C. Raised Characters: Raised characters shall comply with ADA Stds 703.2 and CBC 11B-703.2 and shall be duplicated in Braille complying with ADA Stds 703.3 and CBC 11B-703.3. Raised characters shall be installed in accordance with ADA Stds 703.4 and CBC 11B-703.4.
  - 1. Depth: Raised characters shall be 1/32 inch minimum above their background.
  - 2. Case: Characters shall be uppercase.
  - 3. Style: Characters shall be sans serif. Characters shall not be italic, oblique, script, highly decorative or of other unusual forms.
  - 4. Character Proportions: Characters shall be selected from fonts where the width of the uppercase letter "O" is 60 percent minimum and 110 percent maximum of the height of the uppercase letter "I".
  - 5. Character Height: Character height measured vertically from the baseline of the character shall be 5/8 inch minimum and 2 inches maximum based on the height of the uppercase letter "I".

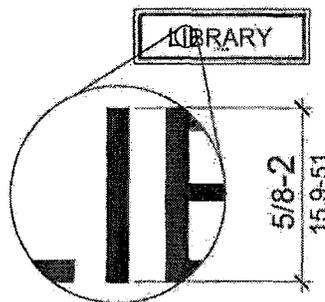


FIGURE 11B-703.2.5  
HEIGHT OF RAISED CHARACTERS

- 6. Stroke Thickness: Stroke thickness of the uppercase letter "I" shall be 15 percent maximum of the height of the character.
- 7. Character Spacing: Character spacing shall be measured between the two closest points of adjacent raised characters within a message, excluding word spaces. Where characters

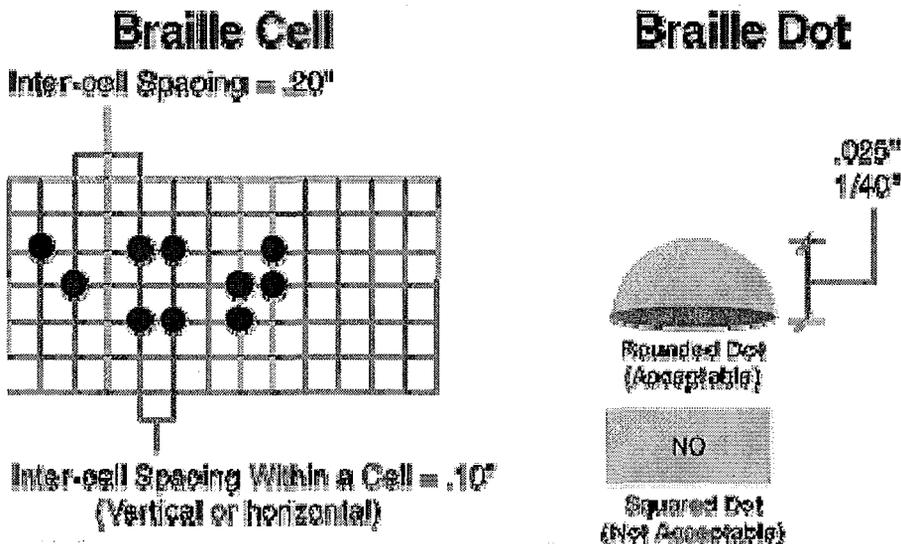
have rectangular cross sections, spacing between individual raised characters shall be 1/8 inch minimum and 4 times the raised character stroke width maximum. Where characters have other cross sections, spacing between individual raised characters shall be 1/16 inch minimum and 4 times the raised character stroke width maximum at the base of the cross sections, and 1/8 inch minimum and 4 times the raised character stroke width maximum at the top of the cross sections. Characters shall be separated from raised borders and decorative elements 3/8 inch minimum.

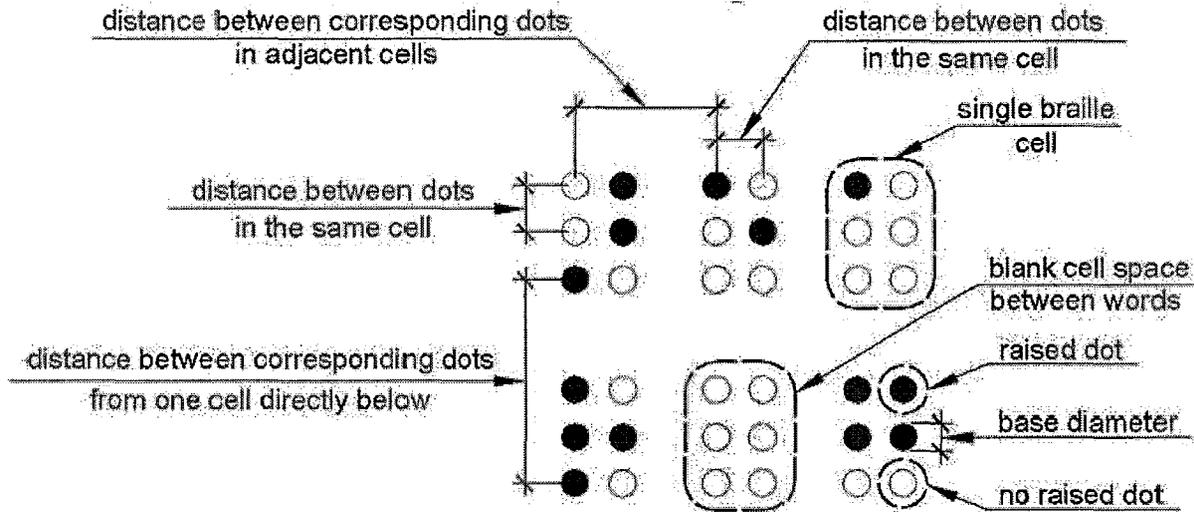
8. Line Spacing: Spacing between the baselines of separate lines of raised characters within a message shall be 135 percent minimum and 170 percent maximum of the raised character height.
  9. Format: Text shall be in a horizontal format.
- D. Braille: Braille shall be contracted Grade 2 and shall comply with ADA Std's 703.3 and 703.4; and CBC 11B-703.3 and 11B-703.4.
1. Dimensions and Capitalization: Braille dots shall have a domed or rounded shape and shall comply with CBC Table 11B-703.3.1. The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials and acronyms.

**TABLE 11B-703.3.1  
BRAILLE DIMENSIONS**

| MEASUREMENT RANGE   | MINIMUM IN INCHES<br>MAXIMUM IN INCHES |
|---|--|
| Dot base diameter.  | 0.059 (1.5 mm) to 0.063 (1.6 mm)       |
| Distance between two dots in the same cell <sup>1</sup>                       | 0.100 (2.5 mm)                         |
| Distance between corresponding dots in adjacent cells <sup>1</sup>            | 0.300 (7.6 mm)                         |
| Dot height.   | 0.025 (0.6 mm) to 0.037 (0.9 mm)       |
| Distance between corresponding dots from one cell directly below <sup>1</sup> | 0.395 (10 mm) to 0.400 (10.2 mm)       |

1. Measured center to center.





NOTE: Prior to the final inspection and issuance of Notice of Completion, the manufacturer must provide a confirmation letter to the office and/or the Engineer stating that the Braille in the fabricated signs have been inspected by the manufacturer for compliance with California's Contracted Grade 2 Braille specifications and requirements as specified above and in CBC 11B-703.3.

- Position: Braille shall be positioned below the corresponding text in a horizontal format, flush left or centered. If text is multi-lined, Braille shall be placed below the entire text. Braille shall be separated 3/8 inch minimum and 1/2 inch maximum from any other tactile characters and 3/8 inch minimum from raised borders and decorative elements.

Exception: Braille provided on elevator car controls shall be separated 3/16 inch minimum and shall be located directly below the corresponding raised characters or symbols.

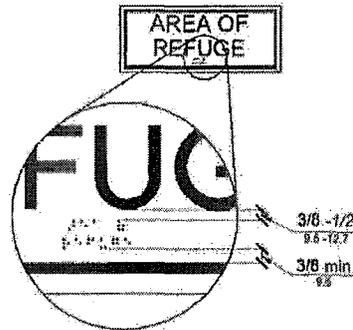
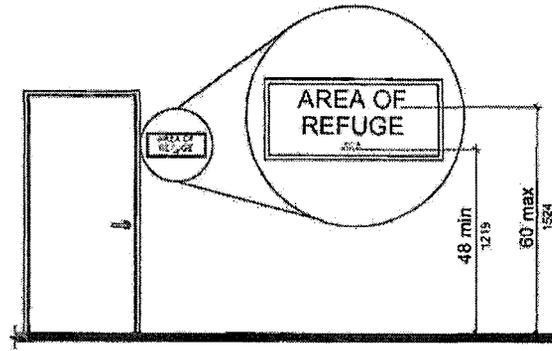


FIGURE 11B-703.3.2  
POSITION OF BRAILLE

- Installation height and location: Signs with tactile characters shall comply with ADA Stds 703.4 and CBC 11B-703.4.

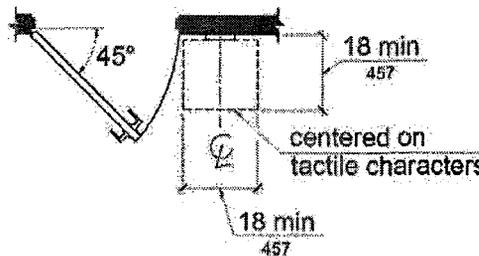
- Height above finish floor or ground: Tactile characters on signs shall be located 48 inches minimum above the finish floor or ground surface, measured from the baseline of the lowest Braille cells and 60 inches maximum above the finish floor or ground surface, measured from the baseline of the highest line of raised characters.

Exception: Tactile characters for elevator car controls shall not be required to comply with CBC 11B-703.4.1.



**FIGURE 11B-703.4.1  
HEIGHT OF TACTILE CHARACTERS  
ABOVE FINISH FLOOR OR GROUND**

2. Location: Where a tactile sign is provided at a door, the sign shall be located alongside the door at the latch side. Where a tactile sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a tactile sign is provided at double doors with two active leaves, the sign shall be located to the right of the right hand door. Where there is no wall space at the latch side of a single door or at the right side of double doors, signs shall be located on the nearest adjacent wall. Signs containing tactile characters shall be located so that a clear floor space of 18 inches minimum by 18 inches minimum, centered on the tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position. Where permanent identification signage is provided for rooms and spaces they shall be located on the approach side of the door as one enters the room or space. Signs that identify exits shall be located on the approach side of the door as one exits the room or space.



**FIGURE 11B-703.4.2  
LOCATION OF TACTILE SIGNS AT DOORS**

F. Visual Characters: Visual characters shall comply with ADA Stds 703.5 and CBC 11B-703.5.

Exception: Where visual characters comply with CBC 11B-703.2 (Raised Characters) and are accompanied by Braille complying with CBC 11B-703.3 they shall not be required to comply with CBC 11B-703.5.2 through 11B-703.5.6, 11B-703.5.8 and 11B-703.5.9.

1. Finish and Contrast: Characters and their background shall have a non-glare finish. Characters shall contrast with their background with either light characters on a dark background or dark characters on a light background.

Research indicates that signs are more legible for persons with low vision when characters contrast with their background by at least 70%.

Contrast in percentage shall be determined by:

Contrast =  $[(B1-B2)/B1] \times 100$ . Where B1 = light reflectance value (LRV) of the lighter area and B2 = light reflectance value (LRV) of the darker area. Note that in any application both white and black are never absolute; thus, B1 never equals 100 and B2 is always greater than 0.

2. Case: Characters shall be uppercase or lowercase or a combination of both.
3. Style: Characters shall be conventional in form. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.
4. Character Proportions: Characters shall be selected from fonts where the width of the uppercase letter "O" is 60 percent minimum and 110 percent maximum of the height of the uppercase letter "I".
5. Character Height: Minimum character height shall comply with ADA Stds Table 703.5.5 and CBC Table 11B-703.5.5. Viewing distance shall be measured as the horizontal distance between the character and an obstruction preventing further approach towards the sign. Character height shall be based on the uppercase letter "I".

Additionally, for signs suspended or projected above the finish floor in compliance with CBC 11B-307.4, the minimum character height shall be 3 inches.

Exception: Where provided, floor plans providing emergency procedures information in accordance with Title 19 shall not be required to comply with Section 11B-703.5.5.

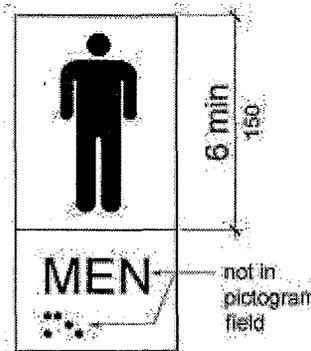
**Table 703.5.5 Visual Character Height**

| Height to Finish Floor or Ground From Baseline of Character                    | Horizontal Viewing Distance      | Minimum Character Height  |
|--|----------------------------------|---|
| 40 inches (1015 mm) to less than or equal to 70 inches (1780 mm)               | less than 72 inches (1830 mm)    | 5/8 inch (16 mm)  |
|  | 72 inches (1830 mm) and greater  | 5/8 inch (16 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 72 inches (1830 mm)  |
| Greater than 70 inches (1780 mm) to less than or equal to 120 inches (3050 mm) | less than 180 inches (4570 mm)   | 2 inches (51 mm)  |
|  | 180 inches (4570 mm) and greater | 2 inches (51 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 180 inches (4570 mm) |
| greater than 120 inches (3050 mm)  | less than 21 feet (6400 mm)      | 3 inches (75 mm)  |
|  | 21 feet (6400 mm) and greater    | 3 inches (75 mm), plus 1/8 inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (6400 mm)    |

6. Height from finish floor or ground: Visual characters shall be 40 inches minimum above the finish floor or ground.

Exceptions:

- a. Visual characters indicating elevator car controls shall not be required to comply with Section 11B-703.5.6.
  - b. Floor-level exit signs complying with Chapter 10, Section 1011.7 shall not be required to comply with Section 11B-703.5.6.
  - c. Where provided, floor plans providing emergency procedures information in accordance with Title 19 shall not be required to comply with Section 11B-703.5.6.
7. Stroke Thickness: Stroke thickness of the uppercase letter “I” shall be 10 percent minimum and 20 percent maximum of the height of the character.
  8. Character Spacing: Character spacing shall be measured between the two closest points of adjacent characters, excluding word spaces. Spacing between individual characters shall be 10 percent minimum and 35 percent maximum of character height.
  9. Line Spacing: Spacing between the baselines of separate lines of characters within a message shall be 135 percent minimum and 170 percent maximum of the character height.
  10. Format: Text shall be in a horizontal format.
- G. Pictograms: Pictograms shall comply with ADA Stds 703.6 and CBC 11B-703.6.
1. Pictograms shall have a field height of 6 inches minimum. Characters and Braille shall not be located in the pictogram field.

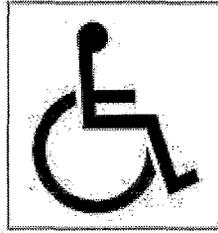


**Figure 703.6.1  
Pictogram Field**

2. Finish and Contrast: Pictograms and their field shall have a non-glare finish. Pictograms shall contrast with the field with either a light pictogram on a dark field or a dark pictogram on a light field.
  3. Text Descriptors: Pictograms shall have text descriptors located directly below the pictogram field. Text descriptors shall comply with CBC 11B-703.2, 11B-703.3 and 11B-703.4.
- H. Symbols of Accessibility: Symbols of Accessibility shall comply with CBC 11B-703.7.
1. Finish and Contrast: Symbols of accessibility and their background shall have a non-glare finish. Symbols of accessibility shall contrast with their background with either a light symbol on a dark background or a dark symbol on a light background.
  2. Symbol – International Symbol of Accessibility: The International Symbol of

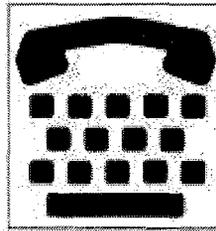
Accessibility shall comply with Figure 11B-703.7.2.1. The symbol shall consist of a white figure on a blue background. The blue shall be Color No. 15090 in Federal Standard 595B.

Exception: The appropriate enforcement agency may approve other colors to complement décor or unique design. The symbol contrast shall be light on dark or dark on light.



**Figure 703.7.2.1**  
**International Symbol of Accessibility**

3. Symbol – International Symbol of TTY: The International Symbol of TTY shall comply with Figure 11B-703.7.2.2.



**Figure 703.7.2.2**  
**International Symbol of TTY**

4. Symbol – Volume Control Telephones: Telephones with a volume control shall be identified by a pictogram of a telephone handset with radiating sound waves on a square field such as shown in Figure 11B-703.7.2.3.



**Figure 703.7.2.3**  
**Volume Control Telephone**

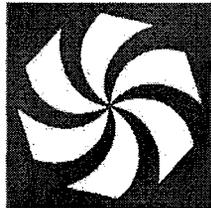
5. Symbol – Assistive Listening Systems: Assistive listening systems shall be identified by the International Symbol of Access for Hearing Loss complying with Figure 11B-703.7.2.4.



**Figure 703.7.2.4  
International Symbol of Access for Hearing Loss**

6. Symbol – Cleaner Air Symbol: Rooms, facilities and paths of travel that are accessible to and usable by people who are adversely impacted by airborne chemicals or particulates and/or the use of electrical fixtures and/or devices shall be identified by the Cleaner Air Symbol complying with Figure 11B-703.7.2.5. This symbol is to be used strictly for publicly funded facilities or any facilities leased or rented by State of California, not concessionaires.

The symbol, which shall include the text “Cleaner Air” as shown, shall be displayed either as a negative or positive image within a square that is a minimum of 6 inches on each side. The symbol may be showing in black and white or in color. When color is used, it shall be Color No. 15090 Federal Standard 595B on white or white on Color No. 15090 Federal Standard 595B. There shall be at least a 70-percent color contrast between the background of the sign from the surface that it is mounted on.



**Cleaner Air**

**FIGURE 11B-703.7.2.5  
CLEANER AIR SYMBOL**

7. Toilet and Bathing facilities geometric symbols: Doorways leading to toilet rooms and bathing rooms shall be identified by a geometric symbol complying with CBC 11B703.7.2.6. The symbol shall be mounted at 58 inches minimum and 60 inches maximum above the finish floor or ground surface measured from the centerline of the symbol. Where a door is provided the symbol shall be mounted within 1 inch of the vertical centerline of the door.
  - a. Men’s: Equilateral triangle, 1/4 inch thick, with edges 12 inches long and a vertex pointing upward. The triangle shall contrast with the door, either light on dark background or dark on light background.
  - b. Women’s: Circle, 1/4 inch thick, 12 inches in diameter. The circle shall contrast with the door, either light on dark background or dark on light background.
  - c. Unisex: Circle, 1/4 inch thick, 12 inches in diameter with a 1/4 inch thick triangle with a vertex pointing upward superimposed on the circle and within the 12 inch diameter. The triangle shall contrast with the circle, either light on dark

background or dark on light background. The circle shall contrast with the door, either light on dark background or dark on light background.

- d. Edges and Corners: Edges of signs shall be rounded, chamfered or eased. Corners of signs shall have a minimum radius of 1/8 inch.
- e. Raised Characters: No raised characters, Braille or pictograms may be included on any geometric door sign.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

#### **A. Flat Signs:**

- 1. APCO California; Metal Etch Signs; 1514 Avenida Oceano; Oceanside, CA 92056-6940, USA; Phone 760-732-3800; Contact: Kevin Immel. Or approved equal.
- 2. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.

### **2.02 SIGNAGE APPLICATIONS**

#### **A. Room/Area Identification Signs: Provide a tactile 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 Engineer prior to fabrication.
- 4. Character Height: 1 inch.
- 5. Sign Height: Per drawings, 6 inches minimum.
- 6. See signage details on Drawings for more specific information on copy and preferred sign layout.

#### **B. Restroom/Locker Room/ Shower Room Identification Signs - WALL: Provide a tactile sign for every toilet or bathing room 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: Per drawings, including 6 inches minimum height pictogram field.
- 6. See signage details on Drawings for more specific information on copy and preferred sign layout.

#### **D. Restroom/Locker Room/ Shower Room Identification Signs – GEOMETRIC SYMBOL: Provide a sign for every room that can be identified by WOMENS, MENS or UNISEX. These signs are NON-Tactile and shall have no raised characters, Braille or pictograms.**

- 1. Sign Type: Type B - Flat signs, cast acrylic with sub-surface printing.
- 2. NON—tactile Signs: No raised characters, Braille or pictograms 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.
- D. Interior Tactile "EXIT" 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.
- E. Exterior Directional and Informational Signs:
1. Sign Type: Type A - Flat metal zinc alloy signs with etched metal panel media.
  2. Directional: Identify with the ISA symbol and directional arrow(s) in direction necessary.
  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. Where glazing is the only available substrate, a self-adhesive vinyl decal is acceptable.
  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.
  3. Size: 6 inch x 6 inch, minimum.

### 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: 3/32 inch minimum.
  3. Edges: All edges rounded, chamfered or eased. No exposed sharp edges will be acceptable as part of work.
  4. Corners: Radiused 1/8 inch minimum.
  5. Tactile Copy: Individual 1/32" high raised characters, Braille and pictograms chemically etched into face material.
  6. Finish: Characters, symbols and background of signs are to be eggshell non-glare finish. Eggshell finish = 11 to 19 degree gloss on 60 degree glossimeter.
  7. Wall Mounting of One-Sided Signs: Double-sided Vinyl Tape adhesive AND vandal-proof stainless steel fasteners.
- 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; unless Unisex, then 1/2 inch total thickness.
  3. Edges: Rounded, chamfered or eased.
  4. Corners: Radiused 1/8 inch minimum.

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. Finish: Characters, symbols and background of signs are to be eggshell non-glare finish. Eggshell finish = 11 to 19 degree gloss on 60 degree glossimeter.
  7. Door Mounting of One-Sided Signs: Tape adhesive AND vandal-proof concealed or exposed screws.
- C. Color and Font:
1. Font: as chosen from manufacturer's standard sans-serif fonts, meeting ADA Standards and CBC requirements.
  2. 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. Exposed Screws: Stainless steel. Vandal-proof.
- B. Tape Adhesive: Double sided tape, permanent adhesive.

#### **2.05 FABRICATION**

- A. Shop assembly:
1. General:
    - a. Fabricate units to configurations indicated on reviewed shop drawings.
    - b. Apply copy or graphics to surface of plaque material using computer generated photographic images, chemically etched into photo-sensitized metal.
    - c. Graphics application after applying background color.
  2. Furnish required copy indicated on reviewed shop drawings.
  3. Wrap each individual unit with polyethylene.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verification of conditions:
1. Examine areas to receive signage; notify Engineer in writing of unacceptable substrate.
  2. Beginning work indicates acceptance of substrate.
  3. Subsequent modifications to substrate or signage becomes this section's complete responsibility.

#### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions, using both tape adhesive and exposed screws. Install plaques in locations with mounting types indicated on drawings in accord with reviewed shop drawings; square, plumb, and level units.
- B. Install neatly, with horizontal edges level.
- C. Locate signs per requirements of subsection 1.09 above.
- D. Protect from damage until Substantial Completion; repair or replace damage items.

#### **3.03 CLEANING**

MAY 18, 2015

- A. Clean exposed surfaces not more than 48 hours prior to Date of Substantial Completion in accord with manufacturers written cleaning instructions.

**3.04 SCHEDULE**

- A. See drawings for schedule.

**END OF SECTION**

**SECTION 10 2113.15  
STAINLESS STEEL TOILET COMPARTMENTS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

A. Section Includes:

1. Stainless steel toilet compartment partitions - floor mounted, overhead braced - for following applications:
  - a. Toilet enclosures.
  - b. Privacy screens.
  - c. Urinal screens.

B. Related Requirements:

1. Section 03 3000 - Cast in Place Concrete: for compartment anchorage to concrete substrates.
2. Section 05 5000 - Metal Fabrications: for miscellaneous structural and support metal components required to secure compartments.

**1.02 REFERENCES**

A. ASTM International (ASTM):

1. ASTM A 240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
2. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
3. ASTM A 743/A 743M - Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
4. ASTM B 86 - Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings.
5. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
6. ASTM B 221/B 221M - Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings.

B. International Code Council (ICC)/American National Standards Institute (ANSI):

1. ICC/ANSI A117.1 - Accessible and Usable Buildings and Facilities, as applicable to toilet compartments designated as accessible.

C. United States Department of Justice:

1. ADA - Americans with Disabilities Act, Excerpt from 28 CFR Part 36 - ADA Standards for Accessible Design.

D. California Building Code:

1. 2013 California Code of Regulations, Title 24 (CCR Title 24), which includes the California Building Code (CBC).

**1.03 ACTION SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction ‘The GREENBOOK’ and City Supplement ‘The WHITEBOOK’, latest editions, Section 2-5.3 for Shop Drawings and Submittals.
- B. Product Data: Manufacturer's data sheets for each type of product indicated. Include fabrication details, description of materials and finishes.
- C. Product Test Reports: When requested by Engineer, submit documentation by qualified independent testing agency indicating compliance of products with requirements.
- D. Shop Drawings: Include overall product dimensions, floor plan, elevations, sections, details, and attachments to other work. Include choice of options with details.
- E. Samples for Verification: Furnish physical sample of material in selected finish.
- F. Size: 2 by 2 inch (52 by 52 mm) minimum, in type of finish specified.

**1.04 INFORMATIONAL SUBMITTALS**

- A. Warranty: Sample of special warranty.

**1.05 CLOSEOUT SUBMITTALS**

- A. Maintenance and cleaning instructions.

**1.06 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum [5] years experience in the manufacture of toilet compartments.
- B. Installers Qualifications: Experienced Installer regularly engaged in installation of toilet compartments for minimum 3 years.
- C. Source Limitations: Obtain toilet compartment components and accessories from single manufacturer.
- D. Accessibility Requirements: Comply with requirements of ICC/ANSI 117.1, 2010 ADA Standards for Accessible Design, 2013 CCR Title 24, and with requirements of authorities having jurisdiction.
- E. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  1. Flame-Spread Index: 0.
  2. Smoke-Developed Index: 0.
- F. Hardware: All hardware shall be stainless steel. Aluminum may only be used where no stainless steel option for that hardware component is available. No zamac hardware will be permitted for inclusion in this project.

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Do not deliver toilet compartments to site until building is enclosed and HVAC systems are in operation.

- B. Deliver toilet compartments in manufacturer's original packaging.
- C. Store in an upright condition.

**1.08 WARRANTY**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 6-8.3 for Warranty.
- B. Special Manufacturer's Warranty: Provide manufacturer's standard form in which manufacturer agrees to repair or replace products that fail in materials or workmanship during the following period after substantial completion:
  - 1. Stainless Toilet Partitions: Against rust-out: 15 years.
  - 2. Stainless Steel Hardware: Lifetime.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURERS**

- A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products of The Mills Company, Marion, OH 43302.
  - 1. Contact Information: (800)272-3539, fax (262)251-5817; Email [info@BradleyCorp.com](mailto:info@BradleyCorp.com); Website [www.bradleycorp.com](http://www.bradleycorp.com).
- B. Substitutions: Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 4-1.6 for Trade Names or Equals.

**2.02 MATERIALS**

- A. Stainless Steel Sheet: A 666, 300 series commercial stainless steel sheet suitable for exposed applications. Provide smooth material, without creases or ripples.
  - 1. Provide with No. #4 finish.
- B. Stainless Steel Castings: ASTM A 743/A 743M.
- C. Aluminum: ASTM B 221/B 221M.

**2.03 STAINLESS STEEL TOILET COMPARTMENTS**

- A. Toilet Compartment Type:
  - 1. Overhead braced.
    - a. Basis of Design Product: Bradley, Mills Partitions, Sentinel, Series 400.
- B. Urinal Screen Style:
  - 1. Floor – Ceiling anchored:
    - a. Basis of Design Product: Bradley, Mills Partitions, Model No. 3.
    - b. Floor mounted, requiring concrete floor, minimum 3 inches thick for anchoring.
    - c. Where indicated on Drawings, modify to become floor-to-ceiling mounted by changing mounting pilaster.

- d. Provide with continuous stainless steel bracket in addition to wing bracket.
- C. Door, Panel, and Pilaster Construction, General: Form edges with interlock to provide watertight fit without crown molding. Braze corners and finish smooth.
  - 1. Provide exposed surfaces free of pitting, visible seams and fabrication marks, stains, telegraphing of core material, or other imperfections.
  - 2. Core Material: Manufacturer's standard sound-deadening, water resistant honeycomb in thickness required to provide finished thickness for doors, panels and pilasters.
  - 3. Provide welded corners.
- D. Door Construction: 1 inch (25 mm) thick, constructed from 0.0313 inch/22 ga (0.794 mm) stainless steel.
  - 1. Provide each door with internal 0.0625 inch/16 ga (1.59 mm) and 0.0781 inch/14 ga (1.98 mm) welded reinforcements at top and bottom hinge locations, with factory installed concealed true gravity cam hinges.
  - 2. Provide pre-punched hole to permit field installation of ADA-compliant concealed slide latch.
- E. Panel Construction: 1 inch (25 mm) thick, constructed from 0.0313 inch/22 ga (0.794 mm) stainless steel.
  - 1. Grab-Bar Reinforcement: Provide concealed internal reinforcement for grab bars mounted on units.
- F. Pilaster Construction: 1 1/4 inch (32 mm) thick, constructed from 0.048 inch/18 gauge (1.219 mm) stainless steel.
  - 1. Provide pilaster with internally welded bracket suitable to accept minimum 3 inch (76 mm) long, 5/16 inch (7.9 mm ) stainless steel hex bolt for leveling.
- G. Headrail: Extruded anodized aluminum headrail with anti-grip profile. Provide fasteners for attachment to pilaster and stainless steel brackets to secure to wall.
- H. Shoes: 4 inches (102 mm) high minimum, Type 304 stainless steel with No. 4 satin brushed finish. Secured to the floor with tamper-resistant screws.
- I. Urinal-Screen Construction: Matching toilet compartment panel construction
- J. Urinal-Screen Post: Manufacturer's standard post design of material matching the thickness and construction of pilasters; with shoe and sleeve (cap) matching pilaster.
- K. Brackets (Fittings):
  - 1. Full-Height (Continuous) Type: Manufacturer's Heavy Duty design throughout; stainless steel. Manufacturer's Standard design continuous brackets, stainless steel, may be used only where Heavy Duty Design cannot due to space or configuration constraints.

## **2.04 HARDWARE**

- A. Hardware, Heavy Duty: Manufacturer's heavy-duty stainless steel castings, including stainless steel tamper-resistant fasteners:

1. Hinges: Self-closing continuous spring-loaded type, adjustable to hold doors open at any angle up to 90 degrees, with emergency access by lifting door. Mount with stainless steel through-bolts.
2. Latch and Keeper: Surface-mounted slide latch with flat rubber-faced combination door strike and keeper, with provision for emergency access, meeting requirements for accessibility at accessible compartments.
3. Coat Hook: Combination hook and rubber-tipped stop, sized to prevent door from hitting compartment-mounted accessories. Provide wall bumper where door abuts wall. Provide formed L-shaped hook without stop at outswing doors. Mount with stainless steel through-bolts.
4. Door Pull at Standard Stall Doors: Standard unit on outside of inswing doors. Provide pulls on both sides of outswing doors.
5. Door Pull at Accessible Stall and Ambulatory Accessible Stall Doors: Provide special order accessible door pull as indicated on Drawings and Restroom Accessory Schedule, both sides of door, immediately below latching hardware.

## **2.05 FABRICATION**

- A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- B. Floor-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- C. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at tops and bottoms of posts. Provide caps, shoes, and covers at posts to conceal anchorage.
- D. Door Size and Swings: Unless otherwise indicated, provide 26-inch- (660-mm-) wide, inswinging doors for standard toilet compartments and 36-inch- (914-mm-) wide doors, swing indicated per plan, with a minimum 32-inch- (813-mm-) wide clear opening for compartments designated as accessible or ambulatory accessible.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Examine work area to verify that measurements, substrates, supports, and environmental conditions are in accordance with manufacturer's requirements to allow installation.
- B. Proceed with installation once conditions meet manufacturer's requirements.

### **3.02 INSTALLATION**

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
- B. Install toilet partitions and screens in spaces with operating, temperature controlled HVAC systems. Shield partitions and screens from direct sunlight.

MAY 18, 2015

- C. Clearances: Install with clearances indicated on Drawings. Where clearances are not indicated, allow maximum 1/2 inch (13 mm) between pilasters and panels, and 1 inch (25 mm) between panels and walls.

**3.03 ADJUSTING**

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 15 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

**3.04 FINAL CLEANING**

- A. Remove packaging and construction debris and legally dispose of off-site.
- B. Clean partition and screen surfaces with materials and cleansers in accordance with manufacturer's recommendations.

**ENSD OF SECTION**

**SECTION 10 2800**

**TOILET AND UTILITY ROOM ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Public-use toilet room accessories as included in this section and scheduled on Drawings.
  - 1. Automatic hand dryers.
  - 2. Soap dispenser.
  - 3. Sanitary napkin disposal units.
  - 4. Toilet tissue dispensers.
  - 5. Toilet seat cover dispensers.
  - 6. Grab bars.
  - 7. Coat Hooks.
  - 8. Under-lavatory protection.

**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. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, 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. Installation instructions and recommendations. Anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
  - 3. Storage and handling requirements and recommendations.
  - 4. Cleaning and maintenance instructions.
  - 5. Material and finish descriptions.
  - 6. Replacement parts information.
  - 7. Features that will be included for Project.
  - 8. 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: To the greatest extent possible provide products from the a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.
- D. Baby Changing Stations: Provide products which comply with the following standards and requirements.
  - 1. Antimicrobial Treatment: Changing surfaces embedded with Microban®, with antibacterial claim substantiated by Kirby-Bauer test or other manufacturer approved equivalent standard industry test methodology.
  - 2. Americans with Disabilities Act (ADA).
  - 3. ANSI A117.1 - Accessible and Usable Building and Facilities.
  - 4. ANSI Z535.4 - Product Safety Signs and Labels.
  - 5. ASTM F 2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use.
  - 6. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.
  - 7. CPSIA: Conformity with the U.S. Product Safety Commission product safety rules, bans, standards and regulations that include applicable chemical compliance requirements.

#### **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.

#### **1.07 DELIVERY, STORAGE AND HANDLING**

- A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations. Protect from damage.

#### **1.08 WARRANTY**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 6-8.3 for Warranty.

- B. Manufacturer's Warranty for Washroom Accessories: Manufacturer's standard 1 year warranty for materials and workmanship.
- C. Manufacturer's Warranty for Electric Hand Dryers: Manufacturer's standard 10 year warranty.

## **PART 2 PRODUCTS**

### **2.01 MANUFACTURERS**

- A. Toilet Accessories:
  - 1. Basis of Design Products: Bobrick Washroom Equipment, Inc.  
Based on the quality and performance requirements of the project, specifications are based on the products of Bobrick Washroom Equipment, Inc.. [www.bobrick.com](http://www.bobrick.com). Location of manufacturing shall be the United States. Other basis of design manufacturers are as indicated on Restroom Accessory Schedule on Drawings. Bobrick model numbers are referenced as an aid to the design intent. Other manufacturer's products that are equivalent are acceptable.
  - 2. GAMCO Commercial Restroom Accessories.
  - 3. American Specialties, Inc.
  - 4. Bradley Corporation.
  - 5. A & J Washroom Accessories.
  - 6. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.
- 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 City; 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 preventing electrolysis.

### **2.04 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 the Engineer.
- B. Hand Dryer (CITY OF SAN DIEGO FACILITY MAINTENANCE STANDARD):
  - 1. World Dryer Model RA: Recessed ADA Compliant Push Button Hand Dryer.
    - a. Model #: RA52-Q974AK 1407-1108.
  - 2. Mounting: Semi-recessed, secure to studs or solid backing. Dryer shall project no more than 4 inches from finished wall surface. No operable part shall be mounted higher than 40 inches above finished floor.
  - 3. Cover: shall be 1/4 inch thick cast iron with porcelain enamel finish.
  - 4. Recessed Mounting box: 16 ga steel mounting box, UL listed.
  - 5. Nozzle: Die-cast zinc alloy finished in bright chrome with field option of rotating configuration.
  - 6. Motor: Thermally protected, Universal brush type, 1/10 HP at 7,500 RPM. Delivers 200 cubic feet per minute or air volume (7300 LFM).
  - 7. Timer: shall be electro-mechanical cam style with 25 AMP rated switch to operate dryer for 30 second period.
  - 8. Operation: Automatic Sensor, dual air outlets.
  - 9. Power: 115V AC, 15 Amp, 1725 watts, 50/60 Hz, Single Phase. Requires dedicated 20 Amp circuit.
  - 10. Air Inlet/Outlet: IPX1 ingress protection.
  - 11. Heating Elements: 2100 watt Nichrome wire heating element protected by an automatic-resetting thermal cutoff. Provides 70 degree F temperature rise.
  - 12. Manufacturer's Warranty for Electric Hand Dryers: Manufacturer's standard 10 year limited warranty.

### **2.05 TOILET ROOM ACCESSORIES**

- A. Surface-Mounted Horizontal Soap Dispensers:
  - 1. Basis of Design: Bobrick ClassicSeries Model B-2112.
  - 2. Compliance: Valve is operable with one hand, without tight grasping, pinching or twisting of the wrist and with less than 5 pounds of force (22.2 N) to comply with barrier-free accessibility guidelines, including ADA-ABA and ICC/ANSI.
  - 3. Container:
    - a. Materials: 18-8, Type 304, 22 gauge (0.8mm) stainless steel with satin finish.
    - b. Construction: Body is drawn, one-piece, seamless construction.
  - 4. Valve: Corrosion-resistant, black molded plastic push button and spout, antibacterial-soap-resistant plastic cylinder; soap head-holding mushroom valve, stainless steel spring,

U-packing seal and duckbill. Valve dispenses commercially marketed all-purpose hand soaps.

5. Mounting: Vandal-resistant, concealed wall plate; back plate with mounting bracket.
6. Filling: Locked, hinged stainless steel lid for top filling opens with key provided. To prevent corrosion of tank, use only chloride-free pH-neutral liquid soaps.
7. Refill Indication: Clear acrylic refill-indicator window.
8. Capacity: 40 fl oz (1.2 L).

B. Surface-Mounted Sanitary Napkin Disposal Units:

1. Basis of Design: Bobrick ConturaSeries Model B-270.
2. Container: All-welded, 18-8, Type 304, 22 gauge (0.8mm) stainless steel with satin finish on exposed surfaces. Front of container shall have same degree of arc, radius on corners and edges as other Bobrick ConturaSeries washroom accessories.
3. Cover: Drawn, one-piece, seamless, 18-8, Type 304, 22 gauge (0.8mm) stainless steel with satin finish. construction. Front of cover has same degree of arc, radius on corners and edges as other Bobrick ConturaSeries washroom accessories.
4. Hinge: Full-length stainless steel piano-hinge.

C. Recessed Multi-Roll Toilet Tissue Dispensers – AT ACCESSIBLE STALL:

1. Basis of Design: Bobrick ConturaSeries Model B-4388.
2. Cabinet: 18-8, Type 304, 22 gauge (0.8mm) stainless steel. All-welded construction with satin finish on exposed surfaces.
3. Flange: Drawn, one-piece, seamless, 18-8, Type 304, 22 gauge (0.8mm) stainless steel with satin finish. Flange corners and edges shall have radii that complement arc on front of door and shall have the same radii on flange corners and edges as other Bobrick ConturaSeries washroom accessories.
4. Door: Front of door is drawn, one-piece, seamless construction, 18-8, Type 304, 22 gauge (0.8mm) stainless steel. 18 gauge (1.2mm) stainless steel door frame, secured to cabinet with two rivets; with satin finish on exposed surfaces and equipped with a flush tumbler lock keyed like other washroom accessories. Front of door shall have same degree of arc, radius on corners and edges as other Bobrick ConturaSeries washroom accessories.
5. Dispensing Mechanism, Inner Housing, and Cam: 18-8, Type 304, 18 gauge (1.2mm) stainless steel.
6. Spindles: Heavy-duty, one-piece, molded ABS plastic; theft-resistant, spindles retained in dispensing mechanism when door is locked.
7. Toilet Tissue Dispensing: Unit holds two standard-core toilet tissue rolls up to 5-1/4 inches (133mm) in diameter (1800 sheets). Roll held in reserve automatically drops into place after bottom roll is depleted, depleted rolls can only be removed after unlocking door.

D. Surface-Mounted Toilet Seat Cover Dispensers:

1. Basis of Design: Bobrick ConturaSeries Model B-4221.
2. Materials: 18-8 Type 304 stainless steel with satin finish. Front of unit shall have same degree of arc, radius on corners and edges as other Bobrick ConturaSeries washroom accessories.
3. Construction: Drawn, one-piece, seamless, 20 gauge (1.0mm).

4. Filling: Concealed opening in bottom for filling.
  5. Dispensing: Single- or half-fold paper toilet seat covers.
  6. Capacity: 500 paper toilet seat covers.
- E. Stainless Steel Grab Bars: With snap flange covers, satin finish.
1. Basis of Design: Bobrick Model B-6806x12.
    - a. Length: 12 inches (305mm).
  2. Basis of Design: Bobrick Model B-6806x18.
    - a. Length: 18 inches (457mm).
  3. Basis of Design: Bobrick Model B-6806x24.
    - a. Length: 24 inches (610mm).
  4. Basis of Design: Bobrick Model B-6806x30.
    - a. Length: 30 inches (762mm).
  5. Basis of Design: Bobrick Model B-6806x36.
    - a. Length: 36 inches (914mm).
  6. Basis of Design: Bobrick Model B-6806x42.
    - a. Length: 42 inches (1067mm).
  7. Basis of Design: Bobrick Model B-6806x48.
    - a. Length: 48 inches (1219mm).
  8. Compliance: Barrier-free accessibility guidelines, including ADA-ABA and ICC/ANSI for structural strength.
    - a. Capacity: Designed to support 900 lbs (408 kg) in compliant installations.
  9. Description: Grab bar with 90 degree return to flange. Clearance between grab bar and finished wall is 1-1/2 inches (38mm).
  10. Grab Bar Materials: 18-8, Type 304, 18 gauge (1.2mm) 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 (38mm).
  11. Mounting Flanges: Concealed, 18-8, Type 304, 1/8 inch (3mm) thick, stainless steel plate.
    - a. End Flanges: 2 inches x 3-1/8 inches (50mm x 80mm) with two holes for attachment to wall.
    - b. Intermediate Flanges: 2-5/8 inches x 3-1/8 inches (65mm x 80mm) wide x 3-1/8 inch (80mm) diameter.
  12. Snap Flange Covers: 18-8, Type 304, 22 gauge (0.8mm) drawn stainless steel with satin finish, 3-1/4 inch (85mm) diameter x 1/2 inches (13mm) deep; snap over mounting flange to conceal mounting screws.
  13. Mounting Accessories: Contractor to determine substrate at each installation and provide the appropriate mounting accessories as required for complete installation. See list of available mounting kits, fastener and anchors below.
    - a. Mounting Kits: Provide Bobrick Part No. 252-30 Mounting Kit; 3 Type 304 stainless steel, Phillips round-head, sheet-metal screws for each flange.
    - b. Mounting Kits: Provide Bobrick Part No. 2521-30 Mounting Kit; 3 Type 304 stainless steel, Phillips round-head, machine screws with plated-steel toggle nuts for each flange.
    - c. Mounting Kits: Provide Bobrick Part No. 2522-30 Mounting Kit; 3 Type 304 stainless steel, Phillips round-head, machine screws with metal expansion shields.

- d. Grab Bar Fasteners: Provide Bobrick Part No. 251-4 WingIt Grab Bar Fastener; round-head, Phillips 18/8 stainless steel screws and grab bar fastener for each flange.
  - e. Anchor Devices: Provide Bobrick Part No. 2583 Mounting Kit; for 3/4 inch to 1 inch (19mm to 25mm) panels for each flange.
  - f. Anchor Devices: Provide Bobrick Part No. 2586 Mounting Kit; for 1/2 inch (13mm) panels for each flange.
- F. Heavy-Duty Clothes Hooks:
- 1. Basis of Design: Bobrick Model B-2116.
    - a. Mounting: Concealed; secured to concealed wall plate with three stainless steel setscrews.
  - 2. Wall Plate: 12 gauge (2.8mm) case hardened steel
  - 3. Projection from Wall: 3-7/16 inch (87mm).
  - 4. Hook and Flange: One-piece brass casting with satin nickel-plated finish.
  - 5. Capacity: Designed to support maximum 300 lbs (136 kg) downward in compliant installations.
- G. 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-microbial / 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](http://www.plumberex.com). Model: #396. 3-PART SET with P-Trap cover and 2 Valve and Supply covers. Or approved equal.
    - b. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', current editions, Section 4-1.6 for Trade Names or Equals.
- H. All other restroom accessories: as indicated on Restroom Accessory Schedule on Drawings.

## 2.06 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 City.

## 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.
- D. Verify blocking has been installed properly and in all locations necessary.
- E. Verify mounting locations does not interfere with door swing or use of fixtures.

**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 and project conditions, as recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
- B. Comply with manufacturer's recommendations for backing and proper support.
- C. Grab Bars: Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F 446.
- D. Install plumb and level, securely and rigidly anchored to substrate.
- E. Mounting Heights and Locations: As required by accessibility regulations and as indicated on Drawings.
- F. Conceal evidence of drilling, cutting and fitting to room finish.

**3.04 ADJUSTMENT AND CLEANING**

- A. Test for proper operation.
- B. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- C. Remove temporary labels and protective coatings.
- D. Clean and polish exposed surfaces or compartments, hardware and fittings using methods acceptable to the manufacturer.
- E. Touch-up, repair or replace products until date of 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 No. 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. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 2-5.3 for Shop Drawings and Submittals.

- B. 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.
- C. Submit design calculations prepared and sealed by the registered structural engineer specified above in paragraph 1.3A.
- D. Submit for concrete anchors, the appropriate ICBC evaluation reports or lab test reports verifying compliance with Regulations 28-6.
- E. Submit any information as a result of complying with this Section to City Development Services Department (DSD) for review and approval as a deferred submittal. Contact Engineer for name of original DSD structural reviewer and submit package to their attention.

**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 Axel-Steel Deformed Bars for Concrete Reinforcement.
- E488-96(R2003) .....Standard Test Method for Strength of Anchors in Concrete and Masonry Elements.
- E. California Code of Regulations, Title 24:
  - CBC, (2013).....California Building Code
  - CPC, (2013) .....California Plumbing Code
- 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, (2013).....California Building Code.
- 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.

MAY 18, 2015

- 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.

**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**

- A. 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 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. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, 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 City 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 City.
  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. California Code of Regulations, Title 24:
  - CBC, (2013)..... California Building Code
  - CPC, (2013)..... 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. Provide full adhesive labels for all new piping and equipment. Include text description and directional arrow. Lettering shall be sized according to pipe O.D.

## **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 05 41, 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 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 Engineer. If the Contractor considers it necessary to drill through structural members, this matter shall be referred to 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 Engineer. Damaged or defective items in the opinion of the 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 Existing Building:

1. Make alterations to existing service piping at times that will cause the least interfere with normal operation of the facility.
- H. Work in bathrooms, restrooms, housekeeping closets: All pipe penetrations behind escutcheons shall be sealed with plumbers 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 Para. 3.1 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 City 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 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 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 PLUMBING SYSTEMS DEMOLITION**

- A. Not Used.

### **3.6 CLEANING AND IDENTIFICATION**

- A. Prior to final inspection and acceptance of the plant and facilities for beneficial use by the City, the plant facilities systems shall be thoroughly cleaned and identified with pipe labels.

**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. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 2-5.3 for Shop Drawings and Submittals.
- 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.

MAY 18, 2015

### **2.3 EXPOSED WATER PIPING**

- A. Unfinished Rooms, Mechanical Rooms and Kitchens: Chrome-plated brass piping is not required.
- B. Identification: Provide full adhesive labels for all new piping and equipment. Include text description and directional arrow. Lettering shall be sized according to pipe O.D.

### **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**

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 9200, JOINT SEALERS.
- 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. Comply with 2012 City Supplement 'The WHITEBOOK', Section 306-1.4.7 for Disinfection and Testing.
- B. After tests have been successfully completed, thoroughly flush and sterilize the interior domestic water distribution system in accordance with AWWA C651.

MAY 18, 2015

C. Use either liquid chlorine or hypochlorite for sterilization.

**END OF SECTION**

**SECTION 22 13 00  
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 22 0511, COMMON WORK RESULTS FOR PLUMBING: Pipe Hangers and Supports, Materials Identification.

**1.3 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, 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. California Code of Regulations, Title 24:
  - CPC-2013 ..... 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 caulk 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.

## **2.9 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.

### 3.3 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.

- 6. Riser clamps shall be malleable iron or steel.
- 7. Rollers shall be cast iron.
- 8. See Section 22 05 11, 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.

**3.4 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 by the Engineer.
  - 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.

MAY 18, 2015

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.
3. 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 oil of peppermint into each line or stack.

**END OF SECTION**

MAY 18, 2015

**SECTION 22 40 00  
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 9200, JOINT SEALANTS.
- B. Through bolts: Section 10 2113, TOILET COMPARTMENTS.
- C. Section 22 0511, COMMON WORK RESULTS FOR PLUMBING.

**1.3 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, 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-08 .....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):
  - A276-2010 .....Stainless and Heat-Resisting Steel Bars and Shapes
  - WW-P-541-E/GEN .....Plumbing Fixtures with Amendment 1
- D. National Association of Architectural Metal Manufacturers (NAAMM): NAAMM AMP 500-505 Metal Finishes Manual (1988)
- E. NSF International (NSF)
  - NSF/ANSI 61 (2012) .....Drinking Water System Components – Health Effects
  - NSF/ANSI 372 (2011) .....Drinking Water System Components – Lead Content
- F. Americans with Disabilities Act Title II Regulations 28 CFR Part 35, 2010 ADA Standards for Accessible Design. Section 606.5 - Exposed Pipes and Surfaces.
- G. Environmental Protection Agency EPA PL 93-523 1974; A 1999) Safe Drinking Water Act.

H. 2013 California Code of Regulations Title 24, Part 5 - California Plumbing Code.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Material or equipment containing a weighted average of greater than 0.25 percent lead shall not be used in any potable water system intended for human consumption, and shall be certified in accordance with NSF/ANSI 61 or NSF 372. Endpoint devices used to dispense water for drinking must meet the requirements of NSF/ANSI 61, Section 9.
- B. Plastic pipe, fittings, and solvent cement shall meet NSF/ANSI 14 and shall be NSF listed for the service intended.

### **2.2 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.

### **2.3 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 Resident 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, chrome plated where exposed.

### **2.4 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.

### **2.5 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 95 ml/s to 110 ml/s (1.5 gpm to 1.7 gpm) for lavatories.
  - 2. Compensates for pressure fluctuation maintaining flow rate specified above within 10 percent between 170 kPa and 550 kPa (25 psi and 80 psi).
  - 3. Operates by expansion and contraction, eliminates mineral/sediment build-up with self-cleaning action, and is capable of easy manual cleaning.

## 2.6 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, All lavatory chair carriers shall be capable of supporting the lavatory with a 250-pound vertical load applied at the front of the fixture.
- C. Where water closets, lavatories or sinks are installed back-to-back and carriers are specified, provide one carrier to serve both fixtures in lieu of individual carriers. The drainage fitting of the back to back carrier shall be so constructed that it prevents the discharge from one fixture from flowing into the opposite fixture.

## 2.7 WATER CLOSETS

- A. Water Closet (Wall Hung, ANSI A112.19.2M, Figure 8) elongated bowl, siphon jet, wall outlet, back inlet spud, with bedpan lugs 6 L (1.6 gallons) per flush with maximum 10 percent variance. Top of rim shall be 457 mm (18 inches) above finished floor.
  - 1. Seat: Institutional/Industrial, solid plastic, extra heavy duty, chemical resistant, posture contoured body open front design less cover for elongated bowls, integrally molded bumpers, concealed check hinge with stainless steel post. Color shall be white.
  - 2. Fittings and Accessories: Gaskets-neoprene; bolts with chrome plated cap nuts and washers.
  - 3. Flush valve: Large chloramines resistant diaphragm, electronic sensor solenoid operated flush valve, concealed, non-hold-open, with manual override button, 25 mm (1 inch) IPS wheel handle back check angle stop valve, adjustable tailpiece and vacuum breaker. Provide 330 mm by 432 mm (13 inches by 17 inches) stainless steel access door with key operated cylinder lock specified in Section 08 3113, ACCESS DOORS AND FRAMES. Valve body, tailpiece and control stop shall be in conformance with ASTM alloy classification for semi-red brass.

## 2.8 URINALS

- A. Urinal (Wall Hung, ANSI A112.19.2M, Figure 30) bowl with integral flush distribution, wall to front of flare 356 mm (14 inches). Wall hung with integral trap, siphon jet flushing action 4 L (1.0 gallons) per flush with 50 mm (2 inches) back outlet and 19 mm (3/4 inch) top inlet spud.
  - 1. Support urinal with chair carrier and install with rim 600 mm (24 inches) above finished floor.
  - 2. Flushing Device: Large chloramines resistant diaphragm, semi-red brass body, exposed flush valve non-hold-open, water saver design, 19 mm (3/4 inch) capped screwdriver angle stop valve. Set centerline of inlet 292 mm (11 1/2 inches) above urinal. Valve body, cover, tailpiece, and control stop shall be in conformance with ASTM alloy classification for semi-red brass.

## 2.10 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) straight back, Set with rim 864 mm (34 inches) above finished floor.

MAY 18, 2015

1. Faucet: Solid cast brass construction, vandal resistant, heavy-duty single lever handle, center set. Control shall be washerless ceramic disc cartridge type. Provide laminar flow control device, adjustable hot water limit stop, 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, 38 mm by 32 mm (1 1/2 inches by 1 1/4 inches) P-trap. Adjustable with connected elbow and 1.4 mm thick (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.

## **2.12 DISPENSER, DRINKING WATER**

- A. Standard rating conditions: 10 degrees C (50 degrees F) water with 27 degrees C (80 degrees F) inlet water temperature and 32 degrees C (90 degrees F) ambient air temperature.
- B. Drinking Fountain (Surface Mounted) cabinet, CRS, with stainless steel receptor, 18 gage, type 304 with satin finish and shall be complete with hanger and bottom cover plate. Lead free.
  1. Provide frost-proof self-closing, drain back valve assembly with automatic stream height control and an 86 mm (3 3/8 inch) high bubbler.
  2. Provide 38 mm (1 1/2 inches) 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 1067 mm (42 inches) above grade.

## **2.15 HYDRANT, HOSE BIBB AND MISCELLANEOUS DEVICES**

- A. Hose Bibb (Combination Faucet, Wall Mounted to Supply Pipes): Cast or wrought copper alloy, combination faucet with replaceable monel seat, removable replacement unit containing all parts subject to wear, mounted on wall 914 mm (36 inches) above floor to concealed supply pipes. Provide faucet without top or bottom brace and with 19 mm (3/4 inch) hose coupling threads on spout, integral stops and vacuum breaker. Design valves with valve disc arranged to eliminate rotation on seat. 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 bright finish.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Fixture Setting: Opening between fixture and floor and wall finish shall be sealed as specified under Section 07 9200, 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. Through Bolts: For free standing marble and metal stud partitions refer to Section 10 2113, TOILET COMPARTMENTS.
- D. Toggle Bolts: For hollow masonry units, finished or unfinished.
- E. Expansion Bolts: For brick or concrete or other solid masonry. Shall be 6 mm (1/4 inch) diameter bolts, and to extend at least 76 mm (3 inches) into masonry and be fitted with loose tubing or

MAY 18, 2015

sleeves extending into masonry. Wood plugs, fiber plugs, lead or other soft metal shields are prohibited.

- F. Power Set Fasteners: May be used for concrete walls, shall be 6 mm (1/4 inch) threaded studs, and shall extend at least 32 mm (1 1/4 inches) into wall.
- G. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.
- H. 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.
- I. Do not use aerators on lavatories and sinks.

### **3.2 CLEANING**

At completion of all work, fixtures, exposed materials and equipment shall be thoroughly cleaned.

**END OF SECTION**

MAY 18, 2015

**SECTION 26 0500  
GENERAL ELECTRICAL REQUIREMENTS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.
- B. All Specification Sections under Division 26.

**1.2 SUMMARY**

- A. This Section includes:
  - 1. Definitions.
  - 2. Excavation.
  - 3. Coordination of work.
  - 4. Cleaning, patching repairing and painting.
  - 5. Warranties.
  - 6. Field test.

**1.3 REFERENCES**

- A. American National Standards Institute, Inc. (ANSI) Publications:
  - 1. C2 - National Electrical Safety Code.
- B. California Code of Regulations (CCR) Publications:
  - 1. Title 8, Industrial Relations.
  - 2. Title 19, State Fire Marshal Regulations.
  - 3. Title 24, Part 2, Energy Conservation Standards.
  - 4. Title 24, Part 3, CCR, 2013 California Electrical Code.
  - 5. Title 24, Part 9, CCR, 2013 California Fire Code.
- C. National Electrical Manufacturers Association (NEMA) Publication: ICS6-93 Enclosures for Industrial Controls and Systems.
- D. National Fire Protection Association (NFPA) Publications:
  - 1. 70 National Electrical Code
  - 2. 70B Recommended Practice for Electrical Equipment Maintenance.
  - 3. NFPA 101 Life Safety Code.
- E. State of California Public Utilities Commission (Cal. P.U.C.) Publications:
  - 1. G.O. 128 Rules for Construction of Underground Electrical Supply and Communications Systems.

**1.4 DEFINITIONS**

MAY 18, 2015

The following definitions apply to terms used in these standards.

- A. The words "work" or "electrical work" include products, labor, equipment, tools, appliances, transportation, and all related items directly or indirectly required to complete the specified and indicated electrical installation.
- B. The word "concealed" shall mean that the installation will not be visible when all permanent or removable elements of the construction are in place. The word "exposed" shall mean that the installation is visible when all permanent or removable elements of the construction are in place.
- C. The word "code" shall mean any and all regulations and requirements of regulatory bodies, public and private, having jurisdiction over the work involved.
- D. The word "product" used in Division 26 means all material, equipment, machinery, and/or appliances directly or indirectly required to complete the specified and/or indicated electrical work.
- E. The words "standard product" shall mean a manufactured product, illustrated and/or described in catalogs or brochures, which is in general distribution prior to the date of issue of construction documents. Products will generally be identified by means of a specific catalog number and manufacturer's name.
- F. "Provide" means furnish, install, connect and test unless otherwise noted.
- G. The words "conduit" and "duct" are used interchangeably, and have the same meaning.
- H. "UFER" Ground: See Section 260526, "Grounding and Bonding".

#### **1.5 DRAWINGS AND SPECIFICATIONS**

- A. Electrical drawings are diagrammatic but shall be followed as closely as actual construction and work of the other sections shall permit. Size and location of equipment is drawn to scale wherever possible.
- B. Drawings and specifications are for the assistance and guidance of the Contractor. Exact locations, distances, and levels will be governed by the site. The Contractor shall make use of data in all the contract documents to verify information at the building site.
- C. In any case where there appears to be a conflict or ambiguity between that which is shown on the electrical drawings or in the electrical specifications and any other part of the Contract Documents, the Contractor shall notify and secure directions from the Engineer.
- D. Drawings and specifications are intended to complement each other. Where a conflict or ambiguity exists between the requirements of the drawings and the specifications, request clarification. Do not proceed with work without direction.
- E. The Engineer shall interpret the drawings and the specifications. The interpretation by the Engineer as to the true intent and meaning thereof and the quality, quantity, and sufficiency of the materials and workmanship furnished thereunder shall be accepted as final and conclusive.
- F. In the case of conflicts or ambiguities not clarified prior to the bidding deadline, use the most costly alternative (better quality, greater quantity, and larger size) in preparing the bid. A clarification will be issued to the successful bidder as soon as feasible after the award and, if appropriate, a deductive change order will be issued.
- G. Where items are specified in the singular, this division shall provide the quantity as shown on drawings plus any spares or extras indicated on the drawings or in the specifications.
- H. Record Drawings:

MAY 18, 2015

1. 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.
2. All changes or revisions to the contract drawings including, but not limited to, those indicate by amendment, change order, field order, written response to RFI/RFC or other contractual means shall be kept current as the work progresses and shall be incorporated onto the final record drawings.
3. Accurately locate and dimension all underground and embedded conduit runs on the record drawings.
4. 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 Engineer. The correct and completed record drawings are a prerequisite to final contract payment.
  - a. 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.
  - b. These drawings shall be on Engineering base sheets and numerically sequenced to follow the last "E" sheet.

#### **1.6 EXAMINATION OF SITE**

- A. Examination of the building site shall be made by the Contractor. The Contractor shall compare it with the drawings and specification to satisfy themselves as to the conditions under which work is to be performed. The Contractor shall, at such time, ascertain and check the locations of existing structures or equipment which may affect their work.

#### **1.7 EXCAVATION**

- A. Prior to starting excavation or trenching, the Contractor shall perform an underground Site Survey utilizing an electronic locator to verify the exact location of all existing underground utility piping, conduits and conductors. The Contractor shall submit for approval a site survey report to the Engineer within five (5) working days after the survey is performed. The Site Survey Report shall show the horizontal location for existing utilities and identify any possible conflicts between the new work and existing utilities.
- B. All existing utilities that are disturbed by the contractor shall be immediately repaired at no cost to the City.

#### **1.8 PERMITS, FEES AND INSPECTIONS**

- A. Permits, fees, and inspections including all utility fees shall be arranged for and paid by the Contractor.
- B. The Contractor shall present to the Engineer properly signed certificates of the final inspection before work will be accepted.

#### **1.9 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 2-5.3 for Shop Drawings and Submittals. All time requirements shall be based on the notice to proceed date of the General

Contract. All materials and equipment furnished under Division 26 shall; be submitted to the Engineer for approval. Such approval shall be in writing from the Engineer including that, which is exactly as specified. Any materials or equipment installed without written approval shall be subject to immediate removal. Approval of material or equipment shall in no way obviate compliance with the contract documents.

- B. Submittals shall be packaged separately for each system or major piece of equipment and reviewed by the Contractor for verification of compliance with the contract documents prior to submitting to the Engineer. Separate, bound submittals shall be provided for each specification section to the Engineer. Authorization to combine equipment or systems must be in writing from the Engineer. All interfaces between specification sections shall be indicated in each submittal.
- C. All materials and equipment shall be new and shall bear the inspection label of the Underwriters Laboratories (UL) where applicable. Materials and equipment shall be the latest standard product and shall be of the grade indicated by the trade names given.
- D. The work shown on the contract drawings is engineered and designed to accommodate the equipment described hereinafter in these specifications.
- E. Equipment submittals shall include manufacturer's name, model, type, number, finish, size and capacity of the equipment at the given conditions. This information shall be provided in bound submittals, each containing an index and all submittals. Provide seven (7) copies of each submittal. The title shall provide the project name, system identity, the specification number, and the Contractor's name and address. This submittal shall be in addition to the shop drawings hereinafter specified. Partial submittals of material submitted from time to time are not acceptable and may be returned without review.
- F. Submittals shall be reviewed by the Engineer for compliance with the contract documents. Submittals found to be incomplete or not in compliance with the contract documents shall be returned for resubmittal. The Engineer shall review the original submittal and one (1) resubmittal per section (if required). The Contractor shall reimburse the Engineer and his consultants for all subsequent submittal reviews.
- G. Equipment Layout Drawings: "Equipment Layout Drawings" shall be provided for each equipment room, yard or area containing equipment items furnished under Division 26. Layout drawings shall consist of a plan view of the room or area (to a ¼ inch =1'-0" minimum scale) showing projected outlines of all equipment, complete with dotted lines indicating all required clearances, including all clearances needed for removal or service. Location of all conduit and pull boxes shall be indicated. Drawings shall indicate any and all conflicts with other trades.

#### **1.11 SUBSTITUTIONS**

- A. Equipment submitted for substitution must fit the space conditions shown on the drawings, leaving adequate room for maintenance around all equipment. A minimum of 36 inches (or more if required by Code) must be maintained clear in front of all electrical panels, starters, gutters or other electrical apparatus. Submit drawings showing the layout, size, and exact method of interconnection of conduit, wiring and controls, which shall conform to the manufacturer's recommendations and these specifications. The scale of these drawings shall be the scale of the contract drawings. The Contractor shall bear the excess costs, by any and all crafts, for fitting the equipment into the space and the system designated. Where additional labor or material is required to permit equipment submitted for substitution to function in an approved manner, this shall be furnished and installed by the Contractor without additional cost to the City.

MAY 18, 2015

- B. No substitutions will be allowed for materials or equipment if three (3) or more manufacturers are indicated.
- C. An item submitted for substitution does not constitute an "equal" unless approval by the Engineer has been given in writing.
- D. Equipment submitted for substitution shall be approved in writing by the Engineer and shall be accompanied by the following:
  - 1. A sample of each item submitted for substitution shall accompany the submittal if requested by the Engineer.
  - 2. A unit price quotation shall be provided with each item intended for substitution. This quote shall include a unit price for the specified item and a unit price for the intended substitute item. The Contractor shall also provide a total (per item) of the differential payback to the City should the intended substitute item be approved as equivalent to that which is specified.
  - 3. The Contractor shall reimburse the City for the additional services required by the Engineer and his consultants to review and process substitutions.
- E. Substitutions shall be approved in writing by the Engineer. The determination of the Engineer shall be final.

#### **1.11 WARRANTY**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 6-8.3 for Warranty.
- B. All materials and equipment provided shall be warranted for a minimum period of one (1)-year from the official date of completion. In addition, provide two (2)-year extended warranty, for a total of three (3)-years, for the following items:
  - 1. Circuit Breakers.
- C. Refer to Section 265668, "Sports Field Lighting" for additional warranty requirements.
- D. The Contractor shall provide all labor and materials required to correct problems which develop during the warranty period due to defective materials or faulty workmanship. The labor and materials to do this work shall be provided at no additional cost to the City.
- E. Within one (1)-month prior to the expiration of the warranty period, the Contractor shall correct any and all defects covered by the warranty. This shall include tightening to original specifications of all bolted connections.
- F. Warranty certificates shall be made out to the City and shall be delivered to the Engineer at the completion of the installation.
- G. All equipment shall be guaranteed to be supported in such a way as to be free from objectionable vibration and noise.
- H. Additional warranty requirement shall be as indicated in the following sections of Division 26.

#### **1.12 OPERATION AND MAINTENANCE MANUALS**

- A. The Contractor shall furnish operation and maintenance manuals for each electrical system and for each piece of equipment. The complete manual, bound in hardback binders, or an approved equivalent, shall be provided to the Engineer. Provide Seven (7) copies of each manual. One (1) manual shall be furnished prior to the time that system or equipment tests are performed, and

MAY 18, 2015

the remaining manuals shall be furnished one (1) week before the final job visit is made. The following identification shall be inscribed on the cover; the words "OPERATION AND MAINTENANCE MANUAL", the name and location of the building, the name of the Contractor, and the contract number.

- B. The parts list for equipment shall indicate the sources of supply, recommended spare parts, and the service organization that is reasonably convenient to the building site. The manual shall be complete in all respects for all equipment, controls, and accessories provided.
- C. One (1) copy shall be forwarded to the City Facilities Maintenance Electrical Department prior to the final walk-through.

Send to: City of San Diego  
General Services/Facilities Division  
Electrical Crew, Suite A, Bldg 38  
San Diego, CA 92102

### **1.13 COORDINATION OF ALL WORK**

- A. Job Visits by the Architect:
  - 1. Periodic visits to the job by the Architect and his consultants are for the express purpose of verifying compliance with the contract documents.
  - 2. Such visits shall not be construed as construction supervision. Neither shall such visits be construed as making the Engineer, Architect or his consultants responsible for providing a safe place for the performance of the work by the Contractor or the Contractor's employees or the safety of the supplies of the Contractor or his Subcontractors.
- B. Temporary Electrical Service:
  - 1. The Contractor shall provide labor and materials required for the installation and maintenance of temporary lighting and required power sources for the Contractor's equipment inside the building or construction site and for pedestrian walkways during the period of construction.
  - 2. The construction site shall be sufficiently illuminated so that construction work can be safely performed. Special attention shall be given to adequately lighting stairs, ladders, pedestrian walkways, floor openings, etc. Walkway lights shall be controlled by a switch within the building or construction site.
- C. Posted Operating Instructions:
  - 1. Operating instructions shall be provided by the Contractor at the conclusion of the project for each system and each principal piece of equipment for the use of operating and maintenance personnel. The operating instructions shall include wiring and control diagrams showing the entire system, including, but not limited to, equipment, devices, and control sequences. The Engineer shall approve all operating instructions.
  - 2. Operating instructions shall be typewritten or engraved and shall be framed under glass or in approved laminated plastic and posted adjacent to each principal piece of equipment and shall include such instructions as start up, proper adjustment, operation, lubrication, shutdown, safety-precautions, procedure in the event of equipment failure, and any other necessary items of instructions as recommended by the manufacturer of unit.

3. Operating instructions exposed to the weather shall be made of weather-resisting materials or shall be suitably enclosed to be weather protected. Operating instructions shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

#### **1.14 TRAINING**

- A. User staff and maintenance personnel shall be thoroughly trained (minimum four (4)-hours) in the use of each system or major piece of equipment installed. This training shall be provided a part of the Contractors bid to supply the system or equipment. Additional training requirements, shall be as specified in the subsequent sections of Division 26.

#### **1.15 DELIVERY AND STORAGE**

- A. Equipment and materials shall be properly stored, adequately protected, and carefully handled to prevent damage before and during installation. Equipment and materials shall be handled, stored, and protected in accordance with the manufacturer's recommendations and as approved by the Engineer. Electrical conduit shall be stored to provide protection from the weather and accidental damage. Plastic conduit shall be stored on even supports and in locations not subject to direct sunrays or excessive heat. Cables shall be sealed, stored, and handled carefully to avoid damage to the outer covering or insulation and damage from moisture and weather. Damaged or defective items shall be replaced with new items a no cost to the City. The Engineer shall determine if a damaged or defective item is to be replaced with a new item. The decisions by the Engineer in these matters shall be final.

#### **1.16 FIELD TESTS**

- A. As an exception to requirements that may be stated elsewhere in the contract, the Engineer shall be given five (5) working days notice prior to each test. The Contractor shall provide all test equipment, personnel and incidentals including, but not limited to, water, fuel, and lubricants necessary to perform the required tests. The Contractor shall provide electrical power required for all tests per 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 7-1.2. The Contractor shall submit five (5) typewritten copies of all test results to the Engineer within five (5) working days after each test.
  1. The information submitted shall include, but not limited to, the following:
    - a. Scope of the test.
    - b. Name and type of instrument used.
    - c. Calibration date of instrument and name of calibration firm.
    - d. Name and signature of testing personnel.
    - e. Name of signature of Engineer.
    - f. Analysis of test results.
  2. The Contractor shall demonstrate to the Engineer the operation of all equipment and systems. All tests shall be completed to the satisfaction of the Engineer. Each test shall be performed the number of time indicated in the individual specification section. In the event the number of times the tests are to be completed is omitted, the Engineer shall determine the number.

MAY 18, 2015

#### **1.17 SINGLE LINE DIAGRAM DISPLAY**

- A. In the main service entrance electrical room provide a 24” wide x 18” high metal frame to display an “As-Built” single line diagram of the entire final electrical distribution system. It shall be date and the “As-Built” condition notated. Mount securely on electrical room wall.

#### **1.18 FINAL WALK THROUGH**

- A. The final project walk-through will be attended by the Architect, his electrical engineering consultant, Contractor, and City Facilities Electrical Department personnel. At that time an operational test of at least the following systems shall occur to verify correct operation:
1. Emergency Systems
  2. Time clocks/Photocell controls
  3. Occupancy sensors and lighting switching
  4. Mechanical equipment and thermostat settings
  5. Other systems/components at the direction of the City.
- B. Project close-out submittals will include:
1. As-Built drawings
  2. A spec book
  3. A book of final product submittals
  4. O&M manuals
  5. Signed off inspection reports and certificated

**END OF SECTION 26 0500**

**SECTION 26 0510**

**BASIC ELECTRICAL MATERIALS AND METHODS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.
- B. All specification Sections under Division 26.

**1.02 SUMMARY**

- A. This Section includes the following:
  - Supporting devices for electrical components.
  - Cutting and patching for electrical construction.
  - Touch-up painting.
  - Tests of all electrical systems.
  - Equipment Identification

**1.03 ABBREVIATIONS**

- EMT: Electrical metallic tubing.
- FMC: Flexible metal conduit.
- IMC: Intermediate metal conduit.
- LFMC: Liquid tight flexible metal conduit.
- RNC: Rigid nonmetallic (PVC) conduit.
- RMC: Rigid metallic conduit.
- RGS: Rigid Galvanized Steel Conduit

**1.04 REFERENCES**

- A. National Fire Protection Association (NFPA) Publication 70 – National Electrical Code (NEC).
- B. California Code of Regulations (CCR) Publications:
  - 1. Title 24, Part 2, CCR California Building Code (CBC)
  - 2. Title 24, Part 3, CCR, California Electrical Code. (CEC)
  - 3. Title 24, Part 6, CCR, California Energy Code
- C. Underwriters Laboratories, Inc. (U.L.) Publications
  - 1. Standard for Flexible Metal Conduit.
  - 2. Rigid Metallic Conduit.
  - 3. Cabinet and Boxes.
  - 4. Panelboards.

MAY 18, 2015

5. Thermoplastic Insulated Wires.

D. National Electrical Manufacturers Association (NEMA) – Wiring Devices (NEMA WD)

#### **1.05 SUBMITTALS**

A. The following information shall be submitted for review and approval in accordance with Section 260500, "General Electrical Requirements".

B. Product Data Sheets:

1. Provide product data sheets for all materials specified under this section. The submittal shall be specific for each item being furnished.

C. Field Test Reports: Indicate and interpret test results for compliance with performance requirement

#### **1.06 REGULATORY REQUIREMENTS**

A. The Contractor shall conform to the requirements of the California Electrical Code and the City of San Diego Electrical Code, except where requirements herein are more stringent.

B. The Contractor shall furnish products listed and classified by Underwriters Laboratories, Inc. or as testing firm acceptable to the City as suitable for purpose specified and shown.

#### **1.07 QUALITY ASSURANCE**

A. 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.

B. Comply with California Electrical Code.

C. Comply with City of San Diego Electrical Code.

#### **1.08 COORDINATION**

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.

1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.

C. Where electrical identification devices are applied to field-finished surfaces, coordinate installation of identification devices with completion of finished surface.

D. Where electrical identification markings and devices will be concealed by ceilings and similar finishes, coordinate installation of these items before ceiling installation.

### **PRODUCTS**

#### **2.01 MATERIALS**

A. Products and materials shall be as specified in the pertinent sections of Division 26.

MAY 18, 2015

- B. All products and materials shall be new and bear UL label whenever subject to such approval. Comply with ANSI, IEEE and NEMA standards where applicable.
- C. Wherever possible, all materials and equipment used in this installation shall be of the same manufacturer throughout for each class of material or equipment.

## **2.02 TOUCHUP PAINT**

- A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.
- B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

## **2.03 WARNING LABELS AND SIGNS**

- A. Comply with NFPA 70 and 29 CFR 1910.145.
- B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.
- C. Baked-Enamel Warning Signs:
  - Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
  - 1/4-inch (6.4-mm) grommets in corners for mounting.
  - Nominal size, 7 by 10 inches (180 by 250 mm).
- D. Warning label and sign shall include, but are not limited to, the following legends:
  - 4. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
  - 5. First subparagraph below applies to OSHA requirements for building operations and does not reflect the clear working space required by NFPA 70.
  - 6. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM)".
  - 7. Electrical Room Warning: "NOTICE – ELECTRICAL ROOM – NO STORAGE PERMITTED".

## **2.04 INSTRUCTION SIGNS AND EQUIPMENT IDENTIFICATION LABELS**

- A. Engraved, laminated acrylic or melamine plastic, minimum 3/32 inch (2.38 mm) thick for signs up to 20 sq. inches (129 sq. cm) and 1/8 inch (3.2 mm) thick for larger sizes.
  - 8. Engraved legend with black letters minimum 1/4 inch (6.35 mm) on white face.
  - 9. Punched or drilled for mechanical fasteners.
- B. Minimum size of nameplates shall be 1-inch (25.4 mm) high by 3-inches (76.2 mm) wide.
- C. Provide nameplates for each switchboard, panelboard, feeder circuit breaker, disconnect switch, time switch, control panel, transformer, and exposed junction or pull box.

## **2.05 WIRE AND CABLE TAGS**

- A. Self-adhesive, machine printed wire markers to indicate branch circuit or feeder designation.

## **EXECUTION**

### **3.01 INSTALLATION AND CONNECTION OF ELECTRICAL EQUIPMENT**

- A. Equipment furnished by others shall be completely connected to the electrical system as required for correct operation. All conduit, wire, junction boxes, etc., shall be provided for proper connection and all required grounding shall be installed. Verify actual requirements with equipment supplier or Engineer prior to rough-in.
- B. All outlets, devices and equipment furnished under Division 26 shall be fully installed and connected.
- C. Provide all required flexible conduit, boxes, fittings, receptacles, caps, cords, and other material that may be required for the proper installation of all equipment. Refer to manufacturer's directions where applicable.
- D. Coordinate the work carefully to ensure that all electrical requirements of equipment are met and all systems are made complete and operational.
- E. All equipment shall be installed recessed (flush) unless otherwise noted or shown on plans.
- F. Install equipment to permit easy access for all maintenance.
  - 1. Maintain easy access to switches, motors, drives, pull boxes, receptacles, etc.
  - 2. Relocate items which interfere with access.

### **3.02 SEISMIC RESTRAINTS**

- A. All electrical equipment shall be braced or anchored in accordance with the requirements of the CBC for the seismic zone indicated on the drawings.
  - 1. Horizontal seismic forces shall be determined from the applicable equations of the governing code.
  - 2. Provide all required seismic bracing, supports, bolts, washers, nuts, etc. for conduits and conduit supports.

### **3.03 MISCELLANEOUS WORK**

- A. Do all miscellaneous metal and concrete work required; all cutting and patching; and provide all hangers, anchors, chases, supports, etc., required for the installation of the electrical systems.
- B. Touch-up or refinish damaged surfaces including, but not limited to, meter pedestal, light fixtures, etc., to the satisfaction of the Engineer.
- C. All work shall be in accordance with applicable sections of the specifications.

### **3.04 CLEANING AND PROTECTION OF PRODUCTS AND PREMISES**

- A. At frequent intervals during the time on the site, the Contractor shall clean up after his work and remove his debris from the premises. The building and grounds shall be cleaned to the satisfaction of the Engineer. All equipment and material resulting from demolition for this project shall be removed.
- B. The Contractor shall take all necessary precautions to protect all materials, equipment and property, whether electrical or not, from damage as result of his work.
- C. The Contractor shall provide adequate protection for all material and equipment provided under Division 26. Material and equipment shall be stored in a clean dry place and shall be covered or protected from damage or contamination during storage and after installation.

MAY 18, 2015

- D. Before final inspection, all material and equipment furnished under Division 26 shall be thoroughly cleaned of cement, plaster, paint spatters and other foreign materials. All surfaces shall be carefully wiped clean. Boxes, cabinets and enclosures shall be cleaned, inside and out.

### **3.05 CHECKING AND TESTING OF EQUIPMENT**

- A. Switchboards, panelboards, and all other operable equipment worked on under this contract shall be inspected for defects, and tested for proper operation.
- B. Systems shall be tested for short circuits, open circuits, wrong connections, and grounds. All system shall be free from mechanical and electrical defects.
- C. Circuits shall be tested for proper neutral and ground connections.
- D. Where required or directed, systems shall be tested in the presence of the Engineer to demonstrate that equipment furnished, installed, or connected functions in the manner intended.
- E. The contractor shall furnish all necessary instruments and equipment required for testing and shall immediately correct any defective work at no additional charge. Should the Contractor refuse or neglect to make tests necessary to satisfy the Engineer that he has carried out the true intent and meaning of the specifications, the Engineer may have such tests made and charge the expense thereof to the Contractor to be retained out of full final payment.
- F. Bolted connections shall be torque-tightened to manufacturer's specifications. The Contractor shall torque all connections with a wrench that has been calibrated within the last three (three) months. Submit proof of calibration to the City's Representative.
- G. Ground-Fault Circuit Interrupter Tests: Test each branch circuit having ground fault circuit protection to ensure that the ground fault circuit interrupter will not operate when subjected to a ground fault current of less than 4 milliamperes and will operate when subjected to ground fault current exceed 6 milliamperes. Perform tests using an instrument specifically designed and manufactured for testing ground fault circuit interrupters. Apply the test to the receptacle which is at the greatest distance from the ground fault interrupter. If ground-fault interrupter type receptacles are installed, test each receptacle for proper operation. "TEST" button operation will not be acceptable as a substitute for this test.
- H. For additional checking and testing of special systems, see the section where those systems are specified.

**END OF SECTION 26 0510**

**SECTION 26 0519**

**WIRES AND CABLES**

**GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.
- B. Section 260500 – General Electrical Requirements.
- C. Section 260510 – Basic Electrical Materials and Methods.

**1.02 SUMMARY**

- A. This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

**1.03 REFERENCES**

- A. CEC California Electrical Code.
- B. NECA (National Electrical Contractors Association) – Standard of Installation.
- C. NETA (International Electrical Testing Association) – Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- D. ANSI/UL – Insulation of Conductors.

**1.04 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, Section 2-5.3 for Shop Drawings and Submittals.
- B. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.
- C. Product data: Submit for building wire and each cable assembly type.
- D. Product Record Documents: Record actual locations of components and circuits.
- E. Provide manufacturer's instruction for use of ground megger with proposed method indicated.

**1.05 QUALITY ASSURANCE**

- A. Manufacturer: Shall be specialized in manufacturing products specified in this section with minimum ten years (documented) experience.
- B. Testing Agency: Company shall be a member of International Electrical Testing Association and specializing in testing products specified in this section with minimum three years.
- C. Listing and Labeling: Provide wires and cables specified in this Section as defined in CEC, Article 100.

**1.06 REGULATORY REQUIREMENT**

- A. Conform to ANSI/NFPA 7

MAY 18, 2015

- B. Conform to CCR Title 24, Part 6, California Energy Code.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Product Requirements: Products storage and handling requirements.
- B. Deliver wires and cables according to NEMA WC 26.

#### **1.08 SCHEDULING OR COORDINATION**

- A. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.
- B. Coordinate layout and installation of wiring and cables with other installations.

### **PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Wires and Cables:
    - a. American Insulated Wire Corp.; Leviton Manufacturing Co.
    - b. Carol Cable Co., Inc.
    - c. General Cable
    - d. Senator Wire & Cable Company.
    - e. Southwire Company.
  - 2. Connectors for Wires and Cables:
    - a. AMP Incorporated.
    - b. General Signal; O-Z/Gedney Unit.
    - c. Monogram Co.; AFC.
    - d. Square D Co.; Anderson.

#### **2.02 BUILDING WIRES AND CABLES**

- A. Conductor Material: Copper
- B. All conductor sizes shall be designated by American Wire Gauge (AWG) or Thousand Circular Mills (kcmil).
- C. The date of manufacture shall not exceed six months prior to delivery to the site.
- D. All conductors shall be stranded. Minimum wire size shall be No. 12 AWG unless otherwise specified. Exception: minimum wire size for control circuits shall be No. 14 AWG.
- E. Branch circuit conductors shall be type THHN/THWN-2 (90 degrees C).
- F. Feeder conductors 6 AWG and larger shall be type XHHW-2 (90 degrees C).
- G. All conductors shall be color-coded as follows:

|           | 480/277 Volts | 208/120 Volts | 240/120 Volts  |
|-----------|---------------|---------------|----------------|
| Phase "A" | Brown         | Black         | Match Existing |
| Phase "B" | Orange        | Red           | Match Existing |
| Phase "C" | Yellow        | Blue          | -              |
| Neutral   | Gray          | White         | White          |
| Ground    | Green         | Green         | Green          |

- H. Where color other than black is not an integral part of insulation use 3M No. 35 tapes in the same color code to identify both ends of conductors No. 8 and larger. Use other colors as required to identify control or other special circuits. Ground conductors will have green insulation for 1/0 or smaller conductors, green tapes on other colors of insulation are NOT acceptable. All neutral wires shall be white with phase color stripe (for branch circuits) running along entire length.

**2.03 CONNECTORS AND SPLICES**

- A. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated. Comply with Project's installation requirements.

**EXECUTION**

**3.01 EXAMINATION**

- A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables. Do not proceed with installation until unsatisfactory conditions have been corrected.

**3.02 WIRE AND CABLE INSTALLATION**

- A. All wiring shall be installed in accordance with the California Electrical Code. All wiring shall be installed in conduit except where other raceway systems or methods are specifically shown on the drawings or required by the specifications.
- B. Provide a dedicated neutral for each branch circuit phase conductor. Neutrals shall not be shared except where multi-wire circuits are specifically indicated. Branch circuit neutral color stripe shall match color of phase wire to which it is associated.
- C. Thoroughly clean out all wireways and see that all parts are perfectly dry before pulling any wires. Lubricants shall be designed for use with the insulation type used and the temperature conditions. A mechanical wire puller may be used where directed, in which case a lubricant shall be used. Any wire damaged as a result of installation under this section shall be pulled out and replaced with new at no additional cost to the City.
- D. Make all connections necessary to properly complete the electrical wiring. Connections shall be made only in outlet boxes, or in switchboards, or panels having sufficient code-sized gutter space.
- E. Connections to equipment or busbars shall be made with approved solderless compression type copper lugs for all wires No. 8 AWG and larger. Special lugs or connections shall be as shown on the plans. Binding screws may be used for size No. 10 and smaller. Where stranded wire is connected to binding screws, nylon, self-insulated, ring tongue, pressure type terminals or equal, shall be used on the wire. Soldering will not be an acceptable method of connecting any power

conductors. Clipping of strands from standard cable to fit connectors and terminal lugs shall not be permitted.

- F. All conductors shall be continuous from outlet to outlet and no splices shall be made except within outlet or junction boxes. At least 12" of wire shall be left at outlet boxes for connecting fixtures and devices.
- G. No wire smaller than No. 10 AWG shall be used, except for signal or control systems, or where otherwise indicated. No. 8 AWG or larger wire shall be used for 480 volt branch circuits and feeders in excess of 200 feet in length and where indicated. This is intended to reduce branch circuit voltage drop and takes precedence over No. 10 wire size indicated in drawings. Record drawings shall indicate installed wire size.
- H. Wires entering switchboards, panelboards and control panels shall be of sufficient length for proper termination without splicing within the equipment enclosure. Any wires installed that require splicing for terminating shall be removed and replaced with ones of the proper length. Wires shall be trained and supported in neat bundles.
- I. Wiring Bundles or Harnesses:
  - 2. Multiple wires in bundles or harnesses terminating in control panels, switchboards, panelboards, etc. shall be bundled, trained and laced to achieve a neat and workmanlike appearance.
  - 3. Surplus wire protruding from the harness for termination shall be trimmed to proper length. Do not fold and stuff surplus wires into wiring gutters.
  - 4. Wires exiting the bundle or harness shall be carefully trained at a 90 degree angle to the termination point.
- J. Permanent tags shall be connected to all feeders in intermediate pullboxes (where used) to provide identification for future use.
- K. Cable Terminating: Terminations of insulated power and lighting cables shall be protected from accidental contact, deterioration of coverings, and moisture by the use of terminating devices and materials. Terminations shall be made using materials and methods as indicated or specified herein or as designated by the written instruction of the cable manufacturer and termination kit manufacturer.
- L. Identification: Provide wire markers on each conductor in electrical panel, switchboard, pull box, outlet and junction box. This includes all disconnects and terminations. If more than one neutral conductor is present, mark each related circuit and panel number.

### **3.03 CONNECTIONS**

- A. Conductor Splices: Avoid splices wherever possible.
- B. Wiring at Outlets: Install conductor at each outlet, with at least 12 inches (300 mm) of slack.
- C. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.
- D. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

### **3.04 FIELD TESTS**

MAY 18, 2015

- A. As an exception to requirements that may be stated elsewhere in the contract, the Engineer shall be given five (5) working days notice prior to each test.
- B. Testing Equipment: The testing equipment and devices used in performing the required tests shall have a calibration sticker affixed to the device stating the date when calibrated, date due for re-calibration, and the signature of the individual who did the calibration. In addition to the sticker a certificate shall also contain the brand name and the serial number of the device.
- C. Insulation Resistance Test for System 600 Volts and Less: After all wiring is completed and connected ready for operation, but prior to placing system in service and before any branch circuit breakers are closed, insulation resistance tests shall be made in all feeder and subfeeder circuits. The insulation resistance between conductors and between each conductor and ground shall be measured. Measurements shall be made with an instrument capable of making measurements at an applied potential of 500 volts. Readings shall be taken after the voltage has been applied for a minimum of one minute. The minimum insulation resistance for circuits of No. 12 AWG conductors shall be 1,000,000 ohms. For circuits of No. 10 AWG or larger conductors, a resistance based on the allowable ampacity of the conductor as fixed by the CEC shall be as follows:
  - 1. 25 through 40 amperes 250,000 ohms
  - 2. 51 through 100 amperes 100,000 ohms
  - 3. 101 through 200 amperes 50,000 ohms
  - 4. 201 through 400 amperes 25,000 ohms
  - 5. 401 through 800 amperes 12,000 ohms
  - 6. Over 800 amperes 5,000 ohms
- D. Test Report (Submit four (4) copies in writing):
  - 1. 600 volt cables (identify each cable and test results).

**END OF SECTION 26 0519**

**SECTION 26 0526**

**GROUNDING AND BONDING**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.
- B. Section 260500 – General Electrical Requirements.
- C. Section 260510 – Basic Materials and Methods.
- D. Section 260519 – Wires and Cables

**1.2 SUMMARY**

- A. This Section specifies the minimum materials and performance standards for grounding and bonding.
- B. Sections include:
  - 1. Grounding electrodes and conductors.
  - 2. Grounding electrodes.
  - 3. Equipment grounding conductors.
  - 4. Bonding.

**1.3 REFERENCES**

- A. American National Standards Institute (ANSI) Publication C2-97 – National Electrical Safety Code.
- B. Institute of Electrical and Electronic Engineers (IEEE) Publication 142 – Recommended Practice for Grounding of Industrial and Commercial Power Systems.
- C. National Fire Protection Association (NFPA) Publication:
  - 1. 70 – National Electrical Code.
  - 2. 780 – Lightning Protection Code.
- D. Underwriters Laboratories, Inc. (U.L.) Publication:
  - 1. 83 - Thermoplastic Insulated Wires.
  - 2. 467 - Grounding and Bonding Equipment.
  - 3. 486A - Wire Connectors and Soldering Lugs for Use with Copper Conductors.

**1.4 REGULATORY REQUIREMENTS**

- A. The Contractor shall conform to requirements of the California Electrical Code.
- B. The Contractor shall furnish products listed and classified by Underwriters Laboratories, Inc. or testing firm acceptable to the City as suitable for purpose specified and shown.

**1.5 PERFORMANCE REQUIREMENTS**

MAY 18, 2015

- A. Grounding system resistance shall be 5 ohms or less unless otherwise indicated. Lengthen ground rods or provide additional rods where necessary to meet this requirement.

#### **1.6 SUBMITTALS**

- A. The following information shall be submitted for review and approval in accordance with Section 260500, "General Electrical Requirements".
  - 1. Catalog Cut:
    - a. Ground Rod.
    - b. Ground Connectors
  - 2. Ground resistance from each major piece of equipment to the ground electrode. Equipment shall include, but not be limited to the following:
    - a. Main Switchboard
    - b. Sports Lighting poles
  - 3. Thermal (or Exothermic) Weld Process

#### **1.7 WARRANTY**

- A. Warranty shall comply with the provisions of Section 260500, "General Electrical Requirements".

### **PART 2 - PRODUCTS**

#### **2.01 SEPARATELY DERIVED SYSTEMS**

- A. A grounding electrode conductor, sized in accordance with Section 250.66 of CEC for the derived phase conductors, shall be used to bond the grounded conductor of the derived system to the grounding electrodes

#### **2.02 GROUND RODS**

- C. Provide copper clad steel rods with adequate diameter to permit driving full length of the rod in the earth but not less than 3/4-inch. Length shall be 10-feet unless otherwise indicated. Provide couplings and driving pins where required.

#### **2.03 EXOTHERMIC WELDS**

- D. Provide exothermic welds which require no outside source of heat or power. Welds shall be accomplished by reduction of copper oxide and aluminum powered metals in a mold. Weld shall provide connection of conductor to device, device to device or conductor to conductor as required. Weld shall be of proper size to provide continuous rating of devices or conductors which are connected.

#### **2.04 GROUNDING AND BONDING CONDUCTORS**

- E. Grounding and bonding conductors shall be sized in accordance with CEC Table 250.122 for equipment grounding conductors and with CEC Table 250.66 for grounding electrode and equipment bonding conductors.

### **PART 3 - EXECUTION**

### 3.01 INSTALLATION

- A. Make mechanical and electrical contact at all panelboards, outlet boxes, junction boxes, pullbox covers, and wherever the conduit run is connected. Permanently and effectively ground all conduit and other equipment as required by all applicable codes, regulations and standards.
- B. Install a code sized green insulated equipment ground wire in all feeder and branch circuit conduits unless a larger size is indicated on plans.
- C. System neutrals shall only be grounded at the main service and separately derived systems. The service neutral shall be connected to the grounding electrodes indicated. Neutral conductors of separately derived systems shall be connected to the grounding electrodes indicated.
- D. Drive ground rods full length in a depression at least six (6)-inches below finished grade. When more than one (1) rod is driven, space them at least the full length of the rod.
- E. Make all grounding connections which are to be buried or otherwise normally inaccessible by thermal welds or by using a mechanical connector listed for direct burial in earth. Thermal welds which have puffed up or shown convex surfaces (indicating improper cleaning at the surfaces) are not acceptable. No mechanical connector is required at the thermal weldments.
- F. Provide a "UFER" ground for electrical service per CEC 250.52 (C), consisting of a minimum of 20 feet of reinforcing bar minimum 1/2-inch diameter (#4 bar), or 25 feet of bare stranded No. 4 AWG copper wire, embedded in concrete (at switchboard slab) so that all portions of the cable are between 2 inches and 4 inches from the earth and with the center of the cable bonded to the ground rod.
- G. The green insulated ground (bond) wire shall be spliced together within all outlet boxes. A green insulated bonding jumper shall be provided from the splice to the box body. Attachment to the box body shall be provided using a tapped #10-31 x 3/8" screw minimum. A green insulated bonding jumper shall be provided from the splice to the receptacle ground screw including all self-grounding receptacle.

### 3.02 TESTS

- F. All testing shall be performed by an independent testing agency.
- G. As an exception to requirements that may be stated elsewhere in the contract, the Engineer shall be given five (5) working days notice prior to each test.
- H. The testing equipment and devices used in performing the required tests shall have a calibration sticker affixed to the device stating the date when calibrated, date due for re-calibration, and the signature of the individual who did the calibration. In addition to the sticker, a certificate shall also contain the brand name and the serial number of the device.
- I. Ground Rod Test: Test ground rods for ground resistance value before any wire is connected. A portable testing megger shall be used to test each ground or group of grounds. The auxiliary or reference ground rods shall be 3/4-inch copper clad steel, not less than 4-feet in length and driven 3-1/2 feet deep, and shall be installed in a straight line from the ground being tested. Number 14 AWG stranded wire leads with at least 600 volt rubber insulation shall be connected to binding post on the instrument.
  - 1. When there is more than one (1) ground within a circle of 10-feet at a particular location, the reference rods as driven for the "first" test shall be used for tests on the other rods without changing their location. The instrument shall be equipped with a meter reading directly in ohms or fractions thereof to indicate the ground value of the ground electrode under test. Provide one (1) copy of the megger

MAY 18, 2015

manufacturer's directions for use of the ground megger indicating the methods to be used.

J. Test Report (Submit four (4) copies in writing):

2. Grounding electrodes and systems (identifying electrodes and systems, each test).

**END OF SECTION 26 0526**

**SECTION 26 0543**

**RACEWAYS AND FITTINGS**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.
- B. Section 260500, "General Electrical Requirements"
- C. Section 260510, "Basic Electrical Materials and Methods"

**1.02 SUMMARY**

- A. The following information shall be submitted for review and approval in accordance with Section 260500, "General Electrical Requirements".
- B. Conduits and tubing for conductors shall be delivered to the site in standard lengths with each length bearing the manufacturer's trademark or stamp and U.L. labeled.
- C. Warning Tape: The Contractor shall submit a ten (10) foot sample of the warning tape. The sample will be retained for comparison with the installed tape.
- D. Field Test Reports:
  - 1. Provide field test report for compaction tests.
- E. Shop Drawings:
  - 2. Precast or Factory-Fabricated Underground Utility Structures:
    - a. Include plans, elevations, sections, details, attachments to other work, and accessories.
    - b. Include duct entry provisions, including locations and duct sizes.
    - c. Include reinforcement details.
    - d. Include frame and cover design.
    - e. Include grounding details.
    - f. Include dimensioned locations of pulling-in irons.
- F. Product Certificates: For concrete and steel used in precast concrete handholes, as required by ASTM C 858.

**1.03 REFERENCES**

- A. National Electrical Manufacturer's Association (NEMA) Publications.
- B. American Society for Testing and Materials (ASTM) Publications.
- C. American Association of State Highway and Transportation Officials (AASHTO).
- D. National Fire Protection Association (NFPA) Publications.
- E. State of California Public Utilities Commission (Cal P.U.C.) Publications.
- F. Underwriters Laboratories, Inc., (UL) Publications.

MAY 18, 2015

#### **1.04 WARRANTY**

- A. Warranty shall comply with the provisions of Section 260500, "General Electrical Requirements".

### **PART 2 - PRODUCTS**

#### **2.01 CONDUITS AND FITTINGS**

- A. Standard weight rigid galvanized steel (RGS) conduit shall be hot dipped galvanized or sherardized. All fittings shall be of the screw thread type. Couplings, locknuts, bushings, etc., shall be hot dipped galvanized or sherardized. Where indicated, rigid steel conduit shall be PVC coated (minimum 40 mils).
- B. Flexible conduit shall be galvanized steel. Where used in damp or wet locations or where indicated herein, it shall be of the liquid-tight type with outer neoprene jacket and suitable liquid-tight fittings.
- C. Straight lengths of rigid non-metallic conduit shall be polyvinylchloride (PVC) Schedule 40, U.L. listed. All couplings, fittings, solvent cement, etc., shall be manufactured specifically for the type of material with which they are used. Plastic conduit shall be stored on a flat surface and protected from direct sunlight.
- D. PVC coated rigid metal conduit couplings with green urethane interior coating to connect coated conduit sections and/or parts, as manufactured by Perma-Cote or approved equal.
- E. All PVC elbows shall be Schedule 80.

#### **2.02 WARNING TAPE**

- A. Warning tape shall be 5.5 mil composition film, 6-inches wide containing one layer of metalized foil laminated between two (2) layers of inert plastic film specifically formulated for prolonged use underground. Tape shall be highly resistant to alkalis, acids and other destructive agents found in the soil. Warning tape shall bear a continuous printed message warning of the exact location of underground installations. This message shall be in permanent ink specifically formulated for prolonged use underground. Tape shall have black letter (minimum ½ inch high) on red background with the message "ELECTRICAL" printed on twelve (12)-inch centers for the entire length of the tape.

#### **2.03 PULLROPE**

- A. The pull rope shall be polypropylene with a minimum tensile strength of 200-pounds.

#### **2.04 PRECAST CONCRETE HANDHOLES AND PULL BOXES**

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  - 1. Christy Concrete Products.
  - 2. Elmhurst-Chicago Stone Co.
  - 3. Oldcastle Precast Group.
  - 4. Rinker Group, Ltd.
  - 5. Riverton Concrete Products.
  - 6. U.S. Precast Group
  - 7. Utility Concrete Products, LLC.

MAY 18, 2015

8. Utility Vault Co.
  9. Wausau Tile Inc.
- F. Comply with ASTM C 858 for design and manufacturing processes.
- G. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or pull box.
1. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing stainless steel bolts.
  2. Coordinate remaining subparagraphs below with Drawings.
  3. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
  4. Cover Legend: Molded lettering, "ELECTRIC."
- Configuration: Units shall be designed for flush burial and have precast bottom unless otherwise indicated. Exception: Units smaller than 24 inches wide by 36 inches long shall have open bottom.
5. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
    - a. Type and size shall match fittings to duct or conduit to be terminated.
    - b. Fittings shall align with elevations of approaching ducts and be located near interior corners of handholes to facilitate racking of cable.
  6. Handholes and pull boxes 12 inches wide by 24 inches long and larger shall have inserts for pulling-in irons installed before concrete is poured.
  7. Provide grounding lug on underside of metallic cover. Lug shall be bronze and attached to cover with stainless steel bolt. Cast iron covers shall be drilled and tapped for attachment bolt.

### **PART 3 - EXECUTION**

#### **3.01 USES PERMITTED**

- A. Rigid Galvanized Conduit (RGS):
1. Where exposed to weather (including rooftop and under canopy locations).
  2. For roof penetrations.
  3. In concrete or masonry construction.
  4. For all or any portion of exposed conduits less than four (4)-feet above finished floor or grade.
  5. Where shown on drawings or indicated herein.
- B. Liquid-tight Flexible Metal Conduit:
1. Final connections of conduit systems to all motors, generators and direct wired vibrating equipment (including transformers) for interior and exterior locations not to exceed three (3)-feet long.
  2. At seismic separations or building expansion joints.

C. Rigid Non-metallic Conduit (PVC):

1. Rigid non-metallic conduit (PVC-40) may be installed in place of PVC coated RGS underground, outside of the building foundation.
2. Concrete or masonry walls or concrete slabs except bottom floor.
3. Where shown on drawings.

D. PVC Elbows:

1. Conduit stub-ups from underground including the final 90 degree sweep and the riser.
2. Underground bends or sweeps in PVC conduit for vertical risers shall be according to the following formula, as a minimum: For conduits under 2 inch diameter sweep radius shall be six times the diameter; for conduits 2 inch and larger diameter sweep radius shall be twelve times the diameter.
3. Where shown on drawings.
4. The smaller inside diameter of Schedule 80 elbows shall be reamed at the connection to Schedule 40 conduit to prevent damage to conductor installation.

E. Handholes and Pull Boxes for 600 V and Less:

1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete, AASHTO HB 17, H-20 structural load rating.
2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Precast concrete, AASHTO HB 17, H-20 structural load rating.
3. Units in Sidewalk and Similar Applications with a Safety Factor for Non-deliberate Loading by Vehicles: Precast concrete, AASHTO HB 17, H-10 structural load rating.
4. Cover design load shall not exceed the design load of the handhole or pull box.

**3.02 CONDUIT SIZES**

- A. The minimum conduit size shall be 1-inch for lighting and power branch circuit wiring.
- B. Condulets for conduits larger than 1-1/2 inch I.D. shall be of the mogul design secured within 6 inches of each conduit connection.

**3.03 INSTALLATION**

- A. All conduits shall contain an insulated equipment ground wire whether indicated or not. The equipment ground wire shall be sized in accordance with Table 250.122 of the CEC, and increased proportionally for voltage drop, unless otherwise noted.
- B. All conduit systems shall be mechanically and electrically continuous.
- C. Conduits shall not be encased in concrete floor slabs on grade.
- D. Seal service entrance conduits and all underground conduit runs with "Duct Seal" or equal. Seal in junction boxes, handholes and above-ground enclosures.
- E. Conduits shall be run concealed, except in certain approved and indicated locations. Conduits shall be grouped in neat parallel lines following the lines of the building structure.

- F. The ends of all conduit shall be square, carefully reamed out to full size, shouldered in the fittings, and bushed or capped wherever stubbed.
- G. Upon completion of any run of conduit, test the run and see that it is free of obstruction. Plug each end with conduit pennies and bushings and leave plugged until ready to pull wire or cable.
- H. Not more than four (4) 90 degrees ells or bends or the equivalent shall be used in any single run of conduit. Conduit shall enter through side walls of handholes, except may enter bottom of open-bottom handholes or pull boxes if degrees of bend are not exceeded.
- I. Conduit installed on equipment shall not obstruct any removable panel, access door, or control. Control apparatus, outlet, junction, and pullboxes, shall be installed so as not to interfere with any piping, fixtures, or equipment.
- J. Precast Concrete Handhole and Pull Box Installation:
  - 5. Comply with ASTM C 891 unless otherwise indicated.
  - 6. Install units level and plumb and with orientation and depth coordinated with connecting ducts, to minimize bends and deflections required for proper entrances.
  - 7. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
  - 8. Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers in other locations 1 inch above finished grade.
  - 9. Bond equipment ground conductor to metallic cover with No. 6 AWG green insulated jumper with 3'-0" slack extending above grade level.
  - 10. Field paint cast iron covers with a light-colored paint as selected by the Engineer.

### **3.04 EARTHWORK**

- A. Excavate trenches to depths indicated except that if hard material is encountered, the provisions of the contract respecting an adjustment for changed conditions shall apply, subject to the requirements of notification thereunder being given. Hard material shall be defined as solid rock, firmly cemented unstratified masses or conglomerate deposits possessing the characteristics of solid rock not ordinarily removed without systematic drilling and blasting, and any boulder, masonry, or concrete (except pavement), exceeding ½-cubic yard in volume.
- B. Excavated materials not required or suitable for backfill shall be removed from the project site. Provide sheeting and shoring as necessary for protection of work and safety of personnel. Remove water from excavation by pumping or other approved method.
- C. Backfilling: Provide a plastic warning tape approximately six (6)-inches below the top of the trench in the backfill. Backfill shall be placed in layers not more than six (6)-inches thick and each layer shall be compacted. Backfilling shall be free from roots, wood scrap material, and other vegetable matter and refuse. Compaction of backfill shall be to 90 percent of maximum density, except top 12-inches of backfill shall be compacted to 95 percent.
  - 11. Backfilling around structures shall consist of earth, loam sandclay, or sand and gravel, free from large clods of earth or stones over one inch in size. Backfill materials shall be placed symmetrically on all sides in loose layers not more than nine (9)-inches deep. Each layer shall be moistened, if necessary, and compacted with mechanical or hand tampers to specified compaction.

MAY 18, 2015

**3.05 GROUNDING**

A. Grounding shall be accordance with Section 260526, "Grounding and Bonding".

**END OF SECTION 260543**

**SECTION 26 0573**

**OVERCURRENT PROTECTIVE DEVICES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.

**1.2 REFERENCES**

- A. National Electrical Manufacturers Association FU 1.
- B. California Electrical Code (CEC).

**1.3 SUMMARY**

- A. Circuit breakers (each type and style).
- B. Circuit breaker handle padlock assembly.
- C. Enclosures (each type and style).

**1.4 WARRANTY**

- A. Warranty shall comply with the provisions of Section 260500, "General Electrical Requirements".

**PART 2 - PRODUCTS**

**2.1 CIRCUIT BREAKERS**

- A. Circuit breakers for main service equipment and panelboards shall be bolt-on type. Handle ties and dual, quad or tandem breakers are not acceptable. Mounting hardware, accessories, faceplates, enclosures, etc., shall be provided as required. Each and every circuit breaker shall be provided with a handle padlock attachment. This attachment shall allow the circuit breaker to be padlocked in either the "ON" or "OFF" position.
- B. Circuit breakers shall be quick-break on manual and automatic operation, and the handle mechanism shall be trip-free to prevent holding contact closed against a short circuit or sustained overload. Contacts shall be of high pressure butt-type and shall be made of a silver alloy material. Arc chutes shall be provided. Automatic thermal and magnetic tripping devices shall be located in each pole for the breaker.
- C. Short circuit interrupting capacity shall be as indicated on the plans and shall in no case be less than 10,000A symmetrical at 120/240 volts, or 14,000A symmetrical at 277/480 volts. Provide circuit breakers fully rated for 110% of the calculated short circuit fault current at their installed location. Series-rated breakers are not acceptable.
- D. Circuit breakers with frame sizes 225A and larger shall have electronic trip units with adjustable long time and short time pickup, long time and short time delay and instantaneous trip.
- E. Where indicated or required by code, circuit breakers shall have integral ground fault protection for equipment.

MAY 18, 2015

- F. Circuit breakers installed in existing distribution panels or switchboards shall be fully compatible with existing bus structures. They shall have short circuit interrupting capacity equal to or greater than existing equipment ratings, but in no case less than indicated.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Bolted connections shall be torque-tightened to manufacturer's specifications.
- B. Clipping of wires from standard cable to fit connector shall not be permitted. Appropriate connecting device shall be provided for multiple or oversized cable connections.

#### **3.2 TESTS**

- A. Each and every circuit breaker shall be operated under load a minimum of three (3) times.
- B. Test switches a minimum of three (3) times to ensure correct operation.
- C. Measure contact resistance and perform trip unit test on all circuit breakers 100A trip and larger. Submit typewritten report to City. Correct all deficiencies and retest. Test report entries shall identify each circuit breaker and metering pedestal.

**END OF SECTION 26 0573**

MAY 18, 2015

## **SECTION 26 2416 PANELBOARDS**

### **GENERAL**

#### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.

#### **1.02 SUMMARY**

- A. Section Includes:
  - 1. Lighting and appliance branch-circuit panelboards.

#### **1.03 DEFINITIONS**

- A. CBC: California Building Code (CCR Title 24, Part 2)
- B. CEC: California Electrical Code (CCR Title 24, Part 3)

#### **1.04 ACTION SUBMITTALS**

- A. Product Data: For each type of panelboard, switching and overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
  - 1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
  - 2. Detail enclosure types and details for types other than NEMA 250, Type 1.
  - 3. Detail bus configuration, current, and voltage ratings.
  - 4. Short-circuit current rating of panelboards and overcurrent protective devices.
  - 5. Include evidence of NRTL listing for series rating of installed devices.
  - 6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
  - 7. Include wiring diagrams for power, signal, and control wiring.
  - 8. Include time-current coordination curves, including manufacturer's curve numbers for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device

#### **1.05 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For qualified testing agency.
- B. Field Quality-Control Reports:
  - 1. Test procedures used.
  - 2. Test results that comply with requirements.

MAY 18, 2015

3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.
- C. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

#### **1.06 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  1. Keys: Two spares for each type of panelboard cabinet lock.  
Circuit Breakers Including GFCI Types: Two spares for each panelboard.

#### **1.07 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Member Company of NETA or an NRTL.
  1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.
- B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.
- C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.
- E. Comply with NEMA PB 1.
- F. Comply with CEC.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Handle and prepare panelboards for installation according to NECA 407 "Recommended Practice for Installing and Maintaining Panelboards."

#### **1.09 PROJECT CONDITIONS**

- A. Environmental Limitations:
  1. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
    - a. Ambient Temperature: Not exceeding 23 deg F to plus 104 deg F.
    - b. Altitude: Not exceeding 6600 feet.
- B. Service Conditions: NEMA PB 1, usual service conditions, as follows:
  1. Ambient temperatures within limits specified.
  2. Altitude not exceeding 6600 feet.
- C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by City or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

MAY 18, 2015

1. Notify City's Representative no fewer than five days in advance of proposed interruption of electric service.
2. Do not proceed with interruption of electric service without City's written permission.
3. Comply with NFPA 70E.

#### **1.10 COORDINATION**

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

#### **1.11 WARRANTY**

- A. When warranties are required, verify the City's counsel that special warranties stated in this article are not less than remedies available to City under prevailing local laws. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 6-8.3 for Warranty
- B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

Warranty Period: Five years from date of Substantial Completion.

### **PART 2 PRODUCTS**

#### **2.01 GENERAL REQUIREMENTS FOR PANELBOARDS**

- A. Enclosures: Flush- and/or surface-mounted cabinets as indicated on drawings.
  1. Rated for environmental conditions at installed location.
    - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
    - b. Outdoor Locations: NEMA 250, Type 3R.
  2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
  3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
  4. Finishes:
    - a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
    - b. Back Boxes: Galvanized steel.
    - c. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.

MAY 18, 2015

5. Directory Card: Inside panelboard door, mounted in metal frame with transparent protective cover.
- B. Incoming Mains Location: As indicated on drawings.
- C. Phase, Neutral, and Ground Buses:
  1. Material: Hard-drawn copper, 98 percent conductivity.
  2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
- D. Conductor Connectors: Suitable for use with conductor material and sizes.
  1. Material: Tin-plated copper.
  2. Main and Neutral Lugs: Mechanical type.
  3. Ground Lugs and Bus-Configured Terminators: Mechanical type.
- E. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- F. Panelboard Short-Circuit Current Rating: Fully rated to interrupt 110% of symmetrical short-circuit current available at terminals.
- G. Supply a minimum 10% spare breaker space in all panels.
- H. Provide 10% more ampacity for electrical panel above calculated load requirements.
- I. Provide one ¾ inch conduit for three spares or spaces in all flush mounted power or lighting panel boards. Routed conduits to accessible space above ceiling.
- J. All panels shall have bolt on breakers.

## **2.02 PERFORMANCE REQUIREMENTS**

- A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to CBC and SEI/ASCE 7.
  1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified"

## **2.03 ACCEPTABLE MANUFACTURERS**

- A. 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

## **2.04 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS**

- A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
  1. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

MAY 18, 2015

2. Doors: Concealed hinges; door-in-door construction; secured with flush latch with tumbler lock; keyed alike.

### **2.05 ACCESSORY COMPONENTS AND FEATURES**

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.
  1. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

## **EXECUTION**

### **3.01 EXAMINATION**

- A. Receive, inspect, handle, and store panelboards according to NECA 407.
- B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION**

- A. Install panelboards and accessories according to NECA 407.
- B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.
- C. Comply with mounting and anchoring requirements indicated on the drawings. Panelboard shall be mounted within a NEMA 3R equipment enclosure as indicated.
- D. Mount top of trim 72 inches above finished floor unless otherwise indicated.
- E. Mount panelboard cabinet plumb and rigid without distortion of box.
- F. Install overcurrent protective devices and controllers not already factory installed.
  1. Set field-adjustable, circuit-breaker trip ranges using settings determined by the Engineer. Provide 5 day notice to Engineer before adjusting trip settings.
- G. Install filler plates in unused spaces.
- H. Comply with NECA 1.

### **3.03 IDENTIFICATION**

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260510 "Basic Electrical Materials and Methods".
- B. Create a directory to indicate installed circuit loads; incorporate City's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260510 "Basic Electrical Materials and Methods".
- D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Section 260510 "Basic Electrical Materials and Methods".

### 3.04 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
  - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- D. Acceptance Testing Preparation:
  - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
  - 2. Test continuity of each circuit.
- E. Tests and Inspections:
  - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
  - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- F. Panelboards will be considered defective if they do not pass tests and inspections.
- G. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action. Infrared testing reports shall include color photos indicating device temperature test results.

### 3.05 ADJUSTING

- A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges.
- C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.
  - 1. Measure as directed during period of normal system loading.
  - 2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
  - 3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
  - 4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

**END OF SECTION 26 2416**

**SECTION 26 5668**  
**SPORTS FIELD LIGHTING**

**PART 1 -GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions.
- B. The provisions of Section 260500, "General Electrical Requirements", and Section 260510, "Basic Electrical Materials and Methods", apply to this Section.

**1.2 SUMMARY**

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the performance and design standards for Tierrasanta Community Park. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.
- C. The sports lighting will be for the following fields:
  - 1. Softball Fields 1 & 2 – 200'/200'/200' with 60' base-path
  - 2. General Area – 464' x 275'
- D. The primary goals of this sports lighting project are:
  - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed for a period of 25-years.
  - 2. **Environmental Light Control:** It is the primary goal of this project to minimize spill light and glare.
  - 3. **Life-cycle Cost:** In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated, and the field(s) should be proactively monitored to detect fixture outages over a 25-year life-cycle. To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system.
  - 4. **Control and Monitoring:** To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system. Field(s) should be proactively monitored to detect fixture outages over a 25-year life-cycle.

**1.3 LIGHTING PERFORMANCE**

- A. **Performance Requirements:** Playing surfaces shall be lit to an average constant light level and uniformity as specified in the chart below. Light levels shall be held constant for 25-years. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Average illumination level shall be measured in accordance with the IESNA LM-5-04. Light levels shall be guaranteed from the

first 100 hours of operation for the maximum warranty period. Light levels assume existing lighting on existing cell pole B2 are completely in operation.

| Area of Lighting          | Average Constant Light Levels | Max to Min Uniformity Ratio | Grid Points | Grid Spacing |
|---------------------------|-------------------------------|-----------------------------|-------------|--------------|
| Softball Field - Infield  | 30 footcandles                | 2.5:1                       | 25          | 20' x 20'    |
| Softball Field - Outfield | 20 footcandles                | 3:1                         | 73          | 20' x 20'    |
| General Area              | 20 footcandles                | 4:1                         | 160         | 30' x 30'    |

1. Lumen maintenance control strategy: A constant light system shall use automatic power adjustments to achieve a lumen maintenance control strategy as described in the IESNA Lighting Handbook 10th Edition, Lighting Controls Section, page 16-8: "Lumen maintenance involves adjusting lamp output over time to maintain constant light output as lamps age, and dirt accumulation reduces luminaire output. With lumen maintenance control, either lamps are dimmed when new, or the lamp's current is increased as the system ages."
  2. Independent Test Report: Manufacturers bidding any form of a constant light system must provide an independent test report certifying the system meets the lumen maintenance control strategy above and verifying the field performance of the system for the duration of the useful life of the lamp based on lamp replacement hours. Report shall be signed by a licensed professional engineer with outdoor lighting experience. If report is not provided at least 10 days prior to bid opening, the manufacturer shall provide the initial and maintained designs called for in this specification under Alternate Manufacturers, section 1.8.
  3. Project References: Manufacturers bidding any form of a constant light system must provide a minimum of five (5) project references within the state of California that have been completed within the last calendar year utilizing this exact technology. Manufacturer will include project name, project city, and if requested, contact name and contact phone number for each reference.
- B. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, the pole mounting heights from the playing field surface shall be 60' for poles A1 – A4, 70' for poles B1, B3-B4, and 70' for poles P1 – P2. Pole B2 is an existing cell pole with lights which will remain.

**1.4 ENVIRONMENTAL LIGHT CONTROL**

- A. Spill Light Control: Maximum horizontal footcandles at the property line shall not exceed 7.0; and shall not exceed 3.0 at 15' beyond the property line. Footcandle readings shall be taken at 30-foot intervals along the specified line. Average illumination level shall be measured in accordance with the IESNA LM-5-04 at the first 100 hours of operation.

**1.5 LIFE-CYCLE COSTS**

- A. Energy Consumption: The average kWh consumption for the field lighting system shall be 67.25 or less (includes operation of existing lighting on existing cell pole B2 being completely in operation).
- B. Complete Lamp Replacement: Manufacturer shall include all group lamp replacements required to provide 25-years of operation based upon 1200 usage hours per year.

- C. **Preventative and Spot Maintenance:** Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25-years from the date of equipment shipment. Individual lamp outages shall be repaired when the usage of any field is materially impacted. City agrees to check fuses in the event of a luminaire outage.
- D. **Remote Monitoring System:** System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the City of outages within 24 hours, or the next business day. The controller shall determine switch position (Manual or Auto) and contactor status (open or closed).
- E. **Remote Lighting Control System:** System shall allow City and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.
  - 1. The City may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields, to only having permission to execute “early off” commands by phone.
  - 2. Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.
- F. **Management Tools:** Manufacturer shall provide a web-based database of actual field usage and provide reports by facility and user group.
  - 1. **Hours of Usage:** Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the City.
    - a. **Cumulative hours:** shall be tracked to show the total hours used by the facility
    - b. **Current lamp hours:** shall be tracked separately to reflect the amount of hours on the current set of lamps being used, so relamping can be scheduled accurately
- G. **Communication Costs:** Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25-years.
- H. **25-Year Life-cycle Cost:** Manufacturer shall submit 25-year life-cycle cost calculations as follows. Equipment price and total life-cycle cost shall be entered separately on bid form.

|    |   |   |  |
|----|---|---|--|
| 1. | <b>Luminaire energy consumption</b><br>___ # of luminaires x ___ kW demand per luminaire x \$.10 kWh rate x 1200 annual usage hours x 25-years                          |   |  |
| 2. | <b>Cost for spot relamping and maintenance over 25-years</b><br>Assume 7.5 repairs at \$500 each if not included with the bid   | + |  |
| 3. | <b>Cost to relamp all luminaires during 25-years</b><br>1200 annual usage hours x 25-years / 2,100 hours x \$125 lamp & labor x # fixtures if not included with the bid | + |  |
| 4. | <b>Extra energy used without base bid automated control system</b><br>\$ Energy consumption in item a. x 5% if control system not included with the bid                 | + |  |
|    | <b>TOTAL 25-Year Life-cycle Operating Cost</b>  | = |  |

**1.6 WARRANTY AND GUARANTEE**

- A. Comply with 2012 Standard Specifications for Public Works Construction ‘The GREENBOOK’ and 2012 City Supplement ‘The WHITEBOOK’, Section 6-8.3 for Warranty.
- B. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25-years OR for the maximum hours of coverage based on the estimated annual usage, whichever occurs first. Warranty shall guarantee light levels; lamp replacements; system energy consumption; monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations. Group lamp replacements for constant light systems must occur in accordance with the independent test report provided by the manufacturer; alternate systems must relamp every 2,100 hours.

**1.7 DELIVERY TIMING**

- A. Equipment On-Site: The equipment must be on-site 4 to 6 weeks from receipt of approved submittals and receipt of complete order information.

**1.8 SUBMITTAL REQUIREMENTS**

- A. Approved Product: Musco’s Green Generation Lighting® sports lighting system is the approved product. All substitutions must provide a complete submittal package for approval as outlined in Submittal Information at the end of this section no later than 5 Working Days after the determination of the Apparent Low Bidder. Special manufacturing to meet the standards of this specification may be required. An addendum will be issued prior to bid listing any other approved lighting manufacturers and designs.
- B. Design Approval: The City / engineer will review pre-bid shop drawings from the manufacturers to ensure compliance to the specification. If the design meets the design requirements of the specifications, a letter will be issued to the manufacturer indicating approval for the specific design submitted.

**1.9 ALTERNATE SYSTEM REQUIREMENTS**

- A. Compliance to Specifications: Acceptance of a bid alternate does not negate the contractor and lighting manufacturer’s responsibility to comply fully with the requirements of these specifications. Any exceptions to the specifications must be clearly stated in the prior approval submittal documents.
- B. Light Level Requirements: Manufacturer shall provide computer models guaranteeing light levels on the field over 25-years. If a constant light level cannot be provided, the specified maximum Recoverable Light Loss Factor and maintenance/group relamping schedule shall be provided in accordance with recommendations in the Pennsylvania State University report “Empirical Light Loss Factors for Sports Lighting”, presented at the 2009 IESNA Annual Conference.

| Lamp Replacement Interval (hours) | Recoverable Light Loss Factor (RLLF) |
|-----------------------------------|--------------------------------------|
| 2,100                             | 0.69                                 |

For alternate systems, scans for both initial and maintained light levels are required.

| Area of Lighting          | Average Initial Light Levels | Average Target/Maintained Light Levels | Max to Min Uniformity Ratio | Grid Points | Grid Spacing |
|---------------------------|------------------------------|--|-----------------------------|-------------|--------------|
| Softball Field - Infield  | 43.4 footcandles             | 30 footcandles                         | 2.5:1                       | 25          | 20' x 20'    |
| Softball Field - Outfield | 43.4 footcandles             | 20 footcandles                         | 3:1                         | 73          | 20' x 20'    |
| General Area              | 43.4 footcandles             | 20 footcandles                         | 4:1                         | 160         | 30' x 30'    |

- C. Revised Electrical Distribution: Manufacturer shall provide revised electrical distribution plans to include changes to service entrance, panel, and wire sizing.

**PART 2 - PRODUCT**

**2.01 LIGHTING SYSTEM CONSTRUCTION**

- A. System Description: Lighting system shall consist of the following:
  1. Galvanized steel poles and cross-arm assemblies.
  2. Pre-stressed concrete base embedded in concrete backfill allowed to cure for 12-24 hours before pole stress is applied. Alternate may be an anchor bolt foundation designed such that the steel pole and any exposed steel portion of the foundation is located a minimum of 18 inches above final grade. The concrete for anchor bolt foundations shall be allowed to cure for a minimum of 28 days before the pole stress is applied.
  3. All luminaires shall be constructed with a die-cast aluminum housing or external hail shroud to protect the luminaire reflector system.
  4. Manufacturer will remote all ballasts and supporting electrical equipment in aluminum enclosures mounted approximately 10' above grade. The enclosures shall include ballast, capacitor and touch-safe fusing to indicate when a fuse is to be replaced for each luminaire. Safety disconnect per circuit for each pole structure will be located in the enclosure.
  5. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
  6. Controls and Monitoring Cabinet to provide on-off control and monitoring of the lighting system, constructed of NEMA Type 4 aluminum. Communication method shall be provided by manufacturer. Cabinet shall contain custom configured contactor modules for 30, 60, and 100 amps, labeled to match field diagrams and electrical design. Manual Off-On-Auto selector switches shall be provided.

- B. **Manufacturing Requirements:** All components shall be designed and manufactured as a system. All luminaires, wire harnesses, ballast and other enclosures shall be factory assembled, aimed, wired and tested.
- C. **Durability:** All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the cross-arms, pole, or electrical components enclosure.
  - 1. **Enhanced corrosion protection package:** Due to the potentially corrosive environment for this project, manufacturers must provide documentation that their products meet the following enhanced requirements in addition to the standard durability protection specified above:
    - a. Exposed carbon steel horizontal surfaces on the cross-arm assembly shall be galvanized to a five (5) mil minimum average thickness.
    - b. Exposed die cast aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.
    - c. Exposed extruded aluminum components shall be Type II anodized per MIL-STD-8625 and coated with high performance polyester.
- D. **Lightning Protection:** All structures shall be equipped with lightning protection meeting NFPA 780 standards. Contractor shall supply and install a grounding electrode of not less than 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.
- E. **Safety:** All system components shall be UL Listed for the appropriate application.
- F. **Electric Power Requirements for the Sports Lighting Equipment:**
  - 1. Electric power: 480 Volt, 3 Phase
  - 2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

## **2.02 STRUCTURAL PARAMETERS**

- A. **Support Structure Wind Load Strength:** Poles and other support structures, brackets, arms, bases, anchorages and foundations shall be determined based on the 2013 CBC Building Code, wind speed of 110 mph, exposure category C, and an importance factor of 1.0. Luminaire, visor, and cross-arm shall withstand 150 mph winds and maintain luminaire aiming alignment.
- B. **Structural Design:** The stress analysis and safety factor of the poles shall conform to AASHTO 2009 (LTS-5) Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

MAY 18, 2015

- C. Soil Conditions: The design criteria for these specifications are based on soil design parameters as outlined in the geotechnical report. If a geotechnical report is not provided by the City, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by 2013 CBC.
- D. It shall be the contractor's responsibility to notify the City if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the City's approval / payment for additional costs associated with:
  - 1. Providing engineered foundation embedment design by a registered engineer in the State of California.
  - 2. Additional materials required to achieve alternate foundation.
  - 3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.
- E. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole.

### **PART 3 EXECUTION**

#### **3.01 FIELD QUALITY CONTROL**

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, City's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.
- B. Correcting Non-Conformance: If, in the opinion of the City or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, and maximum kilowatt consumptions are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer shall be liable to any or all of the following:
  - 1. Manufacturer shall at his expense provide and install any necessary additional fixtures to meet the minimum lighting standards. The Manufacturer shall also either replace the existing poles to meet the new wind load (EPA) requirements or verify by certification by a licensed structural engineer that the existing poles will withstand the additional wind load.
  - 2. Manufacturer shall minimize the City's additional long term fixture maintenance and energy consumption costs created by the additional fixtures by reimbursing the City the amount of \$1,000.00 (one thousand dollars) for each additional fixture required.
  - 3. Manufacturer shall remove the entire unacceptable lighting system and install a new lighting system to meet the specifications.

*SUBMITTAL INFORMATION*

**Design Submittal Data Checklist and Certification**

**All items listed below are mandatory, shall comply with the specification and be submitted according to submittal requirements**

| <b>Tab</b> | <b>Item</b>                 | <b>Description</b>  |
|------------|-----------------------------|---|
| <b>A</b>   | Letter/ Checklist           | Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.   |
| <b>B</b>   | Equipment Layout            | Drawing(s) showing field layouts with pole locations  |
| <b>C</b>   | On Field Lighting Design    | Lighting design drawing(s) showing: <ol style="list-style-type: none"> <li>a. Field Name, date, file number, prepared by, and other pertinent data</li> <li>b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x &amp; y), Illuminance levels at grid spacing specified</li> <li>c. Pole height, number of fixtures per pole, as well as luminaire information including wattage, lumens and optics</li> <li>d. Height of light test meter above field surface</li> <li>e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance and uniformity gradient; number of luminaires, total kilowatts, average tilt factor; light loss factor.</li> <li>f. Alternate manufacturers shall provide both initial and maintained light scans using a maximum Recoverable Light Loss Factor (RLLF) as specified in section 1.8.</li> </ol> |
| <b>D</b>   | Off Field Lighting Design   | Lighting design drawing showing initial vertical spill light levels along the boundary line (defined on bid drawings) in footcandles. Vertical levels shall be at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank lights.  |
| <b>E</b>   | Life-cycle Cost Calculation | Document life-cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaires, maintenance cost for the system including spot lamp replacement, and group relamping costs. All costs should be based on 25-years.   |
| <b>F</b>   | Luminaire Aiming Summary    | Document showing each luminaire's aiming angle and the poles on which the luminaires are mounted. Each aiming point shall identify the type of luminaire.   |
| <b>G</b>   | Structural Calculations     | Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in  |

MAY 18, 2015

|          |                             |   |
|----------|-----------------------------|---|
|          |                             | the state of California.  |
| <b>H</b> | Control & Monitoring System | Manufacturer shall provide written definition and schematics for automated control system to include monitoring. They will also provide examples of system reporting and access for numbers for personal contact to operate the system.                           |
| <b>I</b> | Performance Guarantee       | Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed per specification for 25-years. |

MAY 18, 2015

|          |                            |  |
|----------|----------------------------|--|
| <b>J</b> | Warranty                   | Provide written warranty information including all terms and conditions.   |
| <b>K</b> | Independent Testing Report | Manufacturer bidding any form of a constant light system is to provide an independent test report certifying the system meets the lumen maintenance control strategy defined in Section 1.2.A.1, verifying the field performance of the system for the duration of the useful life of the lamp based on lamp replacement hours. Report shall be signed by a licensed professional engineer with outdoor lighting experience.   |
| <b>L</b> | Project References         | Manufacturer to provide a list of projects where the technology proposed for this project has been installed in the state of California. If any form of a constant light system is bid, a minimum of 5 project references completed within the last calendar year is required. For a depreciating light system a full list of projects completed within the past 3 years is required. Reference list will include project name, project city, and if requested, contact name and contact phone number. |
| <b>M</b> | Product Information        | Complete set of product brochures for all components, including a complete parts list and UL Listings.   |
| <b>N</b> | Delivery                   | Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.   |
| <b>O</b> | Non-Compliance             | Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.   |

The information supplied herein shall be used for the purpose of complying with the specifications for Tierrasanta Community Park. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

**Manufacturer:** \_\_\_\_\_ **Signature:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_ **Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**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: Rough grading, removal of topsoil.
- C. Section 31 2323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.
- D. 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-1 for Clearing and Grubbing.

**1.03 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, 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 2323 – Fill.

**PART 3 EXECUTION**

**3.01 SITE CLEARING**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-1 for Clearing and Grubbing .
- 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, lawns, planting beds and other improvements within limits of work.
- 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 City.

### **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 2316.13 Trenching.
- C. Section 31 2323 - Fill: Filling and compaction.
- D. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300 for Earthwork.

**1.03 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, 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.

**1.04 PROJECT REQUIREMENTS**

- A. Haul Routes and Restrictions: Comply with requirements of authorities having jurisdiction over the area.
- B. Before grading, contact Underground Service Alert for information on public buried utilities and pipelines. Retain the services of an underground utility locator for on-site utilities.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300 for Earthwork.

**PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.
- B. Protect and maintain installed stakes until their removal is required for the Work. Provide replacement grade or location stakes lost or disturbed.

**3.02 PREPARATION**

- A. Install grade stakes and compare to indicated grades. If discrepancies are found between existing grades and grades indicated on Drawings, do not proceed until discrepancies are

MAY 18, 2015

resolved.

- 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.
- I. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

### **3.03 DEWATERING**

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
  - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

### **3.04 ROUGH AND FINE GRADING**

- A. Rough grade area sufficiently high to require cutting by fine grading:
  - 1. Grade area for bituminous surfacing and other paving to the indicated grades, equal to the section of the indicated base and pavement.
  - 2. Slope banks to required finish grades as cut progresses or leave cuts full and finish grade by mechanical equipment to provide grades and soil densities indicated on the Drawings.
  - 3. Rough grade, fill and compact banks beyond indicated finish grades. Finish grade banks and slopes to indicated grades and specified soil densities.
  - 4. Grade Only Areas: In areas not indicated to receive pavement, rough grade to approximate finish grades and then scarify, moisten and roll to obtain required density and indicated finish grades.
  - 5. Tolerances: Finish grades shall be within a tolerance of 0.05 inch per foot above or below grades indicated. Provide an average grade as indicated.
- B. Base or Subgrade:
  - 1. After subgrade has been constructed to approximate required grades, scarify to a depth of

at least 6 inches:

- a. After scarifying, process loosened material to a finely divided condition and adjust moisture content to optimum condition by addition of water, addition and blending of dry suitable material, or by drying of existing material.
  - b. Subgrade material shall be compacted by tamping, sheepsfoot rollers or pneumatic tire rollers. Required relative compaction shall be **95** percent minimum for the top 6 inches below subgrade, except as allowed by 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 301-1.3.
2. Tolerance of completed grades of base or subgrade shall not vary more than 0.03 inch per foot from grades indicated. Provide an average grade as indicated.

### **3.05 SHORING**

- A. Provide shoring as necessary to properly and safely support earth sides of excavations, and existing curbs, sidewalks, gutter, drives and stairs, against movement and collapse.
- B. Design and Calculations: Provide to Engineer in accordance with requirement of CalOHS.A.
- C. Remove shoring upon completion of the Work of this section or when no longer needed unless required otherwise by authorities having jurisdiction.

### **3.08 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).

### **3.09 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 Engineer as to remedy.
- C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

### **3.10 FIELD QUALITY CONTROL**

- A. See Section 31 2323 for compaction density testing.

### **3.11 CLEANING**

- A. Leave site clean and raked, ready to receive landscaping.

**END OF SECTION**

**SECTION 31 2316**

**EXCAVATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Excavating, backfilling, and compacting for buildings and structures.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 2200 - Grading: Grading.
- B. Section 31 2323 - Fill: Fill materials, filling, and compacting.
- C. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK',
  - 1. Section 7-8.6 for Water Pollution Control.
  - 2. Section 300 for Earthwork.
  - 3. Section 701 for Water Pollution Control.
  - 4. Section 707 for Resource Discoveries.

**1.03 PROJECT CONDITIONS**

- A. Information on Drawings or in soils report does not constitute a guarantee of accuracy or uniformity of soil conditions over the Project site.

**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. Clear the Project site as required in Section 31 2200 - Site Clearing.**3.03 PROTECTION**
  - A. Protect and guard excavations against danger to life, limb, and property as required by, but not limited to, Cal-OSHA regulations.
  - B. Protect adjacent existing improvements including landscaping against damage.
  - C. Shore, crib, or lag excavations and earthen banks as necessary to prevent caving-in, erosion or gullyng of sides.
  - D. Divert or de-water excavations until concrete is placed, forms are removed, and backfilling is complete.

**3.04 SHORING**

- A. Provide shoring as necessary to properly and safely support earth sides of excavations, curbs, sidewalks, gutter, drives and stairs, against movement and collapse.

MAY 18, 2015

- B. Design and Calculations: Provide in accordance with requirement of Cal-OHSA. Remove shoring upon completion of Work, or when no longer needed.

### **3.05 EXCAVATING**

- A. Provide excavation bottoms level and free from loose material. Excavate to indicated or required elevations of undisturbed earth.
- B. Provide excavations free from standing water by pumping, draining, or providing protection against water intrusion. If soil becomes soft, soggy, or saturated, excavate to firm undisturbed soil and fill as required. Slope adjacent grades away from excavations to minimize entry of water.
- C. 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.
- D. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- E. Remove excavated material that is unsuitable for re-use and legally dispose of off the Project site.
- F. Remove excess excavated material and legally dispose of off the Project site.

### **3.06 FIELD QUALITY CONTROL**

- A. Excavation inspection shall be provided by third-party geotechnical engineer at the expense of the Contractor. Report of inspection shall be provided to the Engineer and Inspector prior to foundation inspection.
- B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-3.4 for Inspection.

### **3.07 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 2316.13**

**TRENCHING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Excavation, Backfilling and compacting for utilities outside the building to utility main connections, or as indicated on drawings.

**1.02 RELATED REQUIREMENTS**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 306 for Underground Conduit Construction.
- B. Section 31 2200 - Grading: Site grading.
- C. Section 31 2323 – Fill.

**PART 2 PRODUCTS**

**2.01 BEDDING AND FILL MATERIALS**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 306 for Underground Conduit Construction, or imported fill per Section 300-3.5 Structure Backfill.

**PART 3 EXECUTION**

**3.01 TRENCHING**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 306 for Underground Conduit Construction.
- B. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- C. Remove large stones, lumped subsoil, boulders, and rock over 6 inches diameter that could damage piping or impede consistent backfilling or compaction.
- D. Remove excavated material that is unsuitable for re-use from site.

**3.02 BEDDING, BACKFILL AND RESURFACING**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 306 for Underground Conduit Construction.

**3.03 INSPECTION AND TESTING**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 306 for Underground Conduit Construction.
- B. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- C. Frequency of Tests: Per Engineer's request.

MAY 18, 2015

### **3.04 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 2323**

**FILL**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Fill materials.
- B. Backfill and compaction for buildings and structures.

**1.02 RELATED REQUIREMENTS**

- A. Section 31 1100 – Site Clearing.
- B. Section 31 2200 - Grading.
- C. Section 31 2316 – Excavation.
- D. Section 31 2316.13 – Trenching.
- E. 2012 Standard Specifications for Public Works Construction ‘The GREENBOOK’ and 2012 City Supplement ‘The WHITEBOOK’, Section 300-3.5 for Structure Backfill.

**1.03 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction ‘The GREENBOOK’ and City Supplement ‘The WHITEBOOK’, latest editions, Section 2-5.3 for Shop Drawings and Submittals.
- B. Material Source: Submit name of imported material source.
- C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- D. Compaction Density Test Reports.

**1.04 PROJECT CONDITIONS**

- A. Information on Drawings not constitute a guarantee of accuracy or uniformity of soil conditions over the Project site.

**PART 2 PRODUCTS**

**2.01 FILL MATERIALS**

- A. General Fill: Comply with 2012 Standard Specifications for Public Works Construction ‘The GREENBOOK’ and 2012 City Supplement ‘The WHITEBOOK’, Section 300-4 for Unclassified Fill.
  - 1. If excavated materials are not of suitable quality, dispose of offsite per 2012 Standard Specifications for Public Works Construction ‘The GREENBOOK’ Section 300-2.2 for Unsuitable Material.
  - 2. If excavated materials are not of sufficient quantity, import additional materials as necessary.
  - 3. Comply with instructions, requirements and considerations as indicated in project soils report.

MAY 18, 2015

**B. Imported Fill Material:**

1. Structural Fill: Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-3 for Structure Excavation and Backfill.
    - a. Comply with instructions, requirements and considerations as indicated in project soils report.
    - b. Any imported fill shall have Expansion Index of 20 or less and be inspected prior to transport to site.
  2. Pervious Fill: Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-3 for Structure Excavation and Backfill.
    - a. Comply with instructions, requirements and considerations as indicated in project soils report.
  3. Topsoil: Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 212-1.1 for Topsoil.
- a. Topsoil shall be imported for use at landscape areas only. **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 IMPORT/EXPORT OF MATERIALS**

- A. Provide fill materials as specified in Part 2- Products. Test and analyze samples for compliance before delivery to site. If excavated materials from the Project site are not of required quality or sufficient quantity, import additional materials as necessary.
- B. Bills of lading or equivalent documentation will be submitted to the Project Inspector on a daily basis.
- C. Upon completion of import operations, provide the Engineer a certification statement attesting that all imported material has been obtained from the identified source site.

**3.02 PREPARATION**

- A. Do not begin backfilling operation until excavation has been inspected and approved by Geotechnical Engineer and Engineer as indicated in Section 31 2316 – Excavation.

**3.03 FILLING**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-3.5 for Structure Backfill.
- B. Employ a placement method that does not disturb or damage other work.

MAY 18, 2015

### **3.04 COMPACTION**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-4.6 Application of Water and 300-4.7 for Compaction.
- B. Compact to minimum relative compaction as specified in 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 300-3.5 for Structure Backfill.

### **3.05 FIELD QUALITY CONTROL**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 211-1 for Compaction Tests.
- B. If tests indicate work does not meet specified requirements, remove work, replace and retest.
- C. Frequency of Tests: Per Engineer's request.

### **3.06 CLEANING**

- A. Remove unsuitable materials, rubbish, debris, and waste materials and legally dispose of off the Project site.

**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 31 2200 - Grading: Preparation of site for paving and base and preparation of subsoil at pavement perimeter for planting.
- B. Section 31 2323 - Fill: Compacted subbase for paving.
- C. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK',
  - 1. Section 301-1 for Subgrade Preparation.
  - 2. Section 302-6 for Portland Cement Concrete Pavement.
  - 3. Section 303-5 for Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps, and Driveways.

**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.

MAY 18, 2015

2. Step Treads: Minimum 0.6.
  3. Ramp Surfaces: Minimum 0.6
- B. Area Paving: Floor and ground surfaces shall be stable, firm and slip resistant, complying with CBC 11B-302. 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%.

#### **1.05 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction 'The GREENBOOK' and City Supplement 'The WHITEBOOK', latest editions, 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. Engage a qualified testing agency to perform material evaluation tests and to design concrete mixtures.
- C. ACI Publications: Comply with ACI 301 unless otherwise indicated.
- D. Preinstallation Conference: Conduct conference at Project site.

MAY 18, 2015

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.
- E. Concrete paving will comply with the Greenbook 2012, 2012 City Supplement and City Standard Drawings, including the following guidelines:
1. All repairs shall be doveled into existing concrete with minimum #4 bar at 24 inch maximum spacing.
  2. Pedestrian paving, per plan.
    - a. Ponding is not acceptable. Ensure proper drainage, with 1% to drain slope minimum and 1.5% 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 maximum 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. Slope flatwork away from utility vault lids
    - f. 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.

#### **1.07 PROJECT CONDITIONS**

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

#### **PART 2 PRODUCTS**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK',
1. Section 201-1 for Portland Cement Concrete.
  2. Section 201-2 for Reinforcement for Concrete.
  3. Section 201-3 for Expansion Joint Filler and Joint Sealants.
  4. Section 201-4 for Concrete Curing Materials.

MAY 18, 2015

5. Section 201-5.1 for Cement Mortar.

### **PART 3 EXECUTION**

#### **3.01 GENERAL EXECUTION**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 302-6 for Portland Cement Concrete Pavement and 303-5 for Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps and Driveways.

#### **3.02 SUBBASE**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 301-1 for Subgrade Preparation.

#### **3.03 FINISHING**

- A. Area Paving - General: Floor and ground surfaces shall be stable, firm and slip resistant, complying with CBC 11B-302. 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%.

#### **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 Engineer.
- 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 3113**

**GALVANIZED CHAIN LINK FENCE AND GATES**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Commercial chain link fence and gates.
- B. Galvanized steel coated chain link fabric.
- C. Galvanized steel framework and fittings.
- D. Swing Gates.
- E. Installation

**1.02 RELATED REQUIREMENTS**

- A. Section 08 7100 – Door Hardware.

**1.03 REFERENCE STANDARDS**

- A. ASTM A392 Specification for Zinc-Coated Steel Chain-Link Fence Fabric
- B. ASTM A780 Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
- C. ASTM F552 Standard Terminology Relating to Chain Link Fencing
- D. ASTM F567 Standard Practice for Installation of Chain Link Fence
- E. ASTM F626 Specification for Fence Fittings
- F. ASTM F900 Specification for Industrial and Commercial Swing Gates
- G. ASTM F1043 Specification for Strength and Protective Coatings of Steel Industrial Chain Link Fence Framework
- H. ASTM F1083 Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures

**1.04 SUBMITTALS**

- A. Comply with Standard Specifications for Public Works Construction ‘The GREENBOOK’ and City Supplement ‘The WHITEBOOK’, latest editions, Section 2-5.3 for Shop Drawings and Submittals.
- B. Shop drawings: Showing layout of fence location with dimensions, location of gates and opening size, swing direction, cleared area, elevation of fence, gates, footings and details of attachments. Indicate materials, dimensions, sizes, weights and finishes of all components.  
  
Plan drawing(s) to show relation to property survey and existing structures. Dimensions shall be verified based on field measurements.  
  
Gates shall be shown in plan, elevation, section, detail to ensure compliance with drawings, regulatory requirements for accessibility, and hardware specified. Indicate required installation and operational clearances.

- C. Product Certificates: Signed by manufacturers of chain link fences, gates and components certifying that products provided comply with requirements.
- D. Project Record Documents: Accurately record actual locations of fence and gate components for inclusion in project as-builts/record drawings.

#### **1.05 WARRANTY**

- A. Comply with 2012 Standard Specifications for Public Works Construction 'The GREENBOOK' and 2012 City Supplement 'The WHITEBOOK', Section 6-8.3 for Warranty.
- B. Manufacturer's Standard 15 year warranty for galvanized finish.

#### **1.06 REGULATORY REQUIREMENTS**

- A. Manual gates that are part of an accessible route shall comply with 2010 ADA Standards for Accessible Design and 2013 California Building Code section 11B-404.
- B. Handles, pulls, latches, locks and other operable parts on gates shall comply with CBC 11B-309.4. Operable parts shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to active operable parts shall be 5 pounds maximum. Operable parts of such hardware shall be 34 inches minimum and 44 inches maximum above the finish floor or ground.
- C. Swinging gate surfaces within 10 inches of the finish floor or ground measured vertically shall have a smooth surface on the push side extending the full width of the gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16 inch of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped.
- D. When lever hardware used: The lever of lever-actuated latches or locks shall be curved with a return to within 1/2 inch of the face of door or gate to prevent catching on the clothing of persons during egress. 2013 California Code of Regulations Title 24, Part 12 California Reference Standards, Section 12-10-202, item (f).

### **PART 2 – PRODUCTS**

#### **2.01 CHAIN LINK FABRIC**

- A. Steel Chain Link Fabric: [Height or heights indicated on drawings] <Select from table below and insert ASTM serial designation, mesh size, wire gauge, coating specification, including class and color when applicable, top/bottom selvage >
  - 1. Zinc-Coated Steel Fabric: ASTM A392 hot dipped galvanized after weaving (GAW).
    - a. Class 2 - 2.0 oz/ft<sup>2</sup> (610 g/m<sup>2</sup>)
  - 2. Fabric Selection Table: Steel chain link mesh sizes and gauges produced in one piece, full height.
    - a. Mesh Size: 2 inch.
    - b. Wire Gauge: 9 gauge core.
    - c. Wire Break Strength: 1,290 lbf.
  - 3. Fabric selvage: Knuckle finishes top and bottom, K & K.

#### **2.02 ROUND STEEL PIPE FENCE FRAMEWORK**

A. Round steel pipe and rail: Schedule 40 standard weight pipe, in accordance with ASTM F1083, 1.8 oz/ ft<sup>2</sup> (550 g/m<sup>2</sup>) hot dip galvanized zinc exterior and 1.8 oz/ft<sup>2</sup> (550 g/m<sup>2</sup>) hot dip galvanized zinc interior coating.

Regular Grade: Minimum steel yield strength 30,000 psi (205 MPa)

High Strength Grade: Minimum yield strength 50,000 psi (344 MPa)

1. Line post : per Schedule below, Regular Strength Grade.
2. End, Corner, Pull post: per Schedule below, Regular Strength Grade.
- 3 Top, brace, bottom and intermediate rails, 1.660 in. (42.2 mm) OD: per Schedule below, Regular Strength Grade.
4. Mid-height rail shall be included when fence height exceeds 8 feet: per Schedule below, Regular Strength Grade.

B. Typical post and rail size for normal Commercial / Industrial applications

| Item          | Fence Height                     | Outside Diameter |         | *F1083 Schedule 40 Weight |        |
|---------------|----------------------------------|------------------|---------|---------------------------|--------|
|               |                                  | Inches           | (mm)    | lb/ft                     | (kg/m) |
| Line post     | up to 6 ft. (1.8 m)              | 1.900            | (48.3)  | 2.72                      | (4.0)  |
|               | over 6 to 8 ft. (1.8 to 2.4 m)   | 2.375            | (60.3)  | 3.65                      | (5.4)  |
|               | over 8 to 12 ft. (2.4 to 3.7 m)  | 2.875            | (73.0)  | 5.79                      | (8.6)  |
|               | over 12 to 16 ft. (3.7 to 4.9 m) | 4.000            | (101.6) | 9.11                      | (13.6) |
| Terminal post | up to 6 ft. (1.8 m)              | 2.375            | (60.3)  | 3.65                      | (5.4)  |
|               | over 6 to 8 ft. (1.8 to 2.4 m)   | 2.875            | (73.0)  | 5.79                      | (8.6)  |
|               | over 8 to 12 ft. (2.4 to 3.7 m)  | 4.000            | (101.6) | 9.11                      | (13.6) |
|               | over 12 to 16 ft. (3.7 to 4.9 m) | 6.625            | (168.3) | 18.97                     | (28.2) |
|               |                                  | 8.625            | (219.1) | 28.58                     | (42.5) |
| Rails         |                                  | 1.660            | (42.2)  | 2.27                      | (3.4)  |

\*Regular Grade F1083 Schedule 40

#### 2.04 TENSION WIRE

- A. Metallic Coated Steel Marcellled Tension Wire: 7 gauge core (0.177 in.) (4.50 mm) marcellled wire complying with ASTM A824, Match coating type to that of the chain link fabric.
1. Type II Zinc-Coated, ASTM A817 Class 5 - 2.0 oz/ft<sup>2</sup> (610 g/m<sup>2</sup>)

#### 2.05 BARBED WIRE

- A. None required.

#### 2.06 FITTINGS

- A. Tension and Brace Bands: Galvanized pressed steel complying with ASTM F626, minimum steel thickness of 12 gauge (0.105 in.) (2.67 mm), minimum width of 3/4 in. (19 mm) and minimum zinc coating of 1.20 oz/ft<sup>2</sup> (366 g/m<sup>2</sup>). Secure bands with 5/16 in. (7.94 mm) galvanized steel carriage bolts.
- B. Terminal Post Caps, Line Post Loop Tops, Rail and Brace Ends, Boulevard Clamps, Rail Sleeves: In compliance to ASTM F626, pressed steel galvanized after fabrication having a minimum zinc coating of 1.20 oz/ft<sup>2</sup> (366 g/m<sup>2</sup>).
- C. Truss Rod Assembly: In compliance with ASTM F626, 3/8 in. (9.53 mm) or 5/16" (7.94 mm) diameter steel truss rod with a pressed steel tightener, galvanized steel with minimum zinc coating of 1.2 oz/ft<sup>2</sup> (366 g/m<sup>2</sup>), assembly capable of withstanding a tension of 2,000 lbs. (970 kg).
- D. Tension Bars: In compliance with ASTM F626. Galvanized steel one-piece length 2 in. (50 mm) less than the fabric height. Minimum zinc coating 1.2 oz. /ft<sup>2</sup> (366 g/m<sup>2</sup>).
- \*[Bars for 2 in. (50 mm) and 1 3/4 in. (44 mm) mesh shall have a minimum cross section of 3/16 in. (4.8 mm) by 3/4 in. (19 mm)]
- \*[Bars for 1 in. (25 mm) mesh shall have a cross section of 1/4 in. (6.4 mm) by 3/8 in. (9.5 mm)]
- \*[Small mesh 3/8 in. (10 mm), 1/2 in. (13 mm) and 5/8 in. (16 mm) shall be attached (sandwiched) to the terminal post using a galvanized steel strap having a minimum cross section of 2 in. (51 mm) by 3/16 in. (4.8 mm) with holes spaced 15 in. (381 mm) on center to accommodate 5/16 in. (7.9 mm) carriage bolts which are to be bolted thru the strap the mesh and thru the terminal post.]

#### 2.07 TIE WIRE and HOG RINGS

- B. 9 gauge core (0.148) (3.76 mm) steel Galvanized Before Weave (GBW) with preformed power fastened wire ties and preformed hog rings having minimum zinc coating 1.20 oz/ft<sup>2</sup> (366 g/m<sup>2</sup>) per ASTM F626.

#### 2.08 SWING GATES

- A. Swing Gates: Galvanized steel pipe welded fabrication in compliance with ASTM F900. Gate frame members 1.900 in. OD (48.3 mm) ASTM F 1083 schedule 40 galvanized steel pipe. Frame members spaced no greater than 8 ft. (2440 mm) apart vertically and horizontally. Welded joints protected by applying zinc-rich paint in accordance with ASTM Practice A780.

- B. Hardware: Refer to Section 08 7100 – Door Hardware. Contractor to purchase specified gate hardware and provide to gate fabricator for inclusion in gate design.
  - 1. Provide lockable drop bar and gate holdbacks with double gates.
- C. Fabric: Match gate fabric to that of the fence system, unless otherwise indicated on Drawings.
- D. Gateposts: Regular Grade ASTM F1083 Schedule 40 pipe.

| Gate fabric height up to and including 6 ft. (1.2m)   |                       |                         |
|---|-----------------------|-------------------------|
| Gate leaf width                                       | Post Outside Diameter | Weight                  |
| up to 4 ft. (1.2 m)                                   | 2.375 in. (60.3 mm)   | 3.65 lb/ft (5.4 kg/m)   |
| over 4 ft. to 10 ft. (1.2 to 3.05 m)                  | 2.875 in. (73.0 mm)   | 5.79 lb/ft (8.6 kg/m)   |
| over 10 ft. to 18 ft. (3.05 to 5.5 m)                 | 4.000 in. (101.6 mm)  | 9.11 lb/ft (13.6 kg/m)  |
| Gate fabric height over 6 ft. to 12 ft. (1.2 to 2.4m) |                       |                         |
| Gate leaf width                                       |                       |                         |
| up to 6 ft. (1.8 m)                                   | 2.875 in. (73.0 mm)   | 5.79 lb/ft (8.6 kg/m)   |
| over 6 ft. to 12 ft. (1.8 to 3.7 m)                   | 4.000 in. (101.6 mm)  | 9.11 lb/ft (13.6 kg/m)  |
| over 12 ft. to 18 ft. (2.4 to 5.5 m)                  | 6.625 in. (168.3 mm)  | 18.97 lb/ft (28.2 kg/m) |
| over 18 ft. to 24 ft. (5.5 to 7.3 m)                  | 8.625 in. (219.1 mm)  | 28.58 lb/ft (42.5 kg/m) |

**2.09 CONCRETE**

- A. Concrete for post footings shall have a 28-day compressive strength of 2,500 psi. (17.2 MPa).

**PART 3 EXECUTION**

**3.01 CLEARING FENCE LINE**

- A. Clearing: Surveying, clearing, grubbing, grading and removal of debris for the fence line or any required clear areas adjacent to the fence shall be determined by the Contractor at time of bidding. Clearing shall occur as necessary at each instance of fence and gate work, and to include the area where mow strip installation will occur under new fences and gates per SDSD SDL-103.

**3.02 FRAMEWORK INSTALLATION**

- A. Posts: Posts shall be set plumb in concrete footings in accordance with ASTM F567. Minimum footing depth, 24 in. (609.6 mm) plus an additional 3 in. (76.2 mm) depth for each 1 ft. (305 mm) increase in the fence height over 4 ft. (1220 mm). Minimum footing diameter four times the largest cross section of the post up to a 4.00" (101.6 mm) dimension and three times the largest cross section of post greater than a 4.00" (101.6 mm) dimension. Local codes, site soil conditions, local frost depth, fence height and wind load may require larger diameter or deeper footings - See Chain Link Manufactures Institute – Product Guide and Wind Load Guide CLFMI: WLG 2445.

Top of concrete footing to be at grade crowned to shed water away from the post. Where mow strip per SDS SDL-103 occurs, coordinate top of footing with depth of mow strip, approximately 6 inches (152 mm) below grade.

Line posts installed at intervals not exceeding 10 ft. (3.05 m) on center.

- B. Top and Mid Rail: Top rail required. Fences 8 feet (3.66 m) high or higher require mid rail. Install 21 ft. (6.4 m) lengths of rail continuous thru the line post or barb arm loop top. Splice rail using top rail sleeves minimum 6 in. (152 mm) long. Rail shall be secured to the terminal post by a brace band and rail end. Bottom rail or intermediate rail shall be field cut and secured to the line posts using boulevard clamps or brace band with rail end.
- C. Terminal Posts: End, corner, pull and gate posts shall be braced and trussed for fence 6 ft. (1.8 m) and higher and for fences 5 ft. (1.5 m) in height not having a top rail. The horizontal brace rail and diagonal truss rod shall be installed in accordance with ASTM F567.
- D. Tension Wire: Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric. Tension wire to be stretched taut, independently and prior to the fabric, between the terminal posts and secured to the terminal post using a brace band. Secure the tension wire to each line post with a tie wire.

### **3.03 CHAIN LINK FABRIC INSTALLATION**

- A. Chain Link Fabric: Install fabric to inside (sports field side) of the framework maintaining a ground clearance of no more than 2 inches (50 mm). Attach fabric to the terminal post by threading the tension bar through the fabric; secure the tension bar to the terminal post with tension bands and 5/16 in. (7.94 mm) carriage bolts spaced no greater than 12 inches (304.8mm) on center. Small mesh fabric less than 1 in. (25 mm), attach to terminal post by sandwiching the mesh between the post and a vertical 2 in. wide (50mm) by 3/16 in. (4.76 mm) galvanized steel strap using carriage bolts, bolted thru the bar, mesh and post spaced 15 in. (381 mm) on center. Chain link fabric to be stretched taut free of sag. Fabric to be secured to the line post with tie wires spaced no greater than 12 inches (304.8 mm) on center and to horizontal rail spaced no greater than 18 inches (457.2 mm) on center. Aluminum alloy tie wire shall be installed following ASTM F567: Wrap the tie around the post or rail and attached to a fabric wire picket on each side of the post or rail by twisting the tie wire around the fabric wire picket two full turns, cut off excess wire and bend over to prevent injury. Preformed 9 gauge power-fastened wire ties shall be installed following ASTM F626: Wrap the tie a full 360° around the post or rail and fabric wire picket, using a variable speed drill, twist the two ends together three full turns, cut off any excess wire and bend over to prevent injury. Secure the fabric to the tension wire by crimping hogs rings around a fabric wire picket and tension wire.

### **3.04 BARBED WIRE INSTALLATION**

- A. Barbed Wire: None required.

### **3.05 GATE INSTALLATION**

- A. Swing Gates: Installation of gateposts in compliance with ASTM F 567. Direction of swing shall be as indicated per Drawings. Gates shall be plumb in the closed position having a bottom clearance of 3 in. (76 mm) maximum, grade permitting. Hinge, latch and header offset opening space shall be as required by specified hardware manufacturer. Refer to Section 08 7100 – Door Hardware for the hardware set specification for each gate.

Double gate drop bar receivers shall be set in a concrete footing minimum 6 in. (152 mm) diameter 24 in. (609.6 mm) deep. Gate leaf holdbacks shall be installed for all double gates.

Electrically operated gates must be manufactured and installed in compliance with ASTM F2200 and UL 325.

### **3.06 NUTS AND BOLTS**

- A. Bolts: Carriage bolts used for fittings shall be installed with the head on the secure side of the fence. All bolts shall be peened over to prevent removal of the nut.

### **3.07 CLEAN UP**

- A. Clean Up: The area of the fence line shall be left neat and free of any debris caused by the installation of the fence.

**END OF SECTION**

**SUPPLEMENTARY SPECIAL PROVISIONS**

**APPENDICES**

**APPENDIX A**

**NOTICE OF EXEMPTION AND NOTICE OF RIGHT TO APPEAL**

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.: S-11011.02.06

PROJECT TITLE: Tierrasanta Community Park Sports Field Lighting and ADA Barrier Removal

PROJECT LOCATION-SPECIFIC: The project is located at the Tierrasanta Community Park located at 11220 Clairemont Mesa Boulevard (Council District 7).

PROJECT LOCATION-CITY/COUNTY: San Diego/San Diego

DESCRIPTION OF NATURE AND PURPOSE OF THE PROJECT: The project includes the installation of a new sports lighting system for the multi-purpose sports fields and removal of ADA barriers at the Tierrasanta Community Park. ADA barrier removal includes removing and replacing existing walkways to provide an accessible route from the parking lot to the sport fields, existing comfort station, drinking fountains. It also includes providing new ADA compliant doors, hardware, plumbing fixtures and signage at the existing comfort station, new drinking fountains, and improvements to the parking lot including striping and new signage.

NAME OF PUBLIC AGENCY APPROVING PROJECT: City of San Diego

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: City of San Diego, Public Works Contact:  
Alexandra Corsi 525 B Street, MS 908A San Diego, CA 92101 (619) 533-4644

EXEMPT STATUS:

- MINISTERIAL (SEC. 21080(b)(1); 15268);
- DECLARED EMERGENCY (SEC. 21080(b)(3); 15269(a));
- EMERGENCY PROJECT (SEC. 21080(b)(4); 15269 (b)(c))
- CATEGORICAL EXEMPTIONS: 15301(C) EXISTING FACILITIES
- STATUTORY EXEMPTION:

REASONS WHY PROJECT IS EXEMPT: The City of San Diego conducted an environmental review which determined that the project meets the criteria set forth in State CEQA Guidelines Sections 15301(c) Existing Facilities which allows for minor alteration or reconstruction of public structures or facilities. All improvements for this project occur within previously developed areas of the park and include minor alterations or replacement of existing facilities within the park, and this project does not trigger any of the exceptions to categorical exemptions found in State CEQA Guideline §15300.2.

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/Title  
*Jeff Szymanski* / SENIOR PLANNER

January 8, 2015  
DATE

CHECK ONE:

- SIGNED BY LEAD AGENCY
- SIGNED BY APPLICANT

DATE RECEIVED FOR FILING WITH COUNTY CLERK OR OPR:



THE CITY OF SAN DIEGO

Date of Notice: January 8, 2015

**NOTICE OF RIGHT TO APPEAL ENVIRONMENTAL DETERMINATION  
DEVELOPMENT SERVICES DEPARTMENT  
WBS No. S-11011.02.06**

---

**PROJECT NAME/NUMBER:** Tierrasanta Community Park Sports Field Lighting and ADA Barrier Removal

**COMMUNITY PLAN AREA:** Tierrasanta  
**COUNCIL DISTRICT:** 7

**LOCATION:** The project is located at the Tierrasanta Community Park located at 11220 Clairemont Mesa Boulevard.

**PROJECT DESCRIPTION:** The project includes the installation of a new sports lighting system for the multi-purpose sports fields and removal of ADA barriers at the Tierrasanta Community Park. ADA barrier removal includes removing and replacing existing walkways to provide an accessible route from the parking lot to the sport fields, existing comfort station, and drinking fountains. It also includes providing new ADA compliant doors, hardware, plumbing fixtures and signage at the existing comfort station, new drinking fountains, and improvements to the parking lot including striping and new signage.

**ENTITY CONSIDERING PROJECT APPROVAL:** City of San Diego

**ENVIRONMENTAL DETERMINATION:** Categorically exempt from CEQA pursuant to CEQA State Guidelines Section 15301- "Existing Facilities".

**ENTITY MAKING ENVIRONMENTAL DETERMINATION:** City of San Diego Development Services Department

**STATEMENT SUPPORTING REASON FOR ENVIRONMENTAL DETERMINATION:**

The City of San Diego conducted an environmental review which determined that the project meets the criteria set forth in State CEQA Guidelines Sections 15301-Existing Facilities which allow for minor alteration or reconstruction of public structures or facilities. All improvements for this project occur within previously developed areas of the park and include minor alterations or replacement of existing facilities within the park, and this project does not trigger any of the exceptions to categorical exemptions found in State CEQA Guideline §15300.2.

**CITY PROJECT MANAGER:**  
**MAILING ADDRESS:**

Alexandra Corsi  
525 B Street, Suite 7500 (MS 908A)  
San Diego, CA 92101  
(619) 533-4644

**PHONE NUMBER:**

---

On January 8, 2015 the City of San Diego made the above-referenced environmental determination pursuant to the California Environmental Quality Act (CEQA). This determination is appealable to the City Council. If you have any questions about this project, contact the City Project Manager listed above.

Applications to appeal CEQA determination made by staff to the City Council must be filed in the office of the City Clerk within 10 business days from the date of the posting of this Notice and therefore the appeal period would end on January 23, 2015. The appeal application can be obtained from the City Clerk, 202 'C' Street, Second Floor, San Diego, CA 92101.

This information will be made available in alternative formats upon request.

**APPENDIX B**  
**FIRE HYDRANT METER PROGRAM**

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 1 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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.)

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 2 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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.

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 3 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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.

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 4 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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.

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 5 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 6 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 7 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 8 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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.

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 9 OF 10</b>            | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

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.

|   |                                |   |
|---|--------------------------------|---|
| <b>CITY OF SAN DIEGO CALIFORNIA<br/>DEPARTMENT INSTRUCTIONS</b>                                   | <b>NUMBER<br/>DI 55.27</b>     | <b>DEPARTMENT<br/>Water Department</b>          |
| <b>SUBJECT<br/><br/>FIRE HYDRANT METER PROGRAM<br/>(FORMERLY: CONSTRUCTION METER<br/>PROGRAM)</b> | <b>PAGE 10 OF 10</b>           | <b>EFFECTIVE DATE<br/><br/>October 15, 2002</b> |
|   | <b>SUPERSEDES<br/>DI 55.27</b> | <b>DATED<br/>April 21, 2000</b>                 |

- 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 | FACH |
| DATE   | BY   |

METER SHOP (619) 527-7449

|                  |                         |
|------------------|-------------------------|
| Application Date | Requested Install Date: |
|------------------|-------------------------|

## Meter Information

|  |      |                              |
|--|------|------------------------------|
| Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.)<br>Zip: | T.B. | G.B. (CITY USE)              |
| Specific Use of Water:   |      |                              |
| Any Return to Sewer or Storm Drain, if so, explain:  |      |                              |
| Estimated Duration of Meter Use:   |      | Check Box if Reclaimed Water |

## Company Information

|   |        |                      |            |
|---|--------|----------------------|------------|
| Company Name:   |        |                      |            |
| Mailing Address:  |        |                      |            |
| City:   | State: | Zip:                 | Phone: ( ) |
| *Business license#  |        | *Contractor license# |            |
| A Copy of the Contractor's license OR Business License is required at the time of meter issuance.   |        |                      |            |
| Name and Title of Billing Agent:<br><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 |        |                      |            |

|   |                         |
|---|-------------------------|
| <b>Fire Hydrant Meter Removal Request</b>               | 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: <b>\$ 936.00</b> Fees Amount: <b>\$ 62.00</b> |
| Meter Serial #                      | Meter Size: <b>05</b> Meter Make and Style: <b>6-7</b>        |
| Backflow #                          | Backflow Size: Backflow Make and Style:                       |
| Name:                               | Signature: Date:  |

WATER USES WITHOUT ANTICIPATED CHARGES FOR RETURN TO SEWER

Auto Detailing  
Backfilling  
Combination Cleaners (Vactors)  
Compaction  
Concrete Cutters  
Construction Trailers  
Cross Connection Testing  
Dust Control  
Flushing Water Mains  
Hydro Blasting  
Hydro Seeing  
Irrigation (for establishing irrigation only; not continuing irrigation)  
Mixing Concrete  
Mobile Car Washing  
Special Events  
Street Sweeping  
Water Tanks  
Water Trucks  
Window Washing

**Note:**

1. If there is any return to sewer or storm drain, then sewer and/or storm drain fees will be charges.

Date

Name of Responsible Party  
Company Name and Address  
Account Number: \_\_\_\_\_

Subject: Discontinuation of Fire Hydrant Meter Service

Dear Water Department Customer:

The authorization for use of Fire Hydrant Meter # \_\_\_\_\_, located at *(Meter Location Address)* ends in 60 days and will be removed on or after *(Date Authorization Expires)*. Extension requests for an additional 90 days must be submitted in writing for consideration 30 days prior to the discontinuation date. If you require an extension, please contact the Water Department, or mail your request for an extension to:

City of San Diego  
Water Department  
Attention: Meter Services  
2797 Caminito Chollas  
San Diego, CA 92105-5097

Should you have any questions regarding this matter, please call the Fire Hydrant Hotline at (619) \_\_\_\_\_ - \_\_\_\_\_.

Sincerely,

Water Department

**APPENDIX C**

**MATERIALS TYPICALLY ACCEPTED BY CERTIFICATE OF COMPLIANCE**

## Materials Typically Accepted by Certificate of Compliance

1. Soil amendment
2. Fiber mulch
3. PVC or PE pipe up to 16 inch diameter
4. Stabilizing emulsion
5. Lime
6. Preformed elastomeric joint seal
7. Plain and fabric reinforced elastomeric bearing pads
8. Steel reinforced elastomeric bearing pads
9. Waterstops (Special Condition)
10. Epoxy coated bar reinforcement
11. Plain and reinforcing steel
12. Structural steel
13. Structural timber and lumber
14. Treated timber and lumber
15. Lumber and timber
16. Aluminum pipe and aluminum pipe arch
17. Corrugated steel pipe and corrugated steel pipe arch
18. Structural metal plate pipe arches and pipe arches
19. Perforated steel pipe
20. Aluminum underdrain pipe
21. Aluminum or steel entrance tapers, pipe downdrains, reducers, coupling bands and slip joints
22. Metal target plates
23. Paint (traffic striping)
24. Conductors
25. Painting of electrical equipment
26. Electrical components
27. Engineering fabric
28. Portland Cement
29. PCC admixtures
30. Minor concrete, asphalt
31. Asphalt (oil)
32. Liquid asphalt emulsion
33. Epoxy

**APPENDIX D**  
**SAMPLE CITY INVOICE**



**APPENDIX E**  
**LOCATION MAP**

This document is a preliminary design and is not intended for construction. It is subject to change without notice. The user of this document is advised to verify the accuracy of the information contained herein. The user of this document is advised to verify the accuracy of the information contained herein. The user of this document is advised to verify the accuracy of the information contained herein.



**PROPOSED LOCATION MAP**  
**TIERRASANTA COMMUNITY PARK**  
**SPORTS FIELD LIGHTING**

|  |  |
|--|--|
| PROJECT OFFICE LOCATION<br>LARRY KUDRYNSKIY<br>2014-2015-2016  | PROPOSED PROJECT MANAGER<br>LARRY KUDRYNSKIY<br>2014-2015-2016 |
| PROPOSED PROJECT ENGINEER<br>ALBERTO ESCOBAR<br>2014-2015-2016 | PROPOSED DESIGNER<br>TERRY TARRANT<br>2014-2015-2016           |



Department of Engineering & Capital Projects  
City of Houston, Texas



**Legend**

Tierrasanta Community Park - Sports Field Lighting



Community Name: TIERRASANTA  
Date: 1-14-2011

Council District: 7

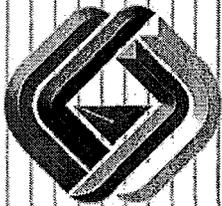
SAP ID#: S-11011

**APPENDIX F**  
**LIMITED SOIL INVESTIGATION**

# **LIMITED SOIL INVESTIGATION**

---

**TIERRASANTA COMMUNITY PARK  
SPORTS FIELD LIGHTING  
11220 CLAIREMONT MESA BOULEVARD  
SAN DIEGO, CALIFORNIA**



**GEOCON**  
INCORPORATED

GEOTECHNICAL  
ENVIRONMENTAL  
MATERIALS

PREPARED FOR

**MANUEL ONCINA ARCHITECTS, INC.  
LA JOLLA, CALIFORNIA**

**MARCH 12, 2015  
PROJECT NO. G1816-52-01**



Project No. G1816-52-01  
March 12, 2015

Manuel Oncina Architects, Inc.  
5711 La Jolla Boulevard  
La Jolla, California 92037

Attention: Mr. Manuel Oncina

Subject: LIMITED SOIL INVESTIGATION  
TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING  
11220 CLAIREMONT MESA BOULEVARD  
SAN DIEGO, CALIFORNIA

Dear Mr. Oncina:

In accordance with your request and our proposal No. LG-15064, dated February 25, 2015, we prepared this limited geotechnical study for the planned improvements at the subject project.

### 1. PURPOSE AND SCOPE

The purpose of the investigation is to provide geotechnical recommendations for the proposed sports field lighting at Tierrasanta Community Park.

The scope of our work included review of the following documents:

1. *Geotechnical Investigation for Tierrasanta Park, San Diego, California*, prepared by Geocon Incorporated, dated July 6, 1979 (Project No. D-1121-T01).
2. *Limited Soil Investigation for Tierrasanta Park Pond, North Portion of Tierrasanta Park, San Diego, California* (Project No. D-2153-T01)
3. *Plans for the Construction of: Tierrasanta Community Park Sports Field Lighting and ADA Barrier Removal, 11220 Clairemont Mesa Boulevard, San Diego, California*, prepared by Manuel Oncina Architects, Inc., dated February 2, 2015 (Drawing No. 36821-12-D through 36821-19-D).
4. *As-Built Grading, Staking, Sewer and Water Plans, Tierrasanta Community Park and Recreation Center, City of San Diego, California*, prepared by VTN, date completed July 24, 1981 (Drawing No. 18560-3-D).
5. *Pier Foundation Information Request Letter*, prepared by Musco Lighting.

The scope of our work also consisted of excavating an exploratory test pit to sample the prevailing soil conditions encountered. We performed laboratory tests to evaluate the shear strength, soluble sulfate, pH and electrical resistivity characteristics of the prevailing soil conditions encountered. Appendix A presents the results of our laboratory tests. Geocon Incorporated previously performed a geotechnical investigation for the park that included three backhoe trenches around the perimeter of the ball fields as presented in the report dated July 6, 1979, and Appendix B presents the previous trench logs. During our previous investigation we performed laboratory testing for maximum dry density and optimum moisture content, shear strength of soil remolded to 90 percent of maximum dry density at optimum moisture content, laboratory expansion index, and California bearing ratio. Appendix C shows the results of the previous laboratory test results.

## 2. SITE AND PROJECT DESCRIPTION

The project site is located at Tierrasanta Community Park, north of Clairemont Mesa Boulevard and west and south of Via Valarta in the Tierrasanta area of San Diego, California. The site is bordered to the south by Clairemont Mesa Boulevard, to the west by De Portola Middle School, to the north by open space, and to the east by Tierrasanta Lutheran Church. Based on the referenced as-built grading plan, grading for the current site was completed in 1981. The existing ball field site is relatively flat. The baseball fields slope gently from an approximate elevation of 492 feet above Mean Sea Level (MSL) at the northern edge to approximately 485 feet MSL at the southern edge. Slopes at the northern and western edges of the ball fields descend from the fields at approximately 2:1 (horizontal:vertical) with heights of approximately 110 feet at the northern edge and 12 feet at the western edge. Based on the referenced grading plan for the site, cuts of up to approximately 15 feet were made on the eastern side of the site, and fills of up to approximately 10 feet were made on the western side of the site to establish existing grades.

We understand that you propose to construct nine monopole lights around the existing baseball fields. Each monopole will be supported on a single pier and that embedment depth will be determined in accordance with the pole embedment formula, Eqn 18A-1, of the 2010 CBC.

A review of our previous geotechnical report indicates that the areas proposed to receive the piers are underlain by the Very Old Paralac Deposits (formerly known as Lindavista Formation) and previously placed fill varying in thickness from less than 1 foot to approximately 10 feet.

## 3. CONCLUSIONS AND RECOMMENDATIONS

### 3.1 Excavation and Soil Characteristics

3.1.1 Excavation of the in-situ soil should be possible with moderate to heavy effort using conventional heavy-duty equipment. Cemented zones and cobbles are commonly present

within the Very Old Parallic Deposits; therefore excavation of the formational materials may require very heavy effort.

- 3.1.2 We performed laboratory tests on samples of the site materials to evaluate the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate content tests are presented in Appendix A and indicate that the on-site materials at the locations tested possess "Not Applicable" and "S0" sulfate exposure to concrete structures as defined by 2013 CBC Section 1904 and ACI 318-11 Sections 4.2 and 4.3. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration.
- 3.1.3 We tested samples for potential of hydrogen (pH) and resistivity laboratory tests to aid in evaluating the corrosion potential to subsurface metal structures. The laboratory test results are presented in Appendix A.
- 3.1.4 Geocon Incorporated does not practice in the field of corrosion engineering. Therefore, further evaluation by a corrosion engineer may be performed if improvements susceptible to corrosion are planned.

## 3.2 Seismic Design Criteria

- 3.2.1 We used the computer program *U.S. Seismic Design Maps*, provided by the USGS to evaluate the seismic design criteria. Table 3.2.1 summarizes site-specific design criteria obtained from the 2013 California Building Code (CBC; Based on the 2012 International Building Code [IBC] and ASCE 7-10), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The short spectral response uses a period of 0.2 second. The improvements should be designed using a Site Class C. We evaluated the Site Class based on the discussion in Section 1613.3.2 of the 2013 CBC and Table 20.3-1 of ASCE 7-10. The values presented in Table 3.2.1 are for the risk-targeted maximum considered earthquake ( $MCE_R$ ).

**TABLE 3.2.1  
2013 CBC SEISMIC DESIGN PARAMETERS**

| Parameter   | Value  | 2013 CBC Reference           |
|---|--------|------------------------------|
| Site Class  | C      | Section 1613.3.2             |
| MCE <sub>R</sub> Ground Motion Spectral Response Acceleration – Class B (short), S <sub>S</sub> | 0.918g | Figure 1613.3.1(1)           |
| MCE <sub>R</sub> Ground Motion Spectral Response Acceleration – Class B (1 sec), S <sub>1</sub> | 0.354g | Figure 1613.3.1(2)           |
| Site Coefficient, F <sub>A</sub>  | 1.033  | Table 1613.3.3(1)            |
| Site Coefficient, F <sub>V</sub>  | 1.446  | Table 1613.3.3(2)            |
| Site Class Modified MCE <sub>R</sub> Spectral Response Acceleration (short), S <sub>MS</sub>    | 0.948g | Section 1613.3.3 (Eqn 16-37) |
| Site Class Modified MCE <sub>R</sub> Spectral Response Acceleration (1 sec), S <sub>MI</sub>    | 0.512g | Section 1613.3.3 (Eqn 16-38) |
| 5% Damped Design Spectral Response Acceleration (short), S <sub>DS</sub>                        | 0.632g | Section 1613.3.4 (Eqn 16-39) |
| 5% Damped Design Spectral Response Acceleration (1 sec), S <sub>D1</sub>                        | 0.341g | Section 1613.3.4 (Eqn 16-40) |

3.2.2 Table 3.2.2 presents additional seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-10 for the mapped maximum considered geometric mean (MCE<sub>G</sub>).

**TABLE 3.2.2  
2013 CBC SITE ACCELERATION DESIGN PARAMETERS**

| Parameter   | Value  | ASCE 7-10 Reference         |
|---|--------|-----------------------------|
| Mapped MCE <sub>G</sub> Peak Ground Acceleration, PGA                           | 0.361g | Figure 22-7                 |
| Site Coefficient, F <sub>PGA</sub>  | 1.039  | Table 11.8-1                |
| Site Class Modified MCE <sub>G</sub> Peak Ground Acceleration, PGA <sub>M</sub> | 0.375g | Section 11.8.3 (Eqn 11.8-1) |

3.2.3 Conformance to the criteria in Tables 3.2.1 and 3.2.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

### 3.3 Drilled Piers

- 3.3.1 The piers can be designed for an allowable soil end-bearing capacity of 4,000 pounds per square foot (psf) and a skin resistance of 400 psf. We estimate the settlement of the drilled piers will be approximately ½ inch.
- 3.3.2 For resistance to uplift an allowable unit skin friction of 300 psf can be used.
- 3.3.3 The allowable downward capacity and allowable uplift capacity may be increased by one-third when considering transient wind or seismic loads.
- 3.3.4 An allowable lateral bearing of 300 psf/foot of depth is recommended for the pole not adversely affected by 0.5-inch motion at the ground surface due to short-term loading.
- 3.3.5 The diameter of the piers should be a minimum of 2 feet. The design length of the drilled piers should be determined by the designer based on the information provided herein.
- 3.3.6 An effective width for lateral bearing equal to  $0.08 \phi$  should be used. An angle of internal friction of  $\phi=30^\circ$  is recommended. Therefore, an arching factor of 2.4 can be used.
- 3.3.7 For lateral loads on piers near the 2:1 (horizontal:vertical) slopes, we recommend a reduction factor of 0.67.
- 3.3.8 Pier drilling should be observed by a representative of Geocon Incorporated to check proper pile embedment depth and assess whether appropriate drilling procedures are being used.
- 3.3.9 The concrete should be placed in such a way as to minimize segregation of the aggregate. Tremies should be utilized for concrete placed below a depth of 20 feet.
- 3.3.10 Pier settlement is estimated to be 1 inch or less. The majority of settlement should occur during construction.
- 3.3.11 Because a significant portion of the pier capacity will be developed by end bearing, the bottom of the borehole should be cleaned of loose cuttings prior to the placement of steel and concrete. Experience indicates that backspinning the auger does not remove loose material and a flat cleanout plate or hand cleaning may be necessary. Concrete should be placed within the pier excavation as soon as possible after the auger/cleanout plate is withdrawn or hand cleaning was performed to reduce the potential for discontinuities or

caving. Pier sidewall instability may randomly occur if cohesionless or localized seepage conditions are encountered. We do not expect seepage will be encountered during the drilling operations. However, casing may be required to maintain the integrity of the pier excavation, particularly if seepage or sidewall instability is encountered. The fill and the formational materials contain gravel, cobble and some boulders. The formational materials may possess very dense and cemented zones, and difficult drilling conditions during excavations for the piers should be anticipated.

### 3.4 Groundwater

3.4.1 We do not expect to encounter permanent groundwater at the site. However, localized seepage conditions may be encountered during drilling operations due to irrigation. Groundwater elevations are dependent on seasonal precipitation, irrigation and land use, among other factors, and vary as a result. Proper surface drainage will be critical to future performance of the project.

If you have any questions regarding this update letter report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

*Kelli A. James*

Kelli A. James  
RCE 79438

KAJ:SFW:dmc

(2/del) Addressee

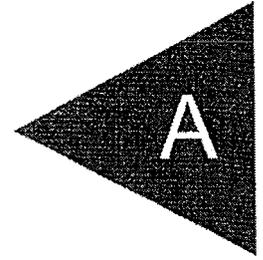


*Shawn Foy Weedon*

Shawn Foy Weedon  
GE 2714



# APPENDIX



**APPENDIX A**  
**LABORATORY TESTING**

We performed laboratory tests in accordance with generally currently accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. We tested selected soil samples for their maximum dry density and optimum moisture content, shear strength, water-soluble sulfate, and pH and resistivity characteristics. Tables A-I through A-IV present the results of our laboratory tests.

**TABLE A-I**  
**SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND**  
**OPTIMUM MOISTURE CONTENT TEST RESULTS**  
**ASTM D 1557**

| Sample No. | Depth (feet) | Description (Geologic Unit)       | Maximum Dry Density (pcf) | Optimum Moisture Content (% dry wt.) |
|------------|--------------|-----------------------------------|---------------------------|--------------------------------------|
| 1          | 1-3          | Brown, Clayey fine to coarse SAND | 123.3                     | 11.2                                 |

**TABLE A-II**  
**SUMMARY OF LABORATORY DIRECT SHEAR TEST RESULTS**  
**ASTM D 3080**

| Sample No. | Dry Density (pcf) | Moisture Content (%) |       | Peak [Ultimate <sup>1</sup> ] Cohesion (psf) | Peak [Ultimate <sup>1</sup> ] Angle of Shear Resistance (degrees) |
|------------|-------------------|----------------------|-------|--|---|
|            |                   | Initial              | Final |  |   |
| 1          | 110.2             | 11.6                 | 17.2  | 430 [380]                                    | 31 [31]   |

<sup>1</sup> Ultimate at end of test at 0.2 inch deflection.

<sup>2</sup> Sample remolded

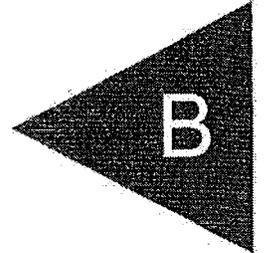
**TABLE A-III**  
**SUMMARY OF LABORATORY WATER-SOLUBLE SULFATE TEST RESULTS**  
**CALIFORNIA TEST NO. 417**

| Sample No. | Depth (feet) | Water-Soluble Sulfate (%) | Sulfate Severity | Sulfate Class |
|------------|--------------|---------------------------|------------------|---------------|
| 1          | 1-3          | 0.021                     | Not Applicable   | S0            |

**TABLE A-IV**  
**SUMMARY OF LABORATORY PH AND RESISTIVITY TEST RESULTS**  
**CALIFORNIA TEST NO. 643**

| Sample No. | Depth (feet) | pH   | Minimum Resistivity (ohm-centimeters) |
|------------|--------------|------|---------------------------------------|
| 1          | 1-3          | 5.56 | 1100                                  |

# APPENDIX



**APPENDIX B**

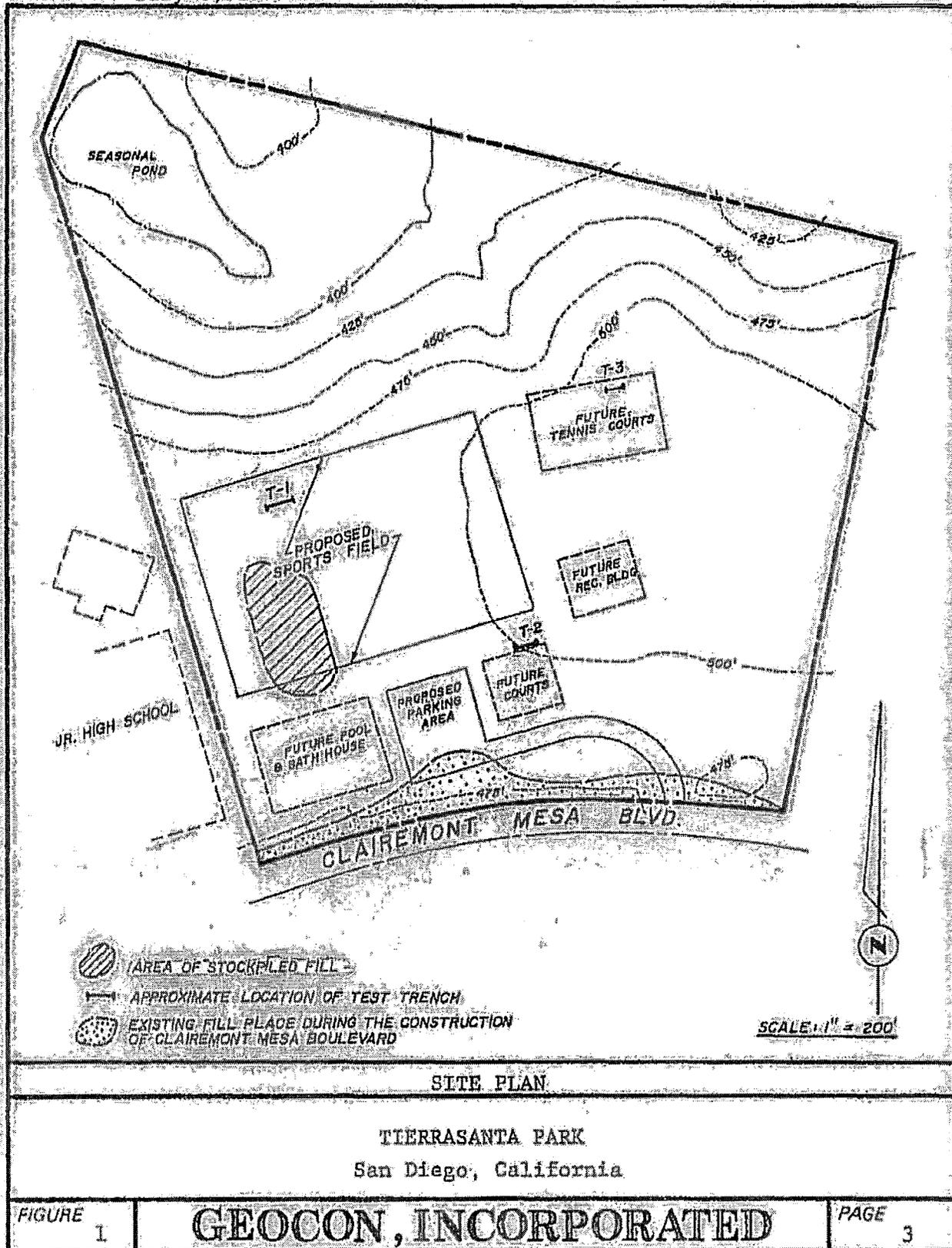
**TRENCH LOGS FROM PREVIOUS REPORT**

*Geotechnical Investigation for Tierrasanta Park, San Diego, California,*  
prepared by Geocon Incorporated, dated July 6, 1979 (Project No. D-1121-T01).

**FOR**

**TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING  
11220 CLAIREMONT MESA BOULEVARD  
SAN DIEGO, CALIFORNIA**

**PROJECT NO. G1816-52-01**



File No. D-1121-T01  
 July 6, 1979

| DEPTH<br>IN<br>FEET | SAMPLE<br>NUMBER | LOG #<br>LOCATION<br>OR<br>SAMPLE | Penetration<br>Resistance<br>Blow/ft | DESCRIPTION   | IN-PLACE                 |                                 |
|---------------------|------------------|-----------------------------------|--------------------------------------|---|--------------------------|---------------------------------|
|                     |                  |                                   |                                      |   | DRY<br>DENSITY<br>P.C.F. | MOISTURE<br>CONTENT<br>% BY WT. |
| 0                   |                  |                                   |                                      | TRENCH NO. 1  |                          |                                 |
| 1                   |                  |                                   |                                      | FILL<br>Loose, damp, fine to medium SAND,<br>GRAVEL & COBBLES (6") with trace<br>silt and clay  |                          |                                 |
| 2                   | I-1              |                                   |                                      | LINDAVISTA FORMATION<br>Firm, damp to moist, reddish-brown,<br>Clayey, fine to medium SAND,<br>GRAVEL AND COBBLE (6")<br><br>Grading to firm, damp to moist,<br>light brown, medium SAND with some<br>silt and clay, gravel and cobbles | BULK SAMPLE              |                                 |
|                     |                  |                                   |                                      | BACKHOE REFUSAL AT 2.0 FEET<br>ON COBBLES   |                          |                                 |

Figure 2, Log of Test Trench 1

A-3

File No. D-1121-T01  
 July 6, 1979

| DEPTH<br>IN<br>FEET | SAMPLE<br>NUMBER | LOG &<br>LOCATION<br>OF<br>SAMPLE | Penetration<br>Resistance<br>Blow/ft | DESCRIPTION  | IN-PLACE                 |                                 |
|---------------------|------------------|-----------------------------------|--------------------------------------|--|--------------------------|---------------------------------|
|                     |                  |                                   |                                      |  | DRY<br>DENSITY<br>p.c.f. | MOISTURE<br>CONTENT<br>% d.c.f. |
| 0                   |                  |                                   |                                      | TRENCH NO. 2   |                          |                                 |
| 1                   | 2-1              |                                   |                                      | LINDAVISTA FORMATION<br>Firm, moist, light brown to gray-<br>brown, Clayey, medium to coarse<br>SAND, GRAVEL and COBBLES (6"),<br>trace silt | BULK                     | SAMPLE                          |
| 2                   |                  |                                   |                                      |  |                          |                                 |
| 3                   |                  |                                   |                                      |  |                          |                                 |
| 4                   |                  |                                   |                                      |  |                          |                                 |
| 5                   |                  |                                   |                                      |  |                          |                                 |
| 6                   |                  |                                   |                                      |  |                          |                                 |
| 7                   |                  |                                   |                                      | Grading to firm, moist, inter-<br>bedded Silty, medium SAND and<br>Clayey SAND, GRAVEL and COBBLES,<br>moderately cemented                   |                          |                                 |
| 8                   |                  |                                   |                                      |  |                          |                                 |
| 9                   |                  |                                   |                                      | TRENCH TERMINATED AT 9.0 FEET  |                          |                                 |

Figure 3, Log of Test Trench 2

A-4

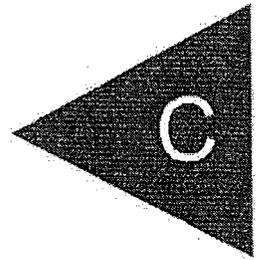
File No. D-1121-T01  
 July 6, 1979

| DEPTH<br>IN<br>FEET | SAMPLE<br>NUMBER | LOG #<br>LOCATION<br>OF<br>SAMPLE | WATER<br>ANALYSIS<br>RESULTS | DESCRIPTION  | IN-PLACE              |                                |
|---------------------|------------------|-----------------------------------|------------------------------|--|-----------------------|--------------------------------|
|                     |                  |                                   |                              |  | DRY<br>DENSITY<br>pcf | MOISTURE<br>CONTENT<br>% (17%) |
| 0                   |                  |                                   |                              | <p>RENDAVISTA FORMATION</p> <p>Firm, dry to moist, reddish-brown Silty, Clayey, medium SAND, GRAVEL and COBBLES</p>                          |                       |                                |
| 1                   |                  |                                   |                              |  |                       |                                |
| 2                   | S-1              |                                   |                              | <p>Grading to firm, moist, brown, Clayey, medium to coarse SAND, GRAVEL and COBBLES, moderately to strongly cemented</p>                     | BULK                  | SAMPLE                         |
| 3                   |                  |                                   |                              |  |                       |                                |
| 4                   |                  |                                   |                              |  |                       |                                |
| 5                   |                  |                                   |                              | <p>Grading to firm, moist, gray-brown, interbedded Silty, Clayey, medium SAND to Sandy OLAY with gravel and cobbles, moderately cemented</p> |                       |                                |
| 6                   |                  |                                   |                              |  |                       |                                |
| 7                   |                  |                                   |                              | TRENCH TERMINATED AT 7.0 FEET  |                       |                                |

Figure 4, Log of Test Trench 3

A-5

# APPENDIX



**APPENDIX C**

**LABORATORY TESTING FROM PREVIOUS REPORT**

*Geotechnical Investigation for Tierrasanta Park, San Diego, California,*  
prepared by Geocon Incorporated, dated July 6, 1979 (Project No. D-1121-T01).

**FOR**

**TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING  
11220 CLAIREMONT MESA BOULEVARD  
SAN DIEGO, CALIFORNIA**

**PROJECT NO. G1816-52-01**

File No. D-1121-T01  
 July 6, 1979

TABLE I  
Summary of Laboratory Compaction Test Results  
 A.S.T.M. D1557-70

| <u>Sample No.</u> | <u>Depth ft.</u> | <u>Description</u>                             | <u>Max. Dry Density pcf</u> | <u>Optimum Moisture % dry wt.</u> |
|-------------------|------------------|--|-----------------------------|-----------------------------------|
| T1-1              | 1-2              | Clayey, medium to coarse SAND, GRAVEL & COBBLE | 122.0                       | 12.2                              |

TABLE II  
Summary of Direct Shear Test Results

| <u>Sample No.</u> | <u>Description</u>                             | <u>Dry Density pcf</u> | <u>Moisture Content %</u> | <u>Unit Cohesion pcf</u> | <u>Angle of Shear Resistance Degrees</u> |
|-------------------|--|------------------------|---------------------------|--------------------------|--|
| T3-1*             | Clayey, medium to coarse SAND, GRAVEL & COBBLE | 110.6                  | 11.3                      | 280                      | 33                                       |

\*Remolded to 90 percent of maximum relative compaction at optimum moisture content.

A-1

File No. D-1121-T01  
 July 6, 1979

TABLE III

Summary of Laboratory Expansion Test Results

| Sample No. | Description                                    | Depth ft | Moisture Content |              | Dry Density pcf | Expansion (+) or Settlement (-) Surcharges |     |
|------------|--|----------|------------------|--------------|-----------------|--|-----|
|            |  |          | Before Test %    | After Test % |                 | %  | pcf |
| T3-1*      | Clayey, medium to coarse SAND, GRAVEL & COBBLE | 2-3      | 11.8             | 19.0         | 110.2           | +1.5                                       | 150 |

TABLE IV

California Bearing Ratio Test Results

| Sample No. | Depth Ft | Description                                    | Screen |      | Sand Equivalent | Corrected CBR Value @ | penetration |     |     |     |     | Moisture before soaking % | Moisture after soaking % | Compacted dry weight, pcf | 96 hour expansion, % |
|------------|----------|--|--------|------|-----------------|-----------------------|-------------|-----|-----|-----|-----|---------------------------|--------------------------|---------------------------|----------------------|
|            |          |  | + #4   | - #4 |                 |                       | 0.1         | 0.2 | 0.3 | 0.4 | 0.5 |                           |                          |                           |                      |
| T2-1       | 0-2      | Clayey, medium to coarse SAND, GRAVEL & COBBLE | 48     | 52   | 14              | 3.0                   | 3.9         | 4.7 | 5.7 | 5.8 | 7.4 | 14.9                      | 132.5                    | 4.7                       |                      |

\*Remolded to 90 percent of maximum relative compaction at optimum moisture content.

**APPENDIX G**  
**WASTE MANAGEMENT FORMS**

# Waste Management Form - Part I

## Construction & Demolition (C&D) Debris Deposit Program

Required for projects described in Municipal Code §66.0601-66.0610.

**Deposit will be fully refunded if at least 50%\* of ALL debris generated from the project is recycled.** If the minimum required recycling rate is not met, the deposit refund will be prorated. **Deposit refund requests must be accompanied by weigh tickets for ALL debris generated, including all trash, salvage, reuse and recycling, and be submitted within 180 days from final inspection.** Refer to **Information Bulletin 119** for details on acceptable documentation.

**Complete Part I before obtaining a building, combination or demolition permit.**  
**Submit this form and your deposit to the Development Services Department staff at permit issuance.**

**Refundable Party Contact Information:**

Name \_\_\_\_\_ Title \_\_\_\_\_ Company \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone \_\_\_\_\_ Email \_\_\_\_\_

**Project Information:**

Approval/Permit No. \_\_\_\_\_ Project Title \_\_\_\_\_  
 Project Address \_\_\_\_\_ Zip \_\_\_\_\_  
 Project Type:  New Construction  Addition/Alteration  Demolition  
 Building Type:  Commercial  Residential  
 Estimated Square Feet \_\_\_\_\_  
 Estimated Start Date \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Estimated Completion Date \_\_\_\_/\_\_\_\_/\_\_\_\_

**TO BE FILLED OUT BY DSD STAFF**  
**"C&D Deposit" Paid \$** \_\_\_\_\_  
**Invoice #** \_\_\_\_\_ **Date Paid** \_\_\_\_\_

**Fill out the table with *estimated* quantities in tons for each material that will be generated by your project. Note: A + B = C**  
 Please use the *City Construction and Demolition Debris Conversion Table* if converting from volume to tonnage.

| Material Type   | A<br>Estimated Salvage,<br>Reuse or Recycle | B<br>Estimated<br>Disposal (Trash) | C<br>Estimated Total<br>Debris Quantity | Hauler | Certified Recycling<br>Facility or<br>Disposal Destination |
|---|---|------------------------------------|---|--------|--|
| Asphalt & Concrete  |   |                                    |   |        |  |
| Brick / Masonry / Tile  |   |                                    |   |        |  |
| Cabinets, Doors, Fixtures,<br>Windows (circle all that apply) |   |                                    |   |        |  |
| Cardboard   |   |                                    |   |        |  |
| Carpet, Padding / Foam  |   |                                    |   |        |  |
| Ceiling Tile (acoustic)                                       |   |                                    |   |        |  |
| Dirt  |   |                                    |   |        |  |
| Drywall   |   |                                    |   |        |  |
| Landscape Debris  |   |                                    |   |        |  |
| <b>Mixed C&amp;D Debris</b>                                   |   |                                    |   |        |  |
| Mixed Inerts  |   |                                    |   |        |  |
| Roofing Materials   |   |                                    |   |        |  |
| Scrap Metal   |   |                                    |   |        |  |
| Stucco  |   |                                    |   |        |  |
| Unpainted Wood & Pallets                                      |   |                                    |   |        |  |
| Garbage / Trash   |   |                                    |   |        |  |
| Other:  |   |                                    |   |        |  |
| <b>TOTAL</b>  |   |                                    |   |        |  |

To estimate Recycling Rate: (Total A/Total C) x 100 = Recycling %  
**MINIMUM RECYCLING RATE FOR ALL DEBRIS FROM YOUR PROJECT IS CURRENTLY 50%\***  
 \* Recycling rate is subject to change; check *Information Bulletin 119* for current rate.

C&D debris may contain paint, asbestos, mercury switches, light bulbs, ballasts or other hazardous wastes that require removal prior to disposal.  
 The Miramar Landfill cannot accept hazardous waste. For information on waste acceptance at the Miramar Landfill, call (858) 694-7000.

**Waste Management Form - Part II**  
**Construction & Demolition (C&D) Debris Deposit Program**

Required for projects described in Municipal Code §66.0601-66.0610.

**Complete Part II after final inspection.**  
**Submit with ALL trash, salvage, reuse and recycling weigh tickets.**  
Please refer to **Information Bulletin 119** for details on acceptable documentation.

Send this completed form and all documentation:

**By Mail**

City of San Diego  
Environmental Services Department  
Attn: C&D Diversion Coordinator  
**9601 Ridgehaven Court, Suite 320**  
San Diego, CA 92123-1636

**By Fax**

Attn: C&D Diversion Coordinator  
(858) 492-5089

**By Email**

ESD\_CD@sandiego.gov

**Applicants must submit refund requests within 180 days from 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 business days following receipt of all proper forms and documentations. If the minimum required recycling rate specified in Information Bulletin 119 is not met, the deposit refund will be prorated.

**Project Information**

Approval/Permit No. \_\_\_\_\_ Project No. \_\_\_\_\_ Project Title \_\_\_\_\_  
Final Inspection Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Project Address \_\_\_\_\_

**Affirmation**

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."

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 \_\_\_\_\_ Company \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_

**Payment Information**

Check will be made payable to the Refundable Party identified on the Development Services Department's paid invoice on which the "C&D Deposit" was assessed. Please provide complete mailing address below.

**If payment is to be made to a different party, the Refundable Party must sign in the box below, designate to whom the check will be payable, and provide complete mailing address.**

By signing my name, I \_\_\_\_\_,  
Refundable Party on invoice (print name) Company Signature  
authorize the refund check to be made payable to: \_\_\_\_\_

**Refund Mailing**

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip+4 \_\_\_\_\_

**For more information, please contact the City of San Diego Environmental Services Department:**  
**(858) 694-7000 or visit [www.recyclingworks.com](http://www.recyclingworks.com)**

**APPENDIX H**  
**SAMPLE OF PUBLIC NOTICES**



## PROJECT NAME

### **Trenching on your street is complete.**

#### **What you need to know:**

- Pipe installation on your street is complete and construction crews are now installing new pipeline for this project at another location.
- You may see temporary trench plates or trench cap for some time, even after construction activities have concluded on your street.

#### **Street resurfacing:**

- Your Streets will be resurfaced once the entire pipeline project is complete. Concrete streets will not be resurfaced curb to curb; only the trench will be backfilled.
- Street resurfacing may be delayed due the City's slurry seal moratorium

#### **Estimated resurfacing completion on your street:**

(Insert Date-Month and Year)

**For questions related to this work**

**Call: (619) 533-4207**

**Email: [engineering@saniego.gov](mailto:engineering@saniego.gov)**



This information is available in alternative formats upon request.



**ATTACHMENT F**  
**INTENTIONALLY LEFT BLANK**

# City of San Diego

CITY CONTACT: Clementina Giordano - Contract Specialist, Email: Cgiordano@sandigo.gov  
Phone No. (619) 533-3481, Fax No. (619) 533-3633



## ADDENDUM "A"

FOR

### Tierrasanta Community Park Sports Field Lighting

BID NO.: K-15-1357-DBB-3  
SAP NO. (WBS/IO/CC): S-11011  
CLIENT DEPARTMENT: 1714  
COUNCIL DISTRICT: 7  
PROJECT TYPE: GF

---

**BID DUE DATE:**

**2:00 PM  
JULY 7, 2015  
CITY OF SAN DIEGO  
PUBLIC WORKS CONTRACTS  
1010 SECOND AVENUE, 14<sup>th</sup> FLOOR, MS 614C  
SAN DIEGO, CA 92101**

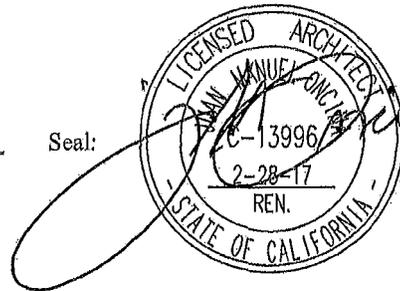
# ENGINEER OF WORK

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

J. Manuel Oncina  
1) Registered Architect

June 25, 2015  
Date

Seal:



Samuel  
2) For City Engineer

June 25, 15  
Date

Seal:

C 73711

**A. CHANGES TO CONTRACT DOCUMENTS**

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

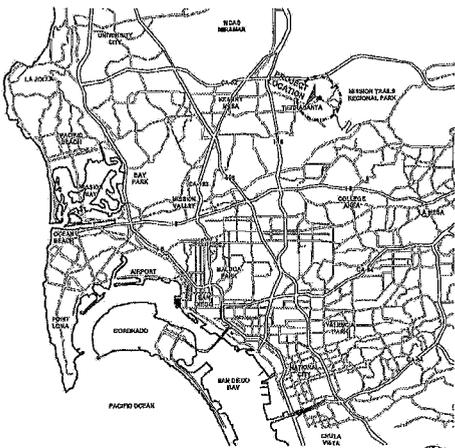
**B. PLANS**

1. To Drawings numbered 36821-1-D, 36821-2-D, 36821-6-D, 36821-7-D, 36821-8-D, 36821-9-D, 36821-29-D, **DELETE** in their entirety and **REPLACE** with pages 4 through 10 of this Addendum.
2. To Drawings numbered 36821-1-D through 36821-31-D, **ADD** Drawings numbered 36821-32-D, 36821-33-D, 36821-34-D 36821-35-D, 36821-36-D, pages 11 through 15 of this Addendum.

James Nagelvoort, Director  
Public Works Department

Dated: *June 25, 2015*  
San Diego, California

JN/(SE(CPC initials))

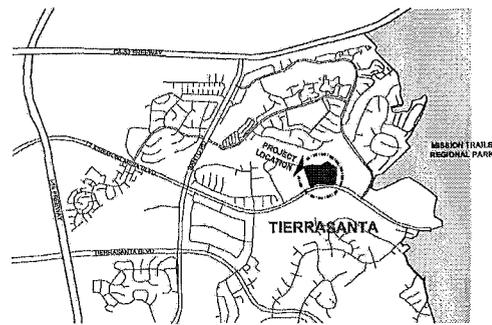


VICINITY MAP  
NOT TO SCALE



# TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING AND ADA BARRIER REMOVAL

MARCH 2015



LOCATION MAP  
NOT TO SCALE



**PARK INSPECTION TEAM**

- A. SITE SUPERINTENDENT (CONTRACTOR)
- B. CONSULTANTS
- C. RESIDENT ENGINEER FROM FIELD ENGINEERING DEPARTMENT
- D. CITY PROJECT MANAGER
- E. DESIGN CONSULTANT
- F. PARK AND RECREATION DISTRICT MANAGER
- G. PARK AND RECREATION ASST. MANAGER

**PARK CONSTRUCTION INSPECTION STAGES**

1. PRE-CONSTRUCTION MEETING
2. ROUGH GRADING AND DRAINAGE
3. IRRIGATION MAINLINE PRESSURE TEST
4. IRRIGATION LATERAL LINE PRESSURE TESTS
5. WIRING PRIOR TO BACKFILLING TRENCHES
6. HANDS ON AT TIME OF FINISHING STRIKING AND LAYOUT
7. FRESH GRADING AND SOIL PREPARATION
8. IRRIGATION COVERAGE TEST
9. PLANT MATERIAL (WHEN DELIVERED) AND PLACEMENT APPROVAL
10. PLAY GROUND INSPECTION, IF APPLICABLE
11. PROJECT CONSTRUCTION NOW COMPLETE (DEVELOP PUNCH LIST AND SUBMIT RED-LINE AS BUILT)
12. SOILTY PLANT ESTABLISHMENT PERIOD (THIS INSPECTION IS TO BE HELD WHEN THE PUNCH LIST ITEMS ARE COMPLETE; IF TURF AREA IS PLANTED FROM SEED OR STOLONS THE PLANT MAINTENANCE PERIOD SHALL BE 90 DAYS)
13. FINAL WALKTHROUGH, ACCEPTANCE BY THE CITY. CONTRACTOR TO SUBMIT FINAL APPROVED AS-BUILT DRAWINGS TO THE CITY.

**PROJECT TEAM**

- ARCHITECT:**  
MANUEL ONCINA ARCHITECTS, INC.  
8711 LA JOLLA BLVD  
LA JOLLA, CA 92037  
T: (858) 458-1221  
F: (858) 458-1214  
CONTACT: PATRICK BANNING  
PBANNING@ONCINAARCH.COM
- CIVIL ENGINEER:**  
CHRISTOPHER R. ROBERTS, INC.  
10377 LAUREL HILL LANE, UNIT 205  
SAN DIEGO, CA 92121  
T: (619) 228-2656  
F: (619) 228-2655  
CONTACT: CHRIS ROBERTS  
CHRIS@CROBERTSINC.COM
- LANDSCAPE ARCHITECT:**  
NENA LANDSCAPE ARCHITECTURE  
620 HORNBLAND STREET, SUITE 9  
SAN DIEGO, CA 92109  
T: (619) 274-5222  
F: (619) 274-5223  
CONTACT: JAM NERI  
JNERI@NLA.COM
- MECHANICAL ENGINEER:**  
TEZA DESIGN  
230 A STREET, SUITE 1103  
SAN DIEGO, CA 92101  
T: (619) 555-6304  
F: (619) 299-7735  
CONTACT: SIMON ONYIAI  
SIMON@TEZA-DESIGN.COM
- ELECTRICAL ENGINEER:**  
TURNER & BATTAN ENGINEERING, INC.  
4719 PALM AVENUE  
LA MESA, CA 91941  
T: (619) 465-5241  
F: (619) 468-4283  
CONTACT: DALE FRANCIAK  
DFFRANCIAK@TRESD.COM
- ENGINEER (FOR MISCELLANEOUS LIGHTING):**  
R. L. FOLEY & ASSOCIATES, INC.  
STRUCTURAL ENGINEERS  
2552 ASHBY WAY  
LAKE FOREST, CA 92030  
T: (949) 881-5212  
F: (949) 881-2513  
CONTACT: RICHARD L. FOLEY

**OWNER/APPLICANT**

OWNER:  
CITY OF SAN DIEGO  
PUBLIC WORKS DEPARTMENT  
PROJECT MANAGER: ALEXANDRA CORSE  
525 B STREET, SUITE 700  
SAN DIEGO, CA 92101  
T: (619) 833-4844  
ACORSE@CORSANDBAND.EDGO.GOV

I HEREBY DECLARE THAT I AM THE ARCHITECT OF WORK FOR THIS PROJECT AND HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THIS PROJECT AS DEFINED IN SECTION 107 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 ARCHITECT OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

J. MANUEL ONCINA  
(ARCHITECT'S NAME) DATE 12 MAY 2015

| CHANGE NO. | DATE     | APPROVED BY | REVISION |
|------------|----------|-------------|----------|
| 1          | 1.8.8.15 | ...         | ...      |

**CONSULTANT**  
MANUEL ONCINA ARCHITECTS P.C.  
ARCHITECTURE  
PLANNING  
INTERIORS  
3011 LA JOLLA BLVD  
SAN DIEGO, CA 92161  
PHONE: 619-458-1221  
WWW.ONCINAARCH.COM

**CITY OF SAN DIEGO  
PUBLIC WORKS PROJECT**

**TITLE SHEET**

PROJECT: TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING AND ADA BARRIER REMOVAL

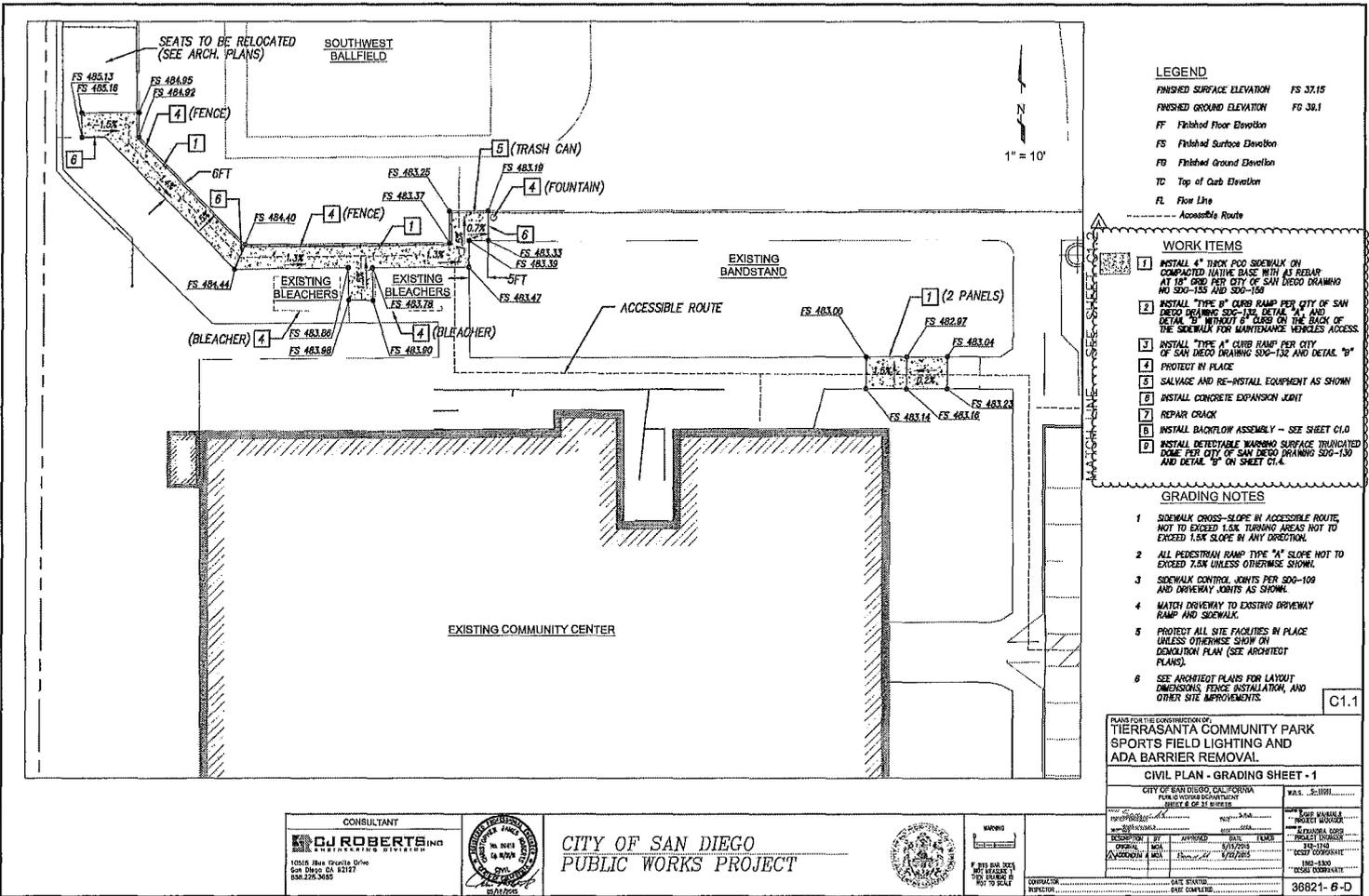
DATE: 12 MAY 2015

SCALE: AS SHOWN

PROJECT NO.: 38821-1-D

TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING AND ADA BARRIER REMOVAL





**LEGEND**

FINISHED SURFACE ELEVATION FS 37.15  
 FINISHED GROUND ELEVATION FG 39.1  
 FF Finished Floor Elevation  
 FS Finished Surface Elevation  
 FG Finished Ground Elevation  
 TC Top of Curb Elevation  
 FL Flow Line  
 --- Accessible Route

- WORK ITEMS**
- 1 INSTALL 4" THICK PCC SIDEWALK ON COMPACTED NATIVE BASE WITH 18" REBAR AT 18" ONCS PER CITY OF SAN DIEGO DRAWING SDG-155 AND SDG-156
  - 2 INSTALL TYPE "B" CURB RAMP PER CITY OF SAN DIEGO DRAWING SDG-130, DETAIL "A", AND DETAIL "B" WITHOUT "B" CURB ON THE BACK OF THE SIDEWALK FOR MAINTENANCE VEHICLES ACCESS
  - 3 INSTALL TYPE "A" CURB RAMP PER CITY OF SAN DIEGO DRAWING SDG-132 AND DETAIL "B"
  - 4 PROTECT IN PLACE
  - 5 SALVAGE AND RE-INSTALL EQUIPMENT AS SHOWN
  - 6 INSTALL CONCRETE EXPANSION JOINT
  - 7 REPAIR CRACK
  - 8 INSTALL BACKFLOW ASSEMBLY - SEE SHEET C1.0
  - 9 INSTALL DETECTABLE WARNING SURFACE TRUNCATED DOME PER CITY OF SAN DIEGO DRAWING SDG-130 AND DETAIL "B" ON SHEET C1.0

- GRADING NOTES**
- 1 SIDEWALK CROSS-SLOPE IN ACCESSIBLE ROUTE, NOT TO EXCEED 1.0% TURNING AREAS NOT TO EXCEED 1.5% SLOPE IN ANY DIRECTION
  - 2 ALL PEDESTRIAN RAMP TYPE "A" SLOPE NOT TO EXCEED 7.5% UNLESS OTHERWISE SHOWN
  - 3 SIDEWALK CONTROL JOINTS PER SDG-109 AND DRIVEWAY JOINTS AS SHOWN
  - 4 MATCH DRIVEWAY TO EXISTING DRIVEWAY RAMP AND SIDEWALK
  - 5 PROTECT ALL SITE FACILITIES IN PLACE UNLESS OTHERWISE SHOWN ON DEMOLITION PLAN (SEE ARCHITECT PLANS)
  - 6 SEE ARCHITECT PLANS FOR LAYOUT DIMENSIONS, FENCE INSTALLATION, AND OTHER SITE IMPROVEMENTS

|   |           |  |
|---|-----------|--|
| PLAN FOR THE CONSTRUCTION OF<br><b>TIERRASANTA COMMUNITY PARK<br/>                 SPORTS FIELD LIGHTING AND<br/>                 ADA BARRIER REMOVAL</b> |           | C1.1   |
| CIVIL PLAN - GRADING SHEET - 1<br>CITY OF SAN DIEGO, CALIFORNIA<br>PUBLIC WORKS DEPARTMENT<br>OFFICE OF ENGINEERING                                       |           | WAS...<br>DATE...<br>DRAWN BY...<br>CHECKED BY...<br>APPROVED BY...<br>DATE... |
| 36821-6-D   | 36821-6-D | 36821-6-D  |

CONSULTANT  
**DJ ROBERTS INC**  
 10516 Blue Emerald Drive  
 San Diego CA 92127  
 619.275.3650

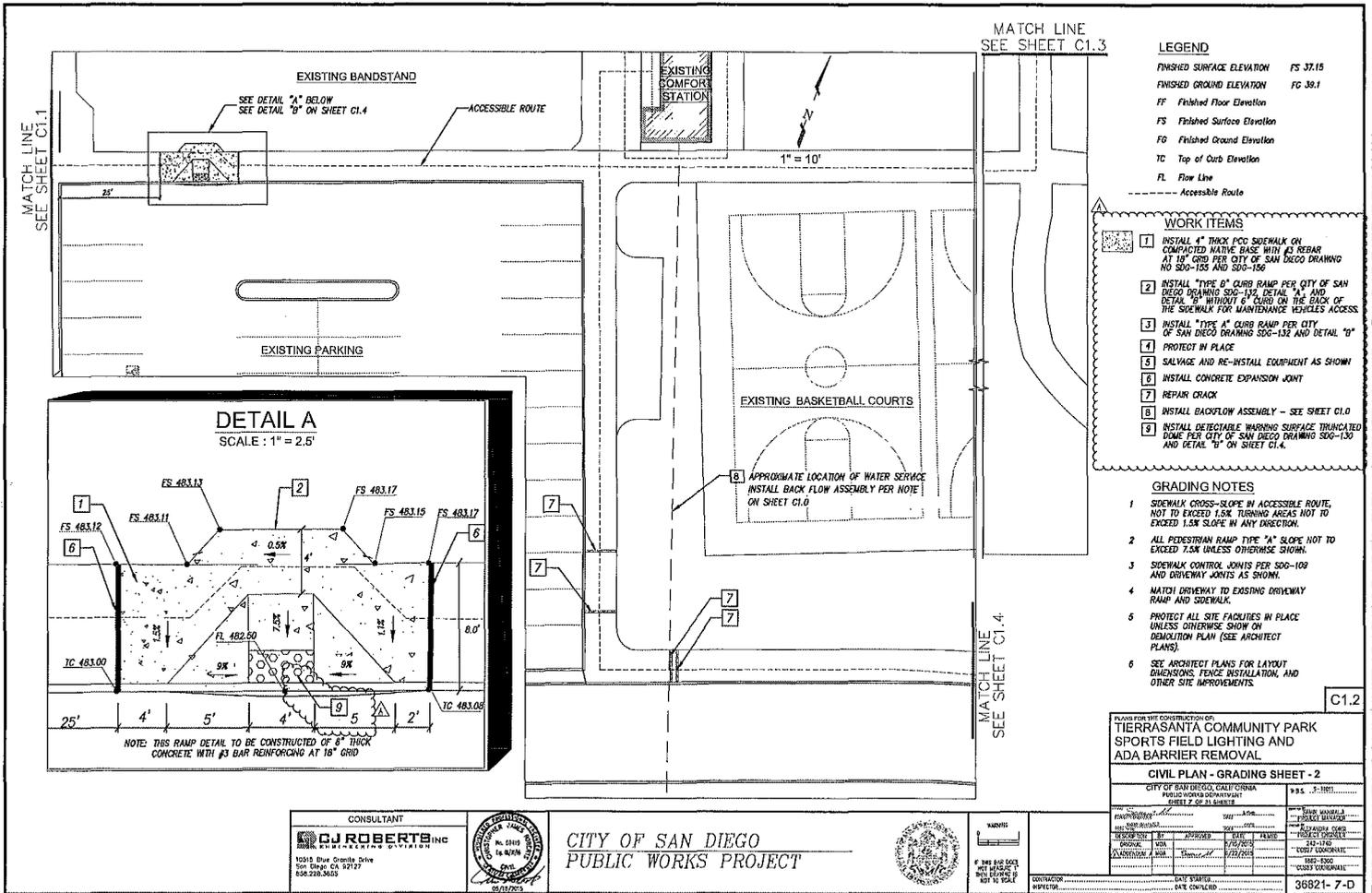


CITY OF SAN DIEGO  
 PUBLIC WORKS PROJECT



WARNING  
 IF NOT FOR THIS PROJECT DO NOT SCALE  
 DIMENSIONS  
 REVISIONS  
 DATE COMPLETED

TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING AND ADA BARRIER REMOVAL



**LEGEND**

|                            |                            |
|----------------------------|----------------------------|
| FINISHED SURFACE ELEVATION | FS 37.15                   |
| FINISHED GROUND ELEVATION  | FG 36.1                    |
| FF                         | Finished Floor Elevation   |
| FS                         | Finished Surface Elevation |
| FG                         | Finished Ground Elevation  |
| TC                         | Top of Curb Elevation      |
| FL                         | Flow Line                  |
| ---                        | Accessible Route           |

- WORK ITEMS**
- 1 INSTALL 4" THICK PCC SIDEWALK ON COMPACTED NATIVE BASE WITH #3 REBAR AT 18" GRID PER CITY OF SAN DIEGO DRAWING NO S00-155 AND S00-156
  - 2 INSTALL "TYPE B" CURB RAMP PER CITY OF SAN DIEGO DRAWING S00-156 DETAIL "A" AND DETAIL "B" WITHOUT 6" CURB ON THE BACK OF THE SIDEWALK FOR MAINTENANCE VEHICLES ACCESS
  - 3 INSTALL "TYPE A" CURB RAMP PER CITY OF SAN DIEGO DRAWING S00-156 AND DETAIL "B"
  - 4 PROTECT IN PLACE
  - 5 SALVAGE AND RE-INSTALL EQUIPMENT AS SHOWN
  - 6 INSTALL CONCRETE EXPANSION JOINT
  - 7 REPAIR CRACK
  - 8 INSTALL BACKFLOW ASSEMBLY - SEE SHEET C1.0
  - 9 INSTALL DETECTABLE WARNING SURFACE TRUNCATED DOME PER CITY OF SAN DIEGO DRAWING S00-157 AND DETAIL "B" ON SHEET C1.4

- GRADING NOTES**
- 1 SIDEWALK CROSS-SLOPE IN ACCESSIBLE ROUTE, NOT TO EXCEED 1.5% TURNING AREAS NOT TO EXCEED 1.5% SLOPE IN ANY DIRECTION.
  - 2 ALL PEDESTRIAN RAMP TYPE "A" SLOPE NOT TO EXCEED 7.5% UNLESS OTHERWISE SHOWN.
  - 3 SIDEWALK CONTROL JOINTS PER S00-109 AND DRIVEWAY JOINTS AS SHOWN.
  - 4 MATCH DRIVEWAY TO EXISTING DRIVEWAY RAMP AND SIDEWALK.
  - 5 PROTECT ALL SITE FACILITIES IN PLACE UNLESS OTHERWISE SHOW ON DEMOLITION PLAN (SEE ARCHITECT PLANS).
  - 6 SEE ARCHITECT PLANS FOR LAYOUT DITCHES, FENCE INSTALLATION, AND OTHER SITE IMPROVEMENTS.

|  |                 |
|--|-----------------|
| PLAN FOR SITE CONSTRUCTION OF<br><b>TIERRASANTA COMMUNITY PARK<br/>         SPORTS FIELD LIGHTING AND<br/>         ADA BARRIER REMOVAL</b> |                 |
| <b>CIVIL PLAN - GRADING SHEET - 2</b>  |                 |
| CITY OF SAN DIEGO, CALIFORNIA<br>PUBLIC WORKS DEPARTMENT<br>3882-7-D   | 9-15-11         |
| PREPARED BY: J. J. ROBERTS<br>CHECKED BY: J. J. ROBERTS<br>DATE: 7/27/2015   | DATE: 7/27/2015 |
| CONTRACTOR: DATE: 7/27/2015  | 3882-7-D        |

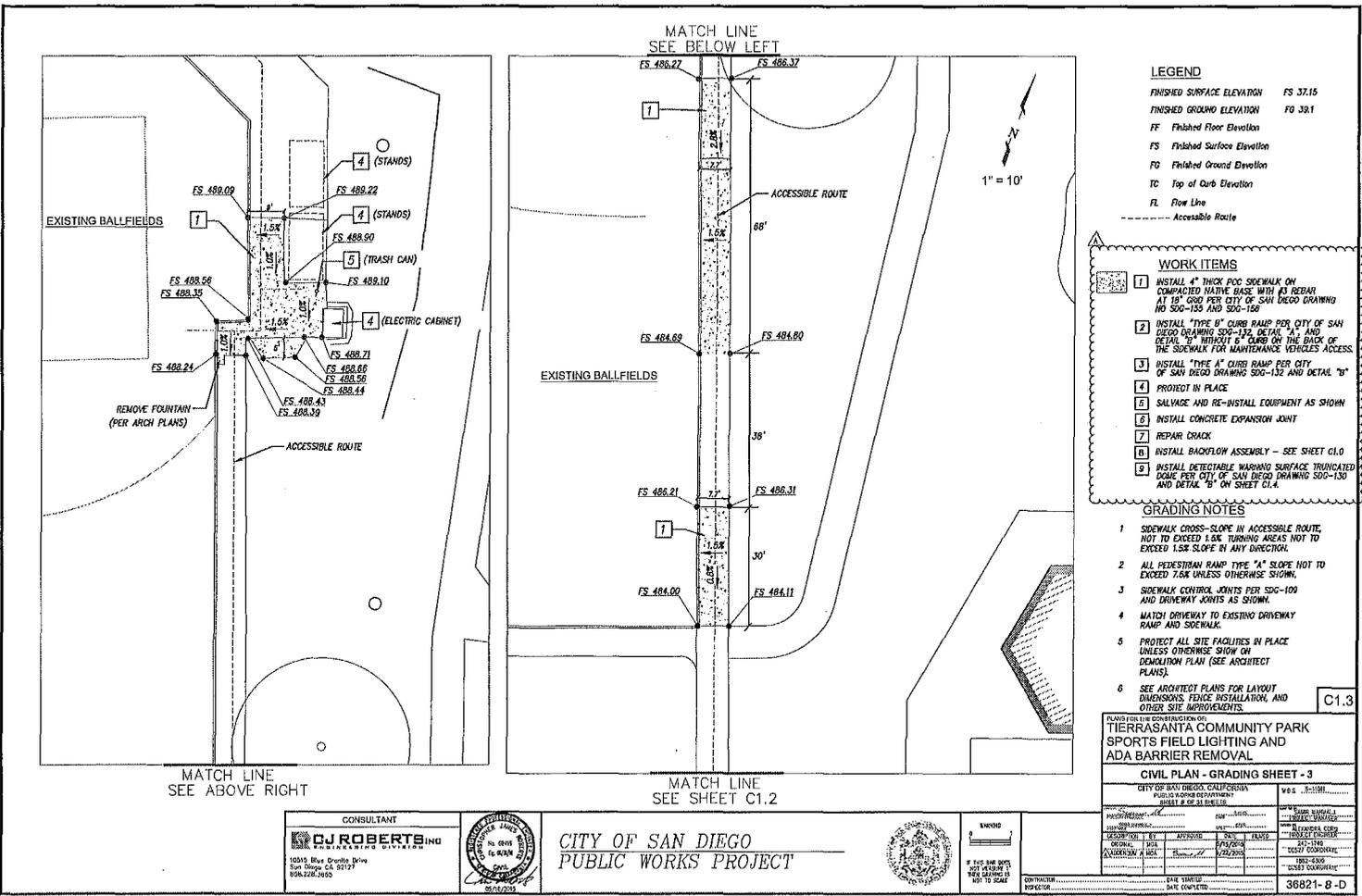
CONSULTANT  
**CJ ROBERTS INC**  
 10515 Blue Granite Drive  
 San Diego, CA 92127  
 616-228-5600



CITY OF SAN DIEGO  
 PUBLIC WORKS PROJECT



NOTES:  
 1. SEE SHEET C1.0 FOR ALL OTHER NOTES.  
 2. SEE SHEET C1.0 FOR ALL OTHER NOTES.



**LEGEND**

FINISHED SURFACE ELEVATION FS 37.15  
 FINISHED GROUND ELEVATION FG 39.1  
 FF Finished Floor Elevation  
 FS Finished Surface Elevation  
 FD Finished Ground Elevation  
 TC Top of Curb Elevation  
 FL Flow Line  
 --- Accessible Route

- WORK ITEMS**
- 1 INSTALL 4" THICK POB SIDEWALK ON COMPACTED NATIVE BASE WITH AS REBAR AT 18" GRID PER CITY OF SAN DIEGO DRAWING SDG-100 AND 300-150
  - 2 INSTALL "TYPE B" CURB RAMP PER CITY OF SAN DIEGO DRAWING SDG-132, DETAIL "A" AND DETAIL "B" TRIBUTY 6" CURB ON THE BACK OF THE SIDEWALK FOR MAINTENANCE VEHICLES ACCESS.
  - 3 INSTALL "TYPE A" CURB RAMP PER CITY OF SAN DIEGO DRAWING SDG-132 AND DETAIL "B"
  - 4 PROTECT IN PLACE
  - 5 SALVAGE AND RE-INSTALL EQUIPMENT AS SHOWN
  - 6 INSTALL CONCRETE EXPANSION JOINT
  - 7 REPAIR CRACK
  - 8 INSTALL BACKFLOW ASSEMBLY - SEE SHEET C1.0
  - 9 INSTALL DETECTABLE WARNING SURFACE TRUNCATED DOME PER CITY OF SAN DIEGO DRAWING SDG-130 AND DETAIL "B" ON SHEET C1.4

- GRADING NOTES**
- 1 SIDEWALK CROSS-SLOPE IN ACCESSIBLE ROUTE, NOT TO EXCEED 1.5% TURNING AREAS NOT TO EXCEED 1.5% SLOPE IN ANY DIRECTION.
  - 2 ALL PEDESTRIAN RAMP TYPE "A" SLOPE NOT TO EXCEED 7.5% UNLESS OTHERWISE SHOWN.
  - 3 SIDEWALK CONTROL JOINTS PER SDG-100 AND DRIVEWAY JOINTS AS SHOWN.
  - 4 MATCH DRIVEWAY TO EXISTING DRIVEWAY RAMP AND SIDEWALK.
  - 5 PROTECT ALL SITE FACILITIES IN PLACE UNLESS OTHERWISE SHOWN ON DEMOLITION PLAN (SEE ARCHITECT PLANS).
  - 6 SEE ARCHITECT PLANS FOR LAYOUT DIMENSIONS, FENCE INSTALLATION, AND OTHER SITE IMPROVEMENTS.

|  |                         |      |
|--|-------------------------|------|
| PLANS FOR THE CONSTRUCTION OF<br><b>TIERRASANTA COMMUNITY PARK<br/>SPORTS FIELD LIGHTING AND<br/>ADA BARRIER REMOVAL</b> |                         | C1.3 |
| <b>CIVIL PLAN - GRADING SHEET - 3</b>  |                         |      |
| CITY OF SAN DIEGO, CALIFORNIA<br>PUBLIC WORKS DEPARTMENT<br>SHEET # 36821-8-D  | DATE: 06/25/15          |      |
| DESIGNED BY: [Signature]   | CHECKED BY: [Signature] |      |
| APPROVED BY: [Signature]   | DATE: 06/25/15          |      |
| PROJECT NO: 36821-8-D  | DATE: 06/25/15          |      |
| CONTRACTOR: [Signature]  | DATE: 06/25/15          |      |
| PROJECT NO: 36821-8-D  | DATE: 06/25/15          |      |

CONSULTANT  
**CJ ROBERTS INC.**  
 10410 Blue Heron Blvd  
 San Diego, CA 92127  
 619.226.9050

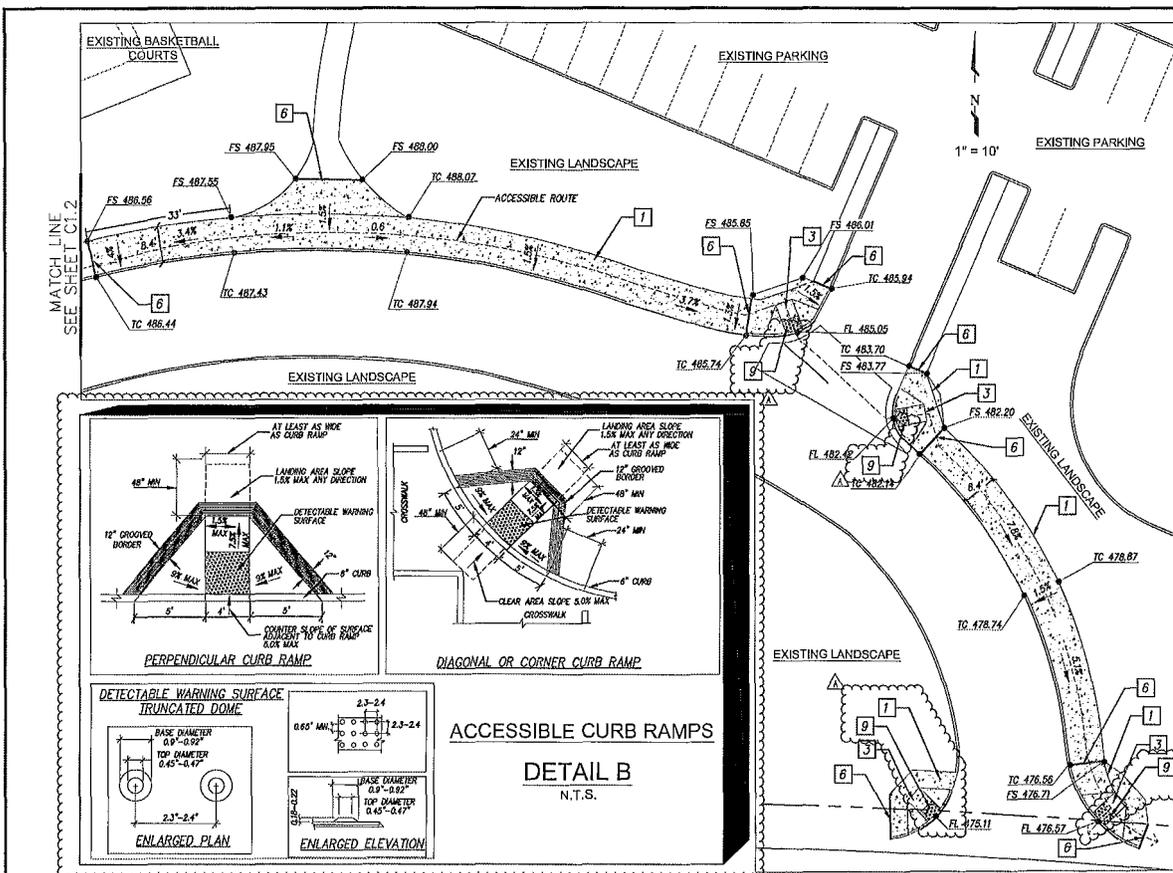


**CITY OF SAN DIEGO  
PUBLIC WORKS PROJECT**



SCALE: AS SHOWN  
 IF THE LINE DOES NOT READ "AS SHOWN" IT IS NOT TO SCALE

TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING AND ADA BARRIER REMOVAL

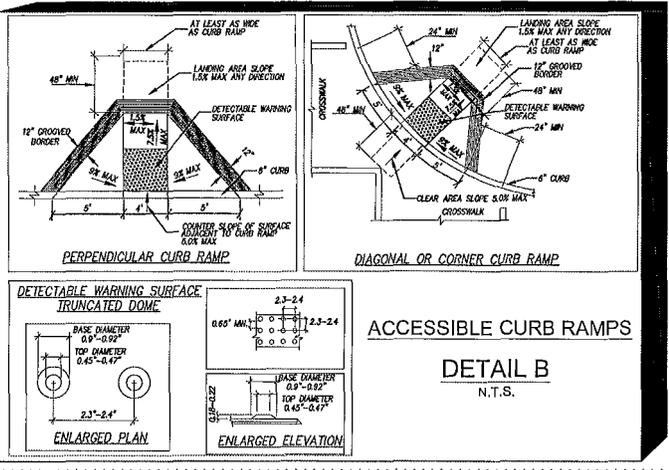


**LEGEND**

|                            |                            |
|----------------------------|----------------------------|
| FINISHED SURFACE ELEVATION | FS 37.15                   |
| FINISHED GROUND ELEVATION  | FG 30.1                    |
| FF                         | Finished Floor Elevation   |
| FS                         | Finished Surface Elevation |
| FG                         | Finished Ground Elevation  |
| TC                         | Top of Curb Elevation      |
| FL                         | Flow Line                  |
| ---                        | Accessible Route           |

- WORK ITEMS**
- 1 INSTALL 4" THICK PCC SIDEWALK ON COMPACTED NATIVE BASE WITH 3" REBAR AT 16" GRID PER CITY OF SAN DIEGO DRAWING SD-100 AND DETAIL "B" WITHOUT 6" CURB ON THE BACK OF THE SIDEWALK FOR MAINTENANCE VEHICLES ACCESS.
  - 2 INSTALL "TYPE B" CURB RAMP PER CITY OF SAN DIEGO DRAWING SD-130 AND DETAIL "A" AND DETAIL "B" WITHOUT 6" CURB ON THE BACK OF THE SIDEWALK FOR MAINTENANCE VEHICLES ACCESS.
  - 3 INSTALL "TYPE A" CURB RAMP PER CITY OF SAN DIEGO DRAWING SD-132 AND DETAIL "B".
  - 4 PROTECT IN PLACE
  - 5 SALVAGE AND RE-INSTALL EQUIPMENT AS SHOWN
  - 6 INSTALL CONCRETE EXPANSION JOINT
  - 7 REPAIR CRACK
  - 8 INSTALL BACKFLOW ASSEMBLY - SEE SHEET C1.0
  - 9 INSTALL DETECTABLE WARNING SURFACE TRUNCATED DOME PER CITY OF SAN DIEGO DRAWING SD-130 AND DETAIL "B" ON SHEET C1.4.

- GRADING NOTES**
- 1 SIDEWALK CROSS-SLOPE IN ACCESSIBLE ROUTE, NOT TO EXCEED 1.5% TURNING AREAS NOT TO EXCEED 1.5% SLOPE IN ANY DIRECTION.
  - 2 ALL PEDESTRIAN RAMP TYPE "A" SLOPE NOT TO EXCEED 1.5% UNLESS OTHERWISE SHOWN.
  - 3 SIDEWALK CONTROL JOINTS PER SD-109 AND DRIVEWAY JOINTS AS SHOWN.
  - 4 MATCH DRIVEWAY TO EXISTING DRIVEWAY RAMP AND SIDEWALK.
  - 5 PROTECT ALL SITE FACILITIES IN PLACE UNLESS OTHERWISE SHOWN ON DEMOLITION PLAN (SEE ARCHITECT PLANS).
  - 6 SEE ARCHITECT PLANS FOR LAYOUT DIMENSIONS, FENCE INSTALLATION, AND OTHER SITE IMPROVEMENTS.



PLANS FOR THE CONSTRUCTION OF:  
**TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING AND ADA BARRIER REMOVAL**

**CIVIL PLAN - GRADING SHEET - 4**

|  |                         |
|--|-------------------------|
| CITY OF SAN DIEGO, CALIFORNIA<br>PUBLIC WORKS DEPARTMENT<br>SHEET # 4 OF 13 SHEETS | DATE: 03/19/11          |
| DESIGNED BY: [Signature]   | CHECKED BY: [Signature] |
| APPROVED BY: [Signature]   | DATE: 03/19/11          |
| PROJECT NO: 38821-D  | DATE: 03/19/11          |
| DATE: 03/19/11   | DATE: 03/19/11          |
| DATE: 03/19/11   | DATE: 03/19/11          |

CONSULTANT  
**CJ ROBERTS INC**  
10315 Blue Quartz Drive  
San Diego, CA 92127  
619.228.3654

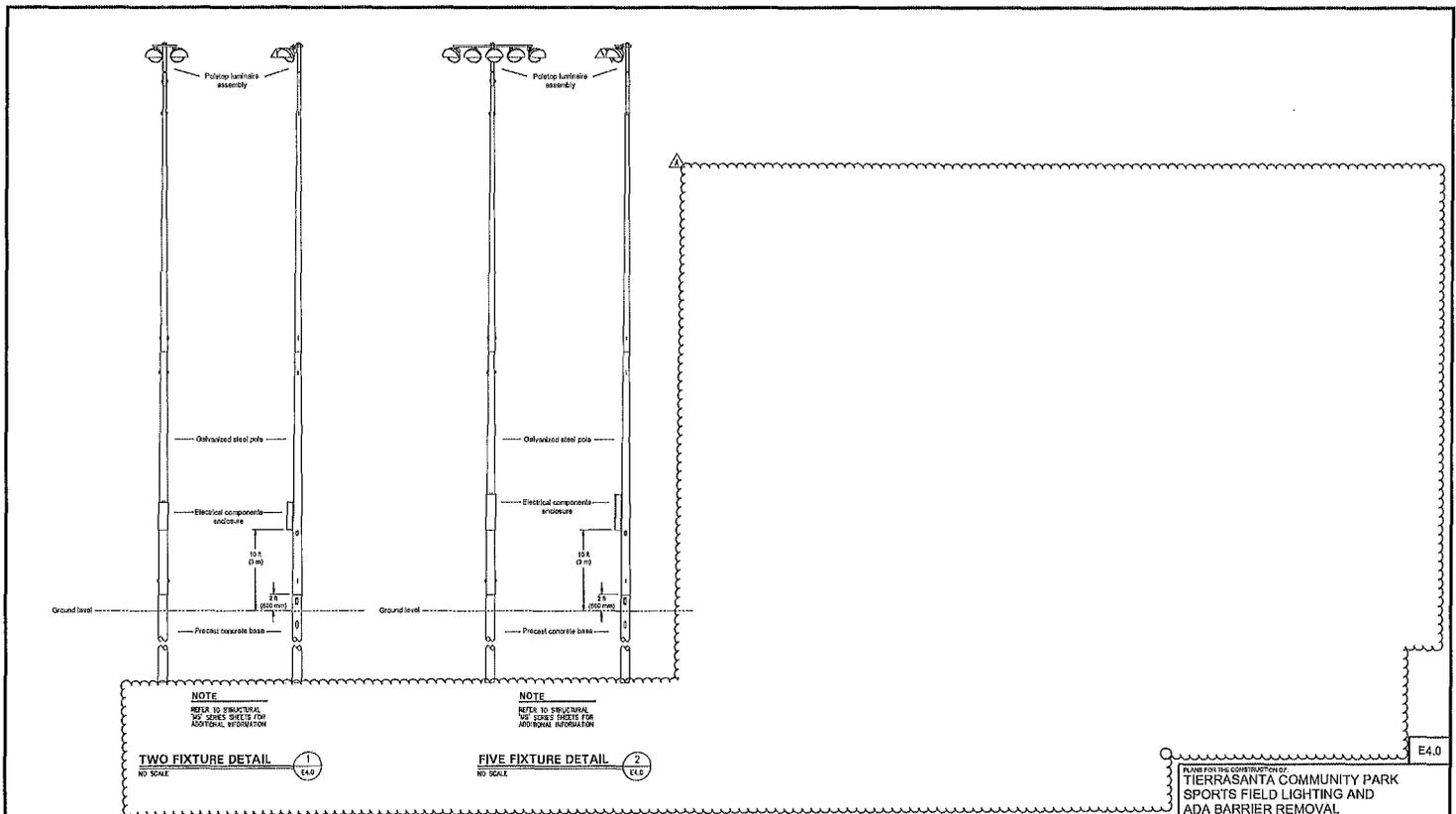


**CITY OF SAN DIEGO**  
**PUBLIC WORKS PROJECT**



WOODS  
IF THE SEA DOES NOT HOLD THE DRAWING IS NOT TO SCALE

CHECKED BY: [Signature] DATE: 03/19/11  
DATE: 03/19/11  
DATE: 03/19/11



**NOTE**  
REFER TO STRUCTURAL  
DRAWINGS SHEET 101 FOR  
ADDITIONAL INFORMATION

**TWO FIXTURE DETAIL** ①  
NO SCALE

**NOTE**  
REFER TO STRUCTURAL  
DRAWINGS SHEET 101 FOR  
ADDITIONAL INFORMATION

**FIVE FIXTURE DETAIL** ②  
NO SCALE

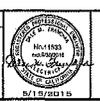
E4.0

|  |                      |
|--|----------------------|
| PLANS FOR THE CONSTRUCTION OF<br><b>TIERRASANTA COMMUNITY PARK<br/>SPORTS FIELD LIGHTING AND<br/>ADA BARRIER REMOVAL</b> |                      |
| <b>LIGHTING DETAILS</b>  |                      |
| CITY OF SAN DIEGO, CALIFORNIA<br>PUBLIC WORKS DEPARTMENT   | WKS - S-CURR         |
| <b>PROJECT NO. 36821</b>   |                      |
| DESIGNED BY: [Signature]   | DATE: 02/10/15       |
| CHECKED BY: [Signature]  | DATE: 02/10/15       |
| APPROVED BY: [Signature]   | DATE: 02/10/15       |
| PROJECT ENGINEER: [Signature]  | DATE: 02/10/15       |
| PROJECT MANAGER: [Signature]   | DATE: 02/10/15       |
| CONTRACT NO. 36821-29-D  | DATE DATED: 02/10/15 |

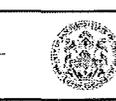
**CONSULTANT**

**JURPING & MATTAN**

1000 LA JOLLA VILLAGE CENTER  
SUITE 100  
LA JOLLA, CA 92037  
TEL: 619-451-1000  
WWW.JURPING.COM



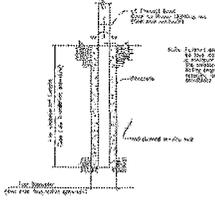
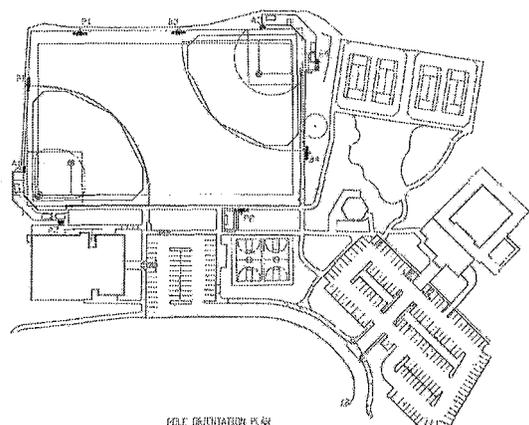
**CITY OF SAN DIEGO  
PUBLIC WORKS PROJECT**



WARNING  
DO NOT SCALE DRAWING  
FOR CONSTRUCTION

CONTRACT NO. 36821-29-D  
DATE DATED: 02/10/15

| GENERAL NOTES   |  | INDEX OF SHEETS   |  |
|---|--|---|--|
| <p><b>GENERAL NOTES:</b></p> <p>1. ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED TO BE IN FEET AND INCHES. DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>2. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>3. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>4. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>5. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>6. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>7. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>8. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>9. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> <p>10. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.</p> |  | <p><b>INDEX OF SHEETS</b></p> <p>MT1 TYPICAL FOUNDATION DETAIL</p> <p>MT2 POLE FOUNDATION SCHEDULE</p> <p>MT3 ADA BARRIER REMOVAL</p> <p>MT4 ATTACHMENT DETAILS</p>   |  |
| <p><b>FOUNDATION DETAIL:</b></p> <p>1. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>2. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>3. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>4. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>5. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>6. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>7. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>8. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>9. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>10. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p>   |  | <p><b>FOUNDATION DETAIL:</b></p> <p>1. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>2. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>3. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>4. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>5. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>6. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>7. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>8. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>9. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> <p>10. FOUNDATION SHALL BE CONCRETE ON COMPACTED GRAVEL.</p> |  |



| POLE TYPE / MARK | MARK          | ASD LEVEL FORCES (kips) | FOUNDATION TYPE | FOUNDATION DIMENSIONS (ft) |
|------------------|---------------|-------------------------|-----------------|----------------------------|
| LES-10A-3        | 010/03-01-100 | 04.800                  | 1.000           | 1.000                      |
| LES-10A-2        | 010/03-01-100 | 04.800                  | 1.000           | 1.000                      |

**MT1**

**NOTES, FOUNDATION DETAIL.**

CITY OF SAN DIEGO  
PUBLIC WORKS DEPARTMENT

**APPROVED:** [Signature]

**DATE:** 06/25/2015

**PROJECT NO:** 36821-32-D

**MUSCO Lighting**

INCORPORATED OFFICE:  
P.O. Box 900  
300 Lee Avenue West  
Oak Park, IL 60452  
630/728-3920

**CONSULTANT**

**R.E. POLEY & ASSOC., INC.**

38100 VENICE DRIVE  
LAKE FOREST, CALIFORNIA 92650  
Telephone Number: 949-591-5212  
Fax Number: 949-591-5214

**CITY OF SAN DIEGO**

**PUBLIC WORKS PROJECT**

APPROVED: [Signature]

DATE: 06/25/2015

**NEW SHEET**

DATE: 06/25/2015

PROJECT NO: 36821-32-D





**1 ANCHORING DETAIL**  
 2 TYPICAL DETAIL  
 3 ALTERNATE WOOD PRESERVING DETAIL  
 4 LAMPHANGE ATTACHMENT DETAIL  
 5 LASER ARMING DETAIL  
 6 SLIP JOINT CONNECTION DETAIL  
 7 HANDLE SLEEVE DETAIL  
 8 FILTER CAP DETAIL  
 9 BALLAST BOX CONNECTION DETAIL  
 10 BALLAST BOX CONNECTION DETAIL

**TIERRASANTA COMMUNITY PARK SPORTS FIELD LIGHTING AND ADA BARRIER REMOVAL**

**ATTACHMENT DETAILS**

**MD1**

**TIERRASANTA COMMUNITY PARK**  
**SPORTS FIELD LIGHTING AND**  
**ADA BARRIER REMOVAL**

**CITY OF SAN DIEGO, CALIFORNIA**  
 PUBLIC WORKS DEPARTMENT  
 DIVISION OF PUBLIC SAFETY

|             |                           |
|-------------|---------------------------|
| PROJECT NO. | 36821-35-D                |
| DATE        | 06/25/15                  |
| DESIGNED BY | B.L. FOLEY & ASSOC., INC. |
| CHECKED BY  | B.L. FOLEY & ASSOC., INC. |
| APPROVED BY | B.L. FOLEY & ASSOC., INC. |
| DATE        | 06/25/15                  |

**36821-35-D**

**MUSCO**  
 COMMERCIAL DIVISION  
 201 NEW RD  
 100 THE AVENUE WEST  
 OAKLAND, CA 94612  
 800/725-6290

**CONSULTANT**  
**B.L. FOLEY & ASSOC., INC.**  
 22227 BERRY BLVD  
 LAKE MICHIGAN EAST/22227 BERRY BLVD  
 YUKONIA, ILLINOIS 60198-0012  
 TEL: 815-426-1232

**CITY OF SAN DIEGO**  
**PUBLIC WORKS PROJECT**



MD2

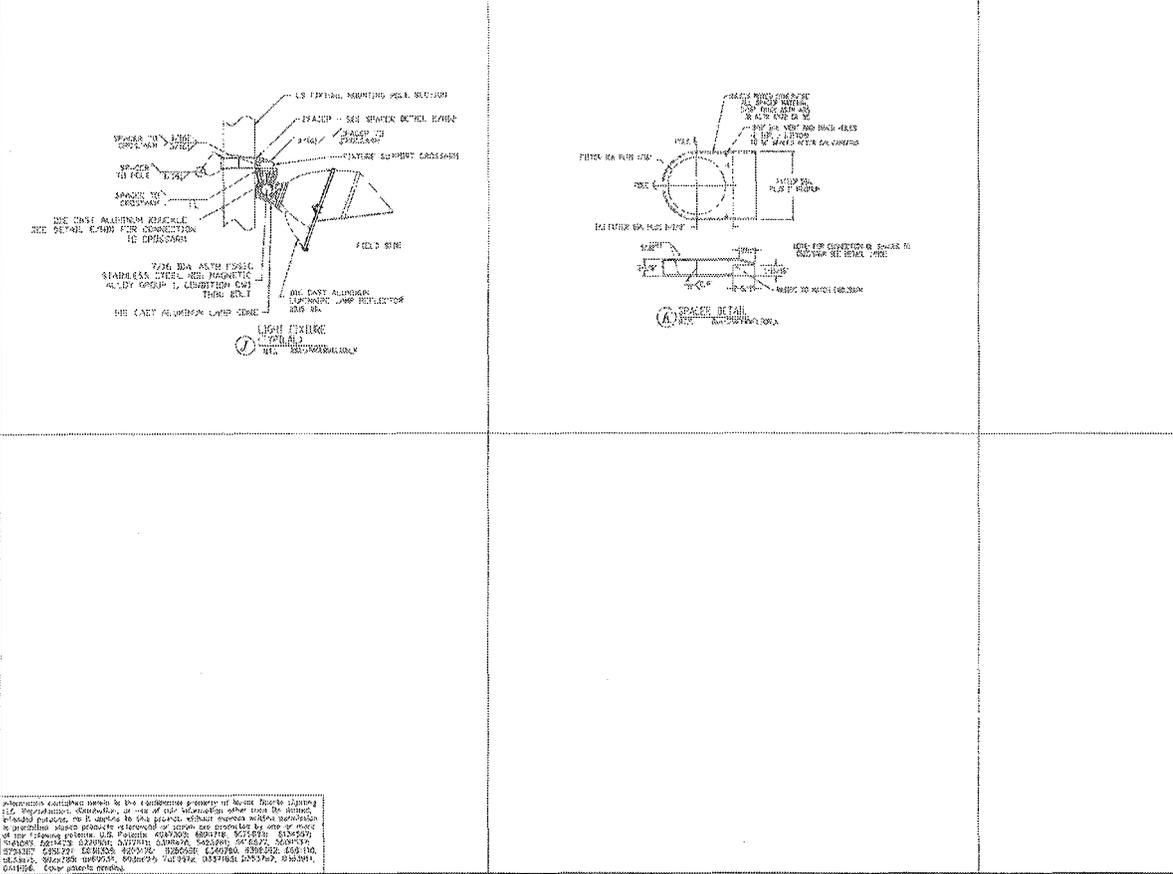
PLANS FOR THE CONSTRUCTION OF  
**TIERRASANTA COMMUNITY PARK  
 SPORTS FIELD LIGHTING AND  
 ADA BARRIER REMOVAL**

ATTACHMENT DETAILS

CITY OF SAN DIEGO, CALIFORNIA  
 PUBLIC WORKS DEPARTMENT  
 STREET 28 OF 30 SHEETS

|          |     |                      |
|----------|-----|----------------------|
| DATE     | NO. | DESCRIPTION          |
| 06/25/15 | 1   | ISSUED FOR PERMIT    |
| 06/25/15 | 2   | REVISED PER COMMENTS |
| 06/25/15 | 3   | REVISED PER COMMENTS |
| 06/25/15 | 4   | REVISED PER COMMENTS |
| 06/25/15 | 5   | REVISED PER COMMENTS |
| 06/25/15 | 6   | REVISED PER COMMENTS |
| 06/25/15 | 7   | REVISED PER COMMENTS |
| 06/25/15 | 8   | REVISED PER COMMENTS |
| 06/25/15 | 9   | REVISED PER COMMENTS |
| 06/25/15 | 10  | REVISED PER COMMENTS |
| 06/25/15 | 11  | REVISED PER COMMENTS |
| 06/25/15 | 12  | REVISED PER COMMENTS |
| 06/25/15 | 13  | REVISED PER COMMENTS |
| 06/25/15 | 14  | REVISED PER COMMENTS |
| 06/25/15 | 15  | REVISED PER COMMENTS |
| 06/25/15 | 16  | REVISED PER COMMENTS |
| 06/25/15 | 17  | REVISED PER COMMENTS |
| 06/25/15 | 18  | REVISED PER COMMENTS |
| 06/25/15 | 19  | REVISED PER COMMENTS |
| 06/25/15 | 20  | REVISED PER COMMENTS |
| 06/25/15 | 21  | REVISED PER COMMENTS |
| 06/25/15 | 22  | REVISED PER COMMENTS |
| 06/25/15 | 23  | REVISED PER COMMENTS |
| 06/25/15 | 24  | REVISED PER COMMENTS |
| 06/25/15 | 25  | REVISED PER COMMENTS |
| 06/25/15 | 26  | REVISED PER COMMENTS |
| 06/25/15 | 27  | REVISED PER COMMENTS |
| 06/25/15 | 28  | REVISED PER COMMENTS |
| 06/25/15 | 29  | REVISED PER COMMENTS |
| 06/25/15 | 30  | REVISED PER COMMENTS |

36021-36-D



ALL INFORMATION CONTAINED HEREIN IS THE SOLE PROPERTY OF MUSCO LIGHTING, LLC. REPRODUCTION, DISTRIBUTION, OR USE OF THIS INFORMATION OTHER THAN BY THE ORIGINAL ADDRESSEE IS PROHIBITED. THE USER OF THIS INFORMATION AGREES TO HOLD MUSCO LIGHTING, LLC HARMLESS FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES, THAT MAY BE ASSERTED AGAINST MUSCO LIGHTING, LLC BY ANY THIRD PARTY AS A RESULT OF THE USER'S REPRODUCTION, DISTRIBUTION, OR USE OF THIS INFORMATION. MUSCO LIGHTING, LLC IS NOT RESPONSIBLE FOR ANY DAMAGE TO PERSONS OR PROPERTY CAUSED BY THE USER'S REPRODUCTION, DISTRIBUTION, OR USE OF THIS INFORMATION. MUSCO LIGHTING, LLC IS NOT RESPONSIBLE FOR ANY DAMAGE TO PERSONS OR PROPERTY CAUSED BY THE USER'S REPRODUCTION, DISTRIBUTION, OR USE OF THIS INFORMATION. MUSCO LIGHTING, LLC IS NOT RESPONSIBLE FOR ANY DAMAGE TO PERSONS OR PROPERTY CAUSED BY THE USER'S REPRODUCTION, DISTRIBUTION, OR USE OF THIS INFORMATION.

CONSULTANT  
**R.J. FOLEY & ASSOC., INC.**  
 28402 ASPEN WAY  
 LAKE MARY, CALIFORNIA 92549  
 Telephone Number: 951 883 1042  
 Fax Number: 951-881-1305

**CITY OF SAN DIEGO**  
 PUBLIC WORKS PROJECT

APPROVED FOR THE CITY OF SAN DIEGO  
 PUBLIC WORKS DEPARTMENT  
 DATE: 06/25/15

# City of San Diego

CITY CONTACT: Clementina Giordano - Contract Specialist, Email: Cgiordano@sandigo.gov  
Phone No. (619) 533-3481, Fax No. (619) 533-3633

## ADDENDUM "B"

FOR



## Tierrasanta Community Park Sports Field Lighting

BID NO.: K-15-1357-DBB-3  
SAP NO. (WBS/IO/CC): S-11011  
CLIENT DEPARTMENT: 1714  
COUNCIL DISTRICT: 7  
PROJECT TYPE: GF

---

### BID DUE DATE:

**2:00 PM**  
**JULY 7, 2015**  
**CITY OF SAN DIEGO**  
**PUBLIC WORKS CONTRACTS**  
**1010 SECOND AVENUE, 14<sup>th</sup> FLOOR, MS 614C**  
**SAN DIEGO, CA 92101**

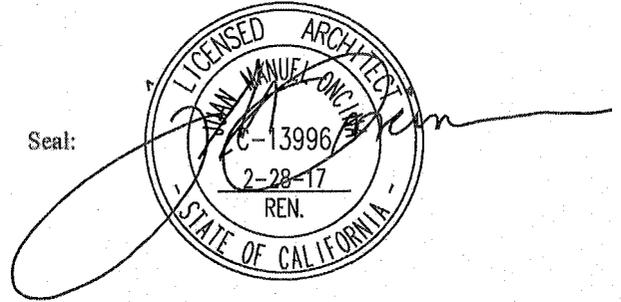
# ENGINEER OF WORK

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

J. Manuel Oncina  
1) Registered Architect

July 1, 2015  
Date

Seal:



Samuel M  
2) For City Engineer

7/1/15  
Date

Seal: C73711

**A. CHANGES TO CONTRACT DOCUMENTS**

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

**B. BIDDER'S QUESTIONS**

Q1. Just have one question pertaining to sheet E2.0. The comfort station electrical plan shows what looks to be a new nema 3r enclosure, but I am not seeing any specs for this. Could you please clarify?

A1. Yes, a new NEMA 3r enclosure is indicated per plans. Refer to Addendum B for revised Technical Specification Section 26 2416 PANELBOARDS. Refer to Part 2.06 EQUIPMENT ENCLOSURE for description of new NEMA 3r enclosure.

**C. VOLUME 1**

1. To Attachment E, Technicals, pages 230 through 245, Section 26 2416 Panelboards, **DELETE** in its entirety and **SUBSTITUTE** with pages 4 through 10 of this Addendum.

James Nagelvoort, Director  
Public Works Department

Dated: *July 1, 2015*  
San Diego, California

JN/RB/lji

## SECTION 26 2416

### PANELBOARDS

#### Part 1. GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including: 2012 Standard Specifications for Public Works Construction 'The GREENBOOK', 2012 City Supplement 'The WHITEBOOK', and Supplementary Special Provisions, apply to this Section.

##### 1.02 SUMMARY

- A. Section Includes:
  - 1. Lighting and appliance branch-circuit panelboards.

##### 1.03 DEFINITIONS

- A. CBC: California Building Code (CCR Title 24, Part 2)
- B. CEC: California Electrical Code (CCR Title 24, Part 3)

##### 1.04 ACTION SUBMITTALS

- A. Product Data: For each type of panelboard, switching and overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
  - 1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
  - 2. Detail enclosure types and details for types other than NEMA 250, Type 1.
  - 3. Detail bus configuration, current, and voltage ratings.
  - 4. Short-circuit current rating of panelboards and overcurrent protective devices.
  - 5. Include evidence of NRTL listing for series rating of installed devices.
  - 6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
  - 7. Include wiring diagrams for power, signal, and control wiring.
  - 8. Include time-current coordination curves, including manufacturer's curve numbers for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device.

##### 1.05 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Field Quality-Control Reports:

1. Test procedures used.
  2. Test results that comply with requirements.
  3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.
- C. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

#### **1.06 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Keys: Two spares for each type of panelboard cabinet lock.
  2. Circuit Breakers Including GFCI Types: Two spares for each panelboard.

#### **1.07 QUALITY ASSURANCE**

- A. Testing Agency Qualifications: Member Company of NETA or an NRTL.
1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.
- B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.
- C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in CEC, by a qualified testing agency, and marked for intended location and application.
- E. Comply with NEMA PB 1.
- F. Comply with CEC.

#### **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Handle and prepare panelboards for installation according to NECA 407 "Recommended Practice for Installing and Maintaining Panelboards."

#### **1.09 PROJECT CONDITIONS**

- A. Environmental Limitations:
1. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
    - a. Ambient Temperature: Not exceeding 23 deg F to plus 104 deg F.
    - b. Altitude: Not exceeding 6600 feet.
- B. Service Conditions: NEMA PB 1, usual service conditions, as follows:
1. Ambient temperatures within limits specified.

2. Altitude not exceeding 6600 feet.
- C. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by City or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
  1. Notify City's Representative no fewer than five days in advance of proposed interruption of electric service.
  2. Do not proceed with interruption of electric service without City's written permission.
  3. Comply with NFPA 70E.

#### **1.10 COORDINATION**

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

#### **1.11 WARRANTY**

- A. When warranties are required, verify the City's counsel that special warranties stated in this article are not less than remedies available to City under prevailing local laws.
- B. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.
  1. Warranty Period: Five years from date of Substantial Completion.

### **Part 2. PRODUCTS**

#### **2.01 GENERAL REQUIREMENTS FOR PANELBOARDS**

- A. Enclosures: Flush- and/or surface-mounted cabinets as indicated on drawings.
  1. Rated for environmental conditions at installed location.
    - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
    - b. Outdoor Locations: NEMA 250, Type 3R.
  2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
  3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
  4. Finishes:

- a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
  - b. Back Boxes: Galvanized steel.
  - c. Fungus Proofing: Permanent fungicidal treatment for overcurrent protective devices and other components.
5. Directory Card: Inside panelboard door, mounted in metal frame with transparent protective cover.
- B. Incoming Mains Location: As indicated on drawings.
- C. Phase, Neutral, and Ground Buses:
- 1. Material: Hard-drawn copper, 98 percent conductivity.
  - 2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
- D. Conductor Connectors: Suitable for use with conductor material and sizes.
- 1. Material: Tin-plated copper.
  - 2. Main and Neutral Lugs: Mechanical type.
  - 3. Ground Lugs and Bus-Configured Terminators: Mechanical type.
- E. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- F. Panelboard Short-Circuit Current Rating: Fully rated to interrupt 110% of symmetrical short-circuit current available at terminals.
- G. Supply a minimum 10% spare breaker space in all panels.
- H. Provide 10% more ampacity for electrical panel above calculated load requirements.
- I. Provide one ¾ inch conduit for three spares or spaces in all flush mounted power or lighting panel boards. Routed conduits to accessible space above ceiling.
- J. All panels shall have bolt on breakers.

## **2.02 PERFORMANCE REQUIREMENTS**

- A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to CBC and SEI/ASCE 7.
- 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified"

## **2.03 ACCEPTABLE MANUFACTURERS**

- A. 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

#### **2.04 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS**

- A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- B. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- C. Doors: Concealed hinges; door-in-door construction; secured with flush latch with tumbler lock; keyed alike.

#### **2.05 ACCESSORY COMPONENTS AND FEATURES**

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.
- B. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

#### **2.06 EQUIPMENT ENCLOSURE**

- A. Equipment enclosure for panelboard and lighting controls shall be weatherproof, NEMA 3R non-walk-in, constructed of 12 gauge galvanized steel with a sloped to rear roof line. Slope to be a minimum ½ inch per foot. 14 gauge steel doors are acceptable if the doors have suitable welded in stiffening pans to prevent deflection of doors. 14 gauge doors without stiffening pans are not acceptable.
- B. All steel surfaces shall be chemically cleansed and treated to prevent the entrance of moisture and formation of rust under the paint film. The enclosure exterior shall be finished in ANSI-61, light gray or suppliers' standard finish with written approval from the Engineer.
- C. All external connecting hardware shall be vandal resistant. Carriage type bolts will be acceptable.
- D. Cubical Space Heaters: Factory-installed electric space heaters of sufficient wattage in each vertical section to maintain enclosure temperature above expected dew point.
  1. Space-Heater Control: Humidistats to maintain relative humidity below 80%.
  2. Space-Heater Power Source: Dedicated 277V branch circuit from panelboard.

### **Part 3. EXECUTION**

#### **3.01 EXAMINATION**

- A. Receive, inspect, handle, and store panelboards according to NECA 407.
- B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 INSTALLATION**

- A. Install panelboards and accessories according to NECA 407.
- B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.
- C. Comply with mounting and anchoring requirements indicated on the drawings. Panelboard shall be mounted within a NEMA 3R equipment enclosure as indicated.
- D. Mount top of trim 72 inches above finished floor unless otherwise indicated.
- E. Mount panelboard cabinet plumb and rigid without distortion of box.
- F. Install overcurrent protective devices and controllers not already factory installed.
  - 1. Set field-adjustable, circuit-breaker trip ranges using settings determined by the Engineer. Provide 5 day notice to Engineer before adjusting trip settings.
- G. Install filler plates in unused spaces.
- H. Comply with NECA 1.

### **3.03 IDENTIFICATION**

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Section 260510 "Basic Electrical Materials and Methods".
- B. Create a directory to indicate installed circuit loads; incorporate City's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260510 "Basic Electrical Materials and Methods".
- D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Section 260510 "Basic Electrical Materials and Methods".

### **3.04 FIELD QUALITY CONTROL**

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform tests and inspections.
  - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

- D. Acceptance Testing Preparation:
  - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
  - 2. Test continuity of each circuit.
- E. Tests and Inspections:
  - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
  - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- F. Panelboards will be considered defective if they do not pass tests and inspections.
- G. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action. Infrared testing reports shall include color photos indicating device temperature test results.

### **3.05 ADJUSTING**

- A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges.
- C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.
  - 1. Measure as directed during period of normal system loading.
  - 2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
  - 3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
  - 4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

**END OF SECTION**

U.V.  
LIG. AV  
Ⓢ

# City of San Diego

CONTRACTOR'S NAME: Fordyce Construction  
ADDRESS: 9932 Prospect Ave. #138 SanDiego, CA 92171  
TELEPHONE NO.: (619-449-4272) FAX NO.: (619-449-1930)  
CITY CONTACT: Clementina Giordano - Contract Specialist, Email: cgiordano@sanidiego.gov  
Phone No. (619) 533-3481, Fax No. (619) 533-3633  
A. Corsi Morgan / RW Bustamante / LJI

## CONTRACT DOCUMENTS



## FOR

### Tierrasanta Community Park Sports Field Lighting

VOLUME 2 OF 2

BID NO.: K-15-1357-DBB-3  
SAP NO. (WBS/IO/CC): S-11011  
CLIENT DEPARTMENT: 1714  
COUNCIL DISTRICT: 7  
PROJECT TYPE: GF

**THIS CONTRACT IS SUBJECT TO THE FOLLOWING:**

- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- BID DISCOUNT PROGRAM (The WHITEBOOK, SLBE-ELBE Program Requirements, Section IV(2))
- PREVAILING WAGE RATES: STATE  FEDERAL
- APPRENTICESHIP

THIS BIDDING DOCUMENT TO BE SUBMITTED IN ITS ENTIRETY  
REFER TO VOLUME I COVER PAGE FOR TIME, DATE, AND LOCATION

**TABLE OF CONTENTS**

**DESCRIPTION**

**PAGE NUMBER**

**Volume 2 - Bidding Documents**

The following forms must be completed in their entirety and submitted with the Bid. Include the form(s) even if the information does not apply. Where the information does not apply write in N/A. Failure to include any of the forms may cause the Bid to be deemed **non-responsive**. If you are uncertain or have any questions about any required information, contact the City no later than 14 days prior to Bid due date.

|  |    |
|--|----|
| 1. Bid/Proposal.....   | 3  |
| 2. Bid Bond.....   | 6  |
| 3. Non-Collusion Affidavit to be executed by Bidder and Submitted with Bid under 23 USC 112 and PCC 7106 ..... | 7  |
| 4. Contractors Certification of Pending Actions.....   | 8  |
| 5. Equal Benefits Ordinance Certification of Compliance.....   | 9  |
| 6. Proposal (Bid).....   | 10 |
| 7. Form AA35 - List of Subcontractors .....  | 13 |
| 8. Form AA40 - Named Equipment/Material Supplier List .....  | 14 |

**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:** n/a

- (1) Name under which business is conducted \_\_\_\_\_
- (2) Signature (Given and surname) of proprietor \_\_\_\_\_
- (3) Place of Business (Street & Number) \_\_\_\_\_
- (4) City and State \_\_\_\_\_ Zip Code \_\_\_\_\_
- (5) Telephone No. \_\_\_\_\_ Facsimile No. \_\_\_\_\_
- (6) Email Address \_\_\_\_\_

**IF A PARTNERSHIP, SIGN HERE:** n/a

- (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 \_\_\_\_\_

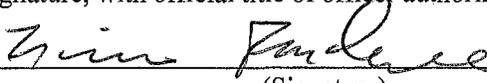
(6) Telephone No. \_\_\_\_\_ Facsimile No. \_\_\_\_\_

(7) Email Address \_\_\_\_\_

**IF A CORPORATION, SIGN HERE:**

(1) Name under which business is conducted Fordyce Construction, Inc.

(2) Signature, with official title of officer authorized to sign for the corporation:

  
(Signature)

Brian Fordyce  
(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) 9932 Prospect Ave #138

(5) City and State Santee, CA Zip Code 92071

(6) Telephone No. 619.449.4272 Facsimile No. 619.449.1930

(7) Email Address admin@fordyceconstruction.com



**BIDDING DOCUMENTS**

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS,

That Fordyce Construction, Inc. as Principal, and International Fidelity 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

Tierrasanta Community Park Sports Field Lighting

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 1st day of July, 2015

Fordyce Construction, Inc. (SEAL)  
(Principal)

International Fidelity Insurance Company(SEAL)  
(Surety)

By:   
(Signature)

By:   
Attorney-in-Fact, Bart Stewart

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

# POWER OF ATTORNEY

## INTERNATIONAL FIDELITY INSURANCE COMPANY ALLEGHENY CASUALTY COMPANY

ONE NEWARK CENTER, 20TH FLOOR NEWARK, NEW JERSEY 07102-5207

KNOW ALL MEN BY THESE PRESENTS: That INTERNATIONAL FIDELITY INSURANCE COMPANY, a corporation organized and existing under the laws of the State of New Jersey, and ALLEGHENY CASUALTY COMPANY, a corporation organized and existing under the laws of the State of Pennsylvania, having their principal office in the City of Newark, New Jersey, do hereby constitute and appoint

MOLLY CASHMAN, BART STEWART

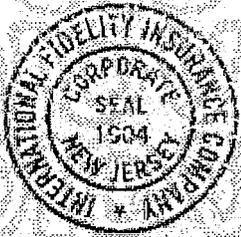
Encinitas, CA.

their true and lawful attorney(s) in fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise; and the execution of such instrument(s) in pursuance of these presents, shall be as binding upon the said INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY, as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by their regularly elected officers at their principal offices;

This Power of Attorney is executed, and may be revoked, pursuant to and by authority of the By-Laws of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY and is granted under, and by authority of the following resolution adopted by the Board of Directors of INTERNATIONAL FIDELITY INSURANCE COMPANY at a meeting duly held on the 20th day of July, 2010, and by the Board of Directors of ALLEGHENY CASUALTY COMPANY at a meeting duly held on the 15th day of August, 2000:

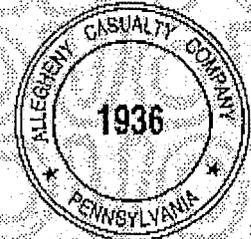
"RESOLVED, that (1) the President, Vice President, Chief Executive Officer or Secretary of the Corporation shall have the power to appoint, and to revoke the appointments of, Attorneys-in-Fact or agents with power and authority as defined or limited in their respective powers of attorney, and to execute on behalf of the Corporation and affix the Corporation's seal thereto; bonds, undertakings, recognizances, contracts of indemnity and other written obligations in the nature thereof or related thereto; and (2) any such Officers of the Corporation may appoint and revoke the appointments of joint-control custodians, agents for acceptance of process, and Attorneys-in-fact with authority to execute waivers and consents on behalf of the Corporation; and (3) the signature of any such Officer of the Corporation and the Corporation's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity, or other written obligation in the nature thereof or related thereto; such signature and seals when so used whether heretofore or hereafter, being hereby adopted by the Corporation as the original signature of such officer and the original seal of the Corporation, to be valid and binding upon the Corporation with the same force and effect as though manually affixed."

IN WITNESS WHEREOF, INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY have each executed and attested these presents on this 22nd day of July, 2014.



STATE OF NEW JERSEY  
County of Essex

ROBERT W. MINSTER  
Chief Executive Officer (International Fidelity Insurance Company) and President (Allegheny Casualty Company)



On this 22nd day of July 2014, before me came the individual who executed the preceding instrument, to me personally known, and, being by me duly sworn, said he is the therein described and authorized officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY; that the seals affixed to said instrument are the Corporate Seals of said Companies; that the said Corporate Seals and his signature were duly affixed by order of the Boards of Directors of said Companies;

IN TESTIMONY WHEREOF, I have hereunto set my hand affixed my Official Seal, at the City of Newark, New Jersey the day and year first above written.



A NOTARY PUBLIC OF NEW JERSEY  
My Commission Expires April 16, 2019

### CERTIFICATION

I, the undersigned officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Sections of the By-Laws of said Companies as set forth in said Power of Attorney with the originals on file in the home office of said companies, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand this

1<sup>st</sup>

day of

July 2015

MARIA BRANCO, Assistant Secretary

# ALL- PURPOSE CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

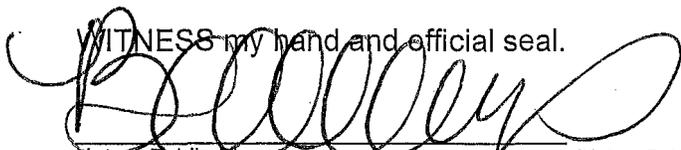
State of California }

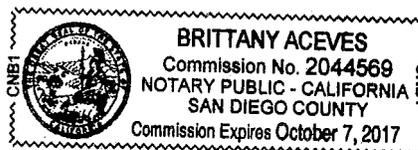
County of San Diego }

On 7/1/2015 before me, Brittany Aceves, Notary Public  
(Here Insert name and title of the officer)

personally appeared Bart Stewart  
 who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) ~~(s)~~ (s) 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.  
  
 Notary Public Signature (Notary Public Seal)



### ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

\_\_\_\_\_  
 (Title or description of attached document)

\_\_\_\_\_  
 (Title or description of attached document continued)

Number of Pages \_\_\_\_\_ Document Date \_\_\_\_\_

### CAPACITY CLAIMED BY THE SIGNER

- Individual (s)
- Corporate Officer
- \_\_\_\_\_ (Title)
- Partner(s)
- Attorney-in-Fact
- Trustee(s)
- Other \_\_\_\_\_

### INSTRUCTIONS FOR COMPLETING THIS FORM

*This form complies with current California statutes regarding notary wording and, if needed, should be completed and attached to the document. Acknowledgments from other states may be completed for documents being sent to that state so long as the wording does not require the California notary to violate California notary law.*

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he~~/she/~~they~~, is /~~are~~) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
  - ❖ Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
  - ❖ Indicate title or type of attached document, number of pages and date.
  - ❖ Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document with a staple.

**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 )  
 ) ss.  
County of San Diego )

Brian Fordyce, 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: *Brian Fordyce*

Title: President

Subscribed and sworn to before me this 7<sup>th</sup> day of July, 2015

*Amy Crandall*  
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: Fordyce Construction, Inc.

Certified By Brian Fordyce Title President

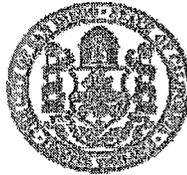
Name  
  
 Signature

Date July 7, 2015

**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: Fordyce Construction, Inc.                 | Contact Name: Brian Fordyce                  |
| Company Address: 9932 Prospect Ave #138 Santee, CA 92071 | Contact Phone: 619.449.4272                  |
|  | Contact Email: admin@fordyceconstruction.com |

**CONTRACT INFORMATION**

|  |                 |
|--|-----------------|
| Contract Title: Tierrasanta Community Park Sports Field Lighting | Start Date: TBD |
| Contract Number (if no number, state location): K-15-1357-DBB-3  | End Date: TBD   |

**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](http://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.

|                         |           |        |
|-------------------------|-----------|--------|
| Brian Fordyce           |           | 7/7/15 |
| Name/Title of Signatory | Signature | Date   |

**FOR OFFICIAL CITY USE ONLY**

Receipt Date: \_\_\_\_\_ EBO Analyst: \_\_\_\_\_  Approved  Not Approved – Reason: \_\_\_\_\_

(Rev 02/15/2011)

**BIDDING DOCUMENTS**

**PROPOSAL (BID)**

The Bidder agrees to the construction of **Tierrasanta Community Park Sports Field Lighting** 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 federally funded contracts and 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 | NAICS  | Payment Reference | Description                                    | Unit Price                      | Extension   |
|----------------------------------|----------|------|--------|-------------------|--|---------------------------------|-------------|
| <b>BASE BID</b>                  |          |      |        |                   |  |                                 |             |
| 1                                | 1        | LS   | 238990 | 9-3.1             | Construction of Park Improvements              | <del>                    </del> | \$ 641,611  |
| 2                                | 1        | LS   | 524126 | 2-4.1             | Bonds (Payment and Performance)                | <del>                    </del> | \$ 10,580   |
| 3                                | 1        | LS   | 238990 | 9-3.4.1           | Mobilization                                   | <del>                    </del> | \$ 10,560   |
| 4                                | 1        | LS   | 541330 | 701-13.9.5        | Water Pollution Control Program Development    | <del>                    </del> | \$ 625      |
| 5                                | 1        | LS   | 238990 | 701-13.9.5        | Water Pollution Control Program Implementation | <del>                    </del> | \$ 2,000    |
| 6                                | 1        | AL   | 236220 | 7-5.3             | Building Permits - Type I                      | <del>                    </del> | \$5,000.00  |
| 7                                | 1        | AL   | 236220 | 4-1.3.4           | Special Inspection - Type I                    | <del>                    </del> | \$3,270.00  |
| 8                                | 1        | AL   | 238910 | 7-5.3             | CAL/OSHA Permit - Type I                       | <del>                    </del> | \$2,000.00  |
| 9                                | 1        | AL   |        | 9-3.5             | Field Orders - Type II                         | <del>                    </del> | \$29,773.00 |
| <b>ESTIMATED TOTAL BASE BID:</b> |          |      |        |                   |  |                                 | \$ 705,319  |

✓ JE

**BIDDING DOCUMENTS**

---

TOTAL BID PRICE FOR BID (Items 1 through 9 inclusive) amount written in words:

Seven hundred ~~and~~ <sup>BF</sup> five thousand three hundred and nineteen dollars and no cents.

The Bid shall contain an acknowledgment of receipt of all addenda, the numbers of which shall be filled in on the Bid form. If an addendum or addenda has been issued by the City and not noted as being received by the Bidder, this proposal shall be rejected as being **non-responsive**. The following addenda have been received and are acknowledged in this bid: A & B

The names of all persons interested in the foregoing proposal as principals are as follows:

Fordyce Construction, Inc.

Brian Fordyce, President / Krista Fordyce, Secretary

---

---

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: Fordyce Construction, Inc.

Title: President

Business Address: 9932 Prospect Ave #138 Santee, CA 92071

Place of Business: 9932 Prospect Ave #138 Santee, CA 92071

Place of Residence: 9932 Prospect Ave #138 Santee, CA 92071

Signature: 

## 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 may 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.
- I. Subcontractors' License Number must be filled in. Failure to provide the information specified may deem the bidder **non-responsive**.

**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.

Subcontractors' License Number must be filled in. Failure to provide the information specified may deem the bidder **non-responsive**.

| NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR   | CONSTRUCTOR OR DESIGNER | SUBCONTRACTOR LICENSE NUMBER | TYPE OF WORK | DOLLAR VALUE OF SUBCONTRACT (MUST BE FILLED OUT) | MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB | WHERE CERTIFIED ② | CHECK IF JOINT VENTURE PARTNERSHIP |
|---|-------------------------|------------------------------|--------------|--|---|-------------------|------------------------------------|
| Name: <u>P. Teixeira</u><br>Address: <u>13675 Highway 8 Business</u><br>City: <u>El Cajon</u> State: <u>CA</u><br>Zip: <u>92021</u> Phone: <u>619-443-3703</u><br>Email: <u>JMP@teixeira.sdoxmail.com</u>     | Constructor             | 484396                       | DEMO         | \$22,400   | OBE   |                   |                                    |
| Name: <u>J &amp; S Asphalt Paving</u><br>Address: <u>PO BOX 100525</u><br>City: <u>San Diego</u> State: <u>CA</u><br>Zip: <u>92160</u> Phone: <u>619-528-0593</u><br>Email: <u>estimator@jandsasphalt.com</u> | Constructor             | 740743                       | AC PAVING    | \$4,975  | OBE   |                   |                                    |

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.

Subcontractors' License Number must be filled in. Failure to provide the information specified may deem the bidder **non-responsive**.

| NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR   | CONSTRUCTOR OR DESIGNER | SUBCONTRACTOR LICENSE NUMBER | TYPE OF WORK                        | DOLLAR VALUE OF SUBCONTRACT (MUST BE FILLED OUT) | MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB | WHERE CERTIFIED ② | CHECK IF JOINT VENTURE PARTNERSHIP |
|---|-------------------------|------------------------------|-------------------------------------|--|---|-------------------|------------------------------------|
| Name: <u>In-line Fence</u><br>Address: <u>PO Box 2637</u><br>City: <u>Ramona</u> State: <u>CA</u><br>Zip: <u>92065</u> Phone: <u>760-389-0282</u><br>Email: <u>Gary@inlineraul.com</u>                            | <u>Constructor</u>      | <u>769516</u>                | <u>Fencing</u>                      | <u>\$14,575</u>                                  | <u>MBE</u>  | <u>CA</u>         |                                    |
| Name: <u>Saddleback Construction</u><br>Address: <u>11630 E. Saint Gertrude Place</u><br>City: <u>Santa Ana</u> State: <u>CA</u><br>Zip: <u>92705</u> Phone: <u>714-540-0265</u><br>Email: <u>john@sadcon.net</u> | <u>Constructor</u>      | <u>842881</u>                | <u>Partitions &amp; Accessories</u> | <u>\$6,650</u>                                   | <u>OBE</u>  |                   |                                    |

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.

Subcontractors' License Number must be filled in. Failure to provide the information specified may deem the bidder **non-responsive**.

| NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR  | CONSTRUCTOR OR DESIGNER              | SUBCONTRACTOR LICENSE NUMBER | TYPE OF WORK               | DOLLAR VALUE OF SUBCONTRACT (MUST BE FILLED OUT) | MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB | WHERE CERTIFIED ② | CHECK IF JOINT VENTURE PARTNERSHIP |
|--|--------------------------------------|------------------------------|----------------------------|--|---|-------------------|------------------------------------|
| <del>Name: Tarpj Heating, Air + Plumbing<br/>Address: 4667 Mission Gorge Place Ste. B<br/>City: San Diego State: CA<br/>Zip: 92126 Phone: 619-576-4580<br/>Email: admin@tarpjheatingandair.com</del> | <del>BF<br/>Constructor<br/>BF</del> | <del>BF<br/>900580</del>     | <del>Plumbing<br/>BF</del> |  | <del>OBE</del>  |                   |                                    |
| Name: R+M Plumbing<br>Address: 8825 Ramondback<br>City: Santee State: CA<br>Zip: 92071 Phone: 619-504-6520<br>Email: randmplumbing@cox.net   | Constructor                          | 956104                       | Plumbing                   | \$41,400   | OBE   |                   |                                    |

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.

Subcontractors' License Number must be filled in. Failure to provide the information specified may deem the bidder **non-responsive**.

| NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR  | CONSTRUCTOR OR DESIGNER | SUBCONTRACTOR LICENSE NUMBER | TYPE OF WORK | DOLLAR VALUE OF SUBCONTRACT (MUST BE FILLED OUT) | MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB | WHERE CERTIFIED ① | CHECK IF JOINT VENTURE PARTNERSHIP |
|--|-------------------------|------------------------------|--------------|--|---|-------------------|------------------------------------|
| Name: _____<br>Address: _____<br>City: _____ State: _____<br>Zip: _____ Phone: _____<br>Email: _____ |                         |                              |              |  |   |                   |                                    |
| Name: _____<br>Address: _____<br>City: _____ State: _____<br>Zip: _____ Phone: _____<br>Email: _____ |                         |                              |              |  |   |                   |                                    |

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.

Subcontractors' License Number must be filled in. Failure to provide the information specified may deem the bidder **non-responsive**.

| NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR   | CONSTRUCTOR OR DESIGNER                     | SUBCONTRACTOR LICENSE NUMBER           | TYPE OF WORK    | DOLLAR VALUE OF SUBCONTRACT (MUST BE FILLED OUT) | MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB | WHERE CERTIFIED | CHECK IF JOINT VENTURE PARTNERSHIP |
|---|---|--|-----------------|--|---|-----------------|------------------------------------|
| Name: <u>Ace Electric</u><br>Address: <u>PO BOX 601071</u><br>City: <u>San Diego</u> State: <u>CA</u><br>Zip: <u>92160-1071</u> Phone: <u>619-521-9740</u><br>Email: <u>Barrett@aceelectric.com</u>                                       | <u>Constructor</u>                          | <u>835109</u>                          | <u>electric</u> | <u>\$214,500</u>                                 | <u>OBE</u>  |                 | <input type="checkbox"/>           |
| <del>Name: <u>Precision Electric</u> BF<br/>Address: <u>8137 Winter Gardens Blvd</u><br/>City: <u>Lakeside</u> State: <u>CA</u><br/>Zip: <u>92040</u> Phone: <u>619-390-2771</u><br/>Email: <u>Estimating@precisionelectric.com</u></del> | <del><u>Constructor</u><br/><u>BF</u></del> | <del><u>534116</u><br/><u>BF</u></del> |                 | <del><u>BF</u><br/><u>OBE</u></del>              | <del><u>OBE</u><br/><u>BF</u></del>                                 |                 | <input type="checkbox"/>           |

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 (MUST BE FILLED OUT) | SUPPLIER (Yes/No) | MANUFACTURER (Yes/No) | MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB <sup>ⓐ</sup> | WHERE CERTIFIED <sup>ⓑ</sup> |
|--|-----------------------|---|-------------------|-----------------------|--|------------------------------|
| Name: _____<br>Address: _____<br>City: _____ State: _____<br>Zip: _____ Phone: _____<br>Email: _____ |                       |   |                   |                       |  |                              |
| Name: _____<br>Address: _____<br>City: _____ State: _____<br>Zip: _____ Phone: _____<br>Email: _____ |                       |   |                   |                       |  |                              |

ⓐ 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 |  |         |

ⓑ 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.**