

26-004 / PITTSBURG HIGH SCHOOL - STADIUM PARKING LOT REPLACEMENT PROJECT MANUAL

BID NUMBER: 26-004

**PITTSBURG HIGH SCHOOL – STADIUM
PARKING LOT REPLACEMENT PROJECT**

PITTSBURG UNIFIED SCHOOL DISTRICT

February 02, 2026

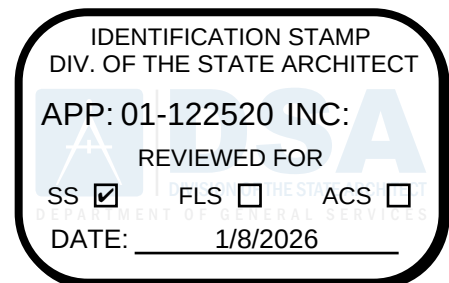


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LIST OF SCHEDULES

- 06/13/25: A/E Team Proposals Due
- 06/18/25: A/E Proposals Results finalized information due @ 10:00 AM for 06/25/25 School Board Meeting
- 06/25/25: School Board presented Item on Contract with A/E Team (Information & Action to Award)
- 06/27/25: Formal PO & Contract Issued to A/E Team
- 06/30/25: Start of Design Work & Contract Docs. Preparation
- 09/05/25: Submit Plans & Specs. to DSA for Review & Approval
- 01/14/26: School Board presented Item on Approval to Advertise for Bid
- 01/16/26: Plans & Specs. receive Approval by DSA
- 01/16/26 & 01/23/26: Advertise for Bid
- 01/26/26: Contract Bidding Documents Available to Bidders
- 02/11/26: Pre-Bid Conference & Walkthrough @ 3:30 PM (PST) at Pittsburg HS @ 1750 Harbor Street in Pittsburg, CA 94565
- 02/20/26: Final Due Date for Pre-Bid RFI's @ 5:00 PM (PST)
- **02/26/26: Bids Due @ 2:00 PM (PST) at District Site Support Services Center**
- 03/03/26: Bid Protest Period Ends @ 2:00 PM (PST)
- 03/04/26: Bid Results & Contract Award finalized information due @ 10:00 AM (PDT) for 03/11/26 School Board Meeting
- 03/11/26: School Board Approval & Contract Award
- 03/12/26: Notice of Award & Contract Issued
- 03/23/26: Notice to Proceed Issued (tentative pending Contract turnaround time)
- 03/23/26: On-Site Construction Work Start Date
- 07/17/26: On-Site Construction Completion Date
- 08/21/26: Contract Completion Date
- 09/16/26 or 09/30/26: School Board Approval to file Notice of Completion

END OF DOCUMENT

WORKERS' COMPENSATION CERTIFICATION

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**

between the Pittsburg Unified School District ("District") and _____
_____ ("Contractor" or "Bidder").

Labor Code section 3700, in relevant part, provides:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

- a. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state; and/or
- b. By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.

I am aware of the provisions of section 3700 of the 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.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

(In accordance with Labor Code sections 1860 and 1861, the above certificate must be signed and filed with the awarding body prior to performing any Work under this Contract.)

END OF DOCUMENT

NON-COLLUSION DECLARATION
(Public Contract Code Section 7106)

The undersigned declares:

I am the _____ of _____, the party making the foregoing bid.
[Title] [Name of Firm]

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. 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. All statements contained in the bid are true. 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, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____,
[Date]
at _____, _____.
[City] [State]

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

SITE VISIT CERTIFICATION

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID
IF SITE VISIT WAS MANDATORY

PROJECT: **Pittsburg HS – Stadium Parking Lot Replacement Project**

Check option that applies:

_____ I certify that I visited the Site of the proposed Work and became fully acquainted with the conditions relating to construction and labor. I fully understand the facilities, difficulties, and restrictions attending the execution of the Work under contract.

_____ I certify that _____ (Bidder's representative) visited the Site of the proposed Work and became fully acquainted with the conditions relating to construction and labor. The Bidder's representative fully understood the facilities, difficulties, and restrictions attending the execution of the Work under contract.

Bidder fully indemnifies the Pittsburg Unified School District, its Architect, its Engineer, its Construction Manager, and all of their respective officers, agents, employees, and consultants from any damage, or omissions, related to conditions that could have been identified during my visit and/or the Bidder's representative's visit to the Site.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

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END OF DOCUMENT

DOCUMENT 00 21 13.1

BIDDER INFORMATION AND FORMS

- Current Prequalified Contractors' Listing
- Current Project Stabilization Agreement

END OF DOCUMENT

BID BOND

(Note: If Bidder is providing a bid bond as its bid security, Bidder must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

That the undersigned, _____, as Principal ("Principal"),

and _____, as Surety ("Surety"), a corporation organized and existing under and by virtue of the laws of the State of California and authorized to do business as a surety in the State of California, are held and firmly bound unto the Pittsburg Unified School District ("District") of Contra Costa County, State of California, as Obligee, in an amount equal to ten percent (10%) of the Base Bid plus alternates, in the sum of

_____ Dollars (\$ _____)

lawful money of the United States of America, for the payment of which sum well and truly to be made, we, and each of us, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that whereas the Principal has submitted a bid to the District for all Work specifically described in the accompanying bid for the following project: **Pittsburg HS – Stadium Parking Lot Replacement Project** ("Project" or "Contract").

NOW, THEREFORE, if the Principal is awarded the Contract and, within the time and manner required under the Contract Documents, after the prescribed forms are presented to Principal for signature, enters into a written contract, in the prescribed form in accordance with the bid, and files two bonds, one guaranteeing faithful performance and the other guaranteeing payment for labor and materials as required by law, and meets all other conditions to the Contract between the Principal and the Obligee becoming effective, or if the Principal shall fully reimburse and save harmless the Obligee from any damage sustained by the Obligee through failure of the Principal to enter into the written contract and to file the required performance and labor and material bonds, and to meet all other conditions to the Contract between the Principal and the Obligee becoming effective, then this obligation shall be null and void; otherwise, it shall be and remain in full force and effect. The full payment of the sum stated above shall be due immediately if Principal fails to execute the Contract within seven (7) days of the date of the District's Notice of Award to Principal.

Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work to be performed thereunder, or the specifications accompanying the same, shall in any way affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or the call for bids, or to the work, or to the specifications.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorneys' fee to be fixed by the Court.

If the District awards the bid, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

IN WITNESS WHEREOF, this instrument has been duly executed by the Principal and Surety above named, on the _____ day of _____, 20____.

Principal

By

Surety

By

Name of California Agent of Surety

Address of California Agent of Surety

Telephone Number of California Agent of Surety

Bidder must attach Power of Attorney and Certificate of Authority for Surety and a Notarial Acknowledgment for all Surety's signatures. The California Department of Insurance must authorize the Surety to be an admitted Surety Insurer.

END OF DOCUMENT

NOTICE TO BIDDERS

1. Notice is hereby given that the governing board ("Board") of the Pittsburg Unified School District ("District") will receive sealed bids for the following project, Bid No. **26-004**, Bid Package **Pittsburg HS – Stadium Parking Lot Replacement Project** ("Project" or "Contract"):

Pittsburg HS – Stadium Parking Lot Replacement Project

2. The Project consists of:

Complete replacement of the existing Stadium Parking Lot paving, including furnishing & installing lighting, chain link fencing, and landscaping.

3. To bid on this Project, the Bidder is required to possess one or more of the following State of California contractors' license(s):

A or B

The Bidder's license(s) must remain active and in good standing throughout the term of the Contract.

4. To bid on this Project, the Bidder is required to be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code. The Bidder's registration must remain active throughout the term of the Contract.
5. Contract Documents will be available on or after **Monday, February 02, 2026** for review, and/or purchase, at ABC Imaging, 1381 Franquette Avenue, Concord, CA 94520. Phone 925-674-0900, Fax 925-674-0993. In addition, Contract Documents are available for bidders' review at the following builders' exchanges:

- A. Bay Area Builder's Exchange (510) 483-8880
- B. Construction Bid Board (800) 424-3996
- C. Dodge Data & Analytics (877) 958-5062
- D. Peninsula Builders Exchange (650) 591-4486
- E. Sacramento Builders Exchange (916) 442-8991
- F. Solano-Napa Builders Exchange (707) 255-2515
- G. Builders of Santa Clara (408) 727-4000
- H. San Francisco Builders Exchange (415) 282-8220
- I. Marin Builders Exchange (415) 462-1220
- J. Builders Exchange of Stockton (209) 478-1005

6. Contract Documents, in hard copy format, are available for purchase for Two Hundred Dollars (\$200.00), or in electronic format for Fifty Dollars (\$50.00), each set at ABC Imaging. The fee is non-refundable. Payment is to be made directly to ABC Imaging. Contract Documents will also be available on or after **Monday, February 02, 2026** for review electronically on the PUSD Website under the Facilities Planning & Management Department tab
7. Sealed bids will be received until **2:00 PM (PST), Thursday, February 26, 2026**, at the **District Site Support Services Center, 3200 Loveridge Road, Pittsburg, CA 94565**, at or after which time the bids will be opened and publicly read aloud. Any bid that is submitted after this time shall be nonresponsive and returned to the bidder. Any claim by a bidder of error in its bid must be made in compliance with section 5100 et seq. of the Public Contract Code.
8. Pursuant to Public Contract Code section 20111.6, only prequalified bidders will be eligible to submit a bid for contracts \$1 million or more using or planning to use state bond funds. Any bid submitted by a bidder who is not prequalified shall be non-responsive and returned unopened to the bidder. Moreover, any bid listing subcontractors holding C-4, C-7, C-10, C-16, C-20, C-34, C-36, C-38, C-42, C-43 or C-46 licenses, if used, who have not been prequalified, shall be deemed nonresponsive and will not be considered. A prequalification application can be obtained from Ms. Donna Fentanes at dfentanes@pittsburgusd.net.
9. All bids shall be on the form provided by the District. Each bid must conform and be responsive to all pertinent Contract Documents, including, but not limited to, the Instructions to Bidders.
10. A bid bond by an admitted surety insurer on the form provided by the District, cash, or a cashier's check or a certified check, drawn to the order of the Pittsburg Unified School District, in the amount of ten percent (10%) of the total bid price, shall accompany the Bid Form and Proposal, as a guarantee that the Bidder will, within seven (7) calendar days after the date of the Notice of Award, enter into a contract with the District for the performance of the services as stipulated in the bid.
11. A mandatory pre-bid conference and site visit will be held on **Wednesday, February 11, 2026, at 3:30 PM (PST)** at **Pittsburg HS @ 1750 Harbor Street in Pittsburg, CA 94565**. Failure to attend or tardiness will render bid ineligible.
12. The successful Bidder shall be required to furnish a 100% Performance Bond and a 100% Payment Bond if it is awarded the Contract for the Work.
13. The successful Bidder may substitute securities for any monies withheld by the District to ensure performance under the Contract, in accordance with the provisions of section 22300 of the Public Contract Code.

14. The Contractor and all Subcontractors under the Contractor shall pay all workers on all Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to section 1770 et seq. of the California Labor Code. Prevailing wage rates are also available from the District or on the Internet at: <<http://www.dir.ca.gov>>.
15. This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and subject to the requirements of Title 8 of the California Code of Regulations. The Contractor and all Subcontractors under the Contractor shall furnish electronic certified payroll records directly to the Labor Commissioner weekly and within ten (10) days of any request by the District or the Labor Commissioner. The successful Bidder shall comply with all requirements of Division 2, Part 7, Chapter 1, Articles 1-5 of the Labor Code.
16. The District has entered into a Project Stabilization Agreement that is applicable to this Project. For questions or assistance concerning the Project Stabilization Agreement, contact Mr. Sean Vandermeij @ 925-473-2438, or at 3200 Loveridge Road in Pittsburg, California 94565.
17. The District shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on:
 - A. The base bid amount.
18. The Board reserves the right to reject any and all bids and/or waive any irregularity in any bid received. If the District awards the Contract, the security of unsuccessful bidder(s) shall be returned within sixty (60) days from the time the award is made. Unless otherwise required by law, no bidder may withdraw its bid for ninety (90) days after the date of the bid opening.

END OF DOCUMENT

BID FORM AND PROPOSAL

To: Governing Board of the Pittsburg Unified School District ("District" or "Owner")

From: _____
(Proper Name of Bidder)

The undersigned declares that Bidder has read and understands the Contract Documents, including, without limitation, the Notice to Bidders and the Instructions to Bidders, and agrees and proposes to furnish all necessary labor, materials, and equipment to perform and furnish all work in accordance with the terms and conditions of the Contract Documents, including, without limitation, the Drawings and Specifications of Bid No. **26-004**.

PROJECT: **Pittsburg HS – Stadium Parking Lot Replacement Project**

("Project" or "Contract") and will accept in full payment for that Work the following total lump sum amount, all taxes included:

_____ dollars \$ _____

BASE BID

Bidder acknowledges and agrees that the Base Bid accounts for any and all costs, and Allowances.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

Additional Detail Regarding Calculation of Base Bid

1. **Alternates: NOT USED**
2. **Unit Prices: NOT USED**
3. **Allowances: NOT USED**
4. The undersigned has reviewed the Work outlined in the Contract Documents and fully understands the scope of Work required in this Proposal, understands the construction and project management function(s) is described in the Contract Documents, and that each Bidder who is awarded a contract shall be in fact a prime contractor, not a subcontractor, to the District, and agrees that its Proposal, if accepted by the District, will be the basis for the Bidder to enter into a contract with the District in accordance with the intent of the Contract Documents.
5. The undersigned has notified the District in writing of any discrepancies or omissions or of any doubt, questions, or ambiguities about the meaning of any of the Contract Documents, and has contacted the Construction Manager before bid date to verify the issuance of any clarifying Addenda.
6. The undersigned agrees to commence work under this Contract on the date established in the Contract Documents and to complete all work within the time specified in the Contract Documents.
7. The liquidated damages clause of the General Conditions and Agreement is hereby acknowledged.
8. It is understood that the District reserves the right to reject this bid and that the bid shall remain open to acceptance and is irrevocable for a period of ninety (90) days.
9. The following documents are attached hereto:
 - Bid Bond on the District's form or other security
 - Designated Subcontractors List
 - Site Visit Certification
 - Non-Collusion Declaration

Receipt and acceptance of the following Addenda is hereby acknowledged:

No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____
No. _____, Dated _____	No. _____, Dated _____

10. Bidder acknowledges that the license required for performance of the Work is an **A** **or B** license.
11. The undersigned hereby certifies that Bidder is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work.
12. Bidder specifically acknowledges and understands that if it is awarded the Contract, that it shall perform the Work of the Project while complying with all requirements of the Department of Industrial Relations, and with all requirements of the Project Stabilization Agreement.
13. The Bidder represents that it is competent, knowledgeable, and has special skills with respect to the nature, extent, and inherent conditions of the Work to be performed. Bidder further acknowledges that there are certain peculiar and inherent conditions existent in the construction of the Work that may create, during the Work, unusual or peculiar unsafe conditions hazardous to persons and property.
14. Bidder expressly acknowledges that it is aware of such peculiar risks and that it has the skill and experience to foresee and to adopt protective measures to adequately and safely perform the Work with respect to such hazards.
15. Bidder expressly acknowledges that it is aware that if a false claim is knowingly submitted (as the terms "claim" and "knowingly" are defined in the California False Claims Act, Gov. Code, § 12650 et seq.), the District will be entitled to civil remedies set forth in the California False Claim Act. It may also be considered fraud and the Contractor may be subject to criminal prosecution.
16. The undersigned Bidder certifies that it is, at the time of bidding, and shall be throughout the period of the Contract, licensed by the State of California to do the type of work required under the terms of the Contract Documents and registered as a public works contractor with the Department of Industrial Relations. Bidder further certifies that it is regularly engaged in the general class and type of work called for in the Contract Documents.

Furthermore, Bidder hereby certifies to the District that all representations, certifications, and statements made by Bidder, as set forth in this bid form, are true and correct and are made under penalty of perjury.

Dated this _____ day of _____ 20 ____

Name of Bidder: _____

Type of Organization: _____

Signed by: _____

Title of Signer: _____

Address of Bidder: _____

Taxpayer Identification No. of Bidder: _____

Telephone Number: _____

Fax Number: _____

E-mail: _____ Web Page: _____

Contractor's License No(s): No.: _____ Class: _____ Expiration Date: _____

No.: _____ Class: _____ Expiration Date: _____

No.: _____ Class: _____ Expiration Date: _____

Public Works Contractor Registration No.: _____

END OF DOCUMENT

DESIGNATED SUBCONTRACTORS LIST
(Public Contact Code Sections 4100-4114)

PROJECT: **Pittsburg HS – Stadium Parking Lot Replacement Project**

Bidder acknowledges and agrees that it must clearly set forth below the name, location and California contractor license number of each subcontractor who will perform work or labor or render service to the Bidder in or about the construction of the Work or who will specially fabricate and install a portion of the Work according to detailed drawings contained in the plans and specifications in an amount in excess of one-half of one percent (0.5%) of Bidder's total Base Bid and the kind of Work that each will perform. Vendors or suppliers of materials only do not need to be listed.

Bidder acknowledges and agrees that, if Bidder fails to list as to any portion of Work, or if Bidder lists more than one subcontractor to perform the same portion of Work, Bidder must perform that portion itself or be subjected to penalty under applicable law. In case more than one subcontractor is named for the same kind of Work, state the portion of the kind of Work that each subcontractor will perform.

If alternate bid(s) is/are called for and Bidder intends to use subcontractors different from or in addition to those subcontractors listed for work under the Base Bid, Bidder must list subcontractors that will perform Work in an amount in excess of one half of one percent (0.5%) of Bidder's total Base Bid plus alternate(s).

If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

DESIGNATED SUBCONTRACTORS LIST

DOCUMENT 00 43 36-2

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Subcontractor Name: _____

CA Cont. Lic. #: _____ Location: _____

Portion of Work: _____

Date: _____

Proper Name of Bidder: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

EXISTING CONDITIONS

1. Summary

This document describes existing conditions at or near the Project, and use of information available regarding existing conditions. This document is **not** part of the Contract Documents. See General Conditions for definition(s) of terms used herein.

2. Reports and Information on Existing Conditions

- a. Documents providing a general description of the Site and conditions of the Work may have been collected by the Pittsburgh Unified School District ("District"), its consultants, contractors, and tenants. These documents may, but are not required to, include previous contracts, contract specifications, tenant improvement contracts, as-built drawings, utility drawings, and information regarding underground facilities.
- b. Information regarding existing conditions may be inspected at the District offices or the Construction Manager's offices, if any, and copies may be obtained at cost of reproduction and handling upon Bidder's agreement to pay for such copies. These reports, documents, and other information are **not** part of the Contract Documents. These reports, documents, and other information do **not** excuse Contractor from fulfilling Contractor's obligation to independently investigate any or all existing conditions or from using reasonable prudent measures to avoid damaging existing improvements.
- c. Information regarding existing conditions may also be included in the Project Manual, but shall **not** be considered part of the Contract Documents.
- d. Prior to commencing this Work, Contractor and the District's representative shall survey the Site to document the condition of the Site. Contractor will record the survey in digital videotape format and provide an electronic copy to the District within fourteen (14) days of the survey.
- e. Contractor may also document any pre-existing conditions in writing, provided that both the Contractor and the District's representative agree on said conditions and sign a memorandum documenting the same.
- f. The reports and other data or information regarding existing conditions and underground facilities at or contiguous to the Project are the following:
 - (1) Original Construction Drawings.

3. Use of Information

- a. Information regarding existing conditions was obtained only for use of District and its consultants, contractors, and tenants for planning and design and is **not** part of the Contract Documents.
- b. District does not warrant, and makes no representation regarding, the accuracy or thoroughness of any information regarding existing conditions. Bidder represents and agrees that in submitting a bid it is not relying on any information regarding existing conditions supplied by District.
- c. Under no circumstances shall District be deemed to warrant or represent existing above-ground conditions, as-built conditions, or other actual conditions, verifiable by independent investigation. These conditions are verifiable by Bidder by the performance of its own independent investigation that Bidder must perform as a condition to bidding and Bidder should not and shall not rely on this information or any other information supplied by District regarding existing conditions.
- d. Any information shown or indicated in the reports and other data supplied herein with respect to existing underground facilities at or contiguous to the Project may be based upon information and data furnished to District by the District's employees and/or consultants or builders of such underground facilities or others. District does not assume responsibility for the completeness of this information, and Bidder is solely responsible for any interpretation or conclusion drawn from this information.
- e. District shall be responsible only for the general accuracy of information regarding underground facilities, and only for those underground facilities that are owned by District, and only where Bidder has conducted the independent investigation required of it pursuant to the Instructions to Bidders, and discrepancies are not apparent.

4. Investigations/Site Examinations

- a. Before submitting a bid, each Bidder is responsible for conducting or obtaining any additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the Site or otherwise, that may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto or that Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of Contract Documents.
- b. On request, District will provide each Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies, as each Bidder deems necessary for submission of a bid. Bidders must fill all holes and clean up and restore the Site to its former condition upon completion of its explorations, investigations, tests, and studies.

Such investigations and Site examinations may be performed during any and all Site visits indicated in the Notice to Bidders and only under the provisions of the Contract Documents, including, but not limited to, proof of insurance and obligation to indemnify against claims arising from such work, and District's prior approval.

END OF DOCUMENT

INSTRUCTIONS TO BIDDERS

Bidders shall follow the instructions in this document, and shall submit all documents, forms, and information required for consideration of a bid.

Pittsburg Unified School District ("District") will evaluate information submitted by the apparent low Bidder and, if incomplete or unsatisfactory to District, Bidder's bid may be rejected at the sole discretion of District.

1. Bids are requested for a general construction contract, or work described in general, for the following project ("Project" or "Contract"):

Pittsburg HS – Stadium Parking Lot Replacement Project

2. A Bidder and its subcontractors must possess the appropriate State of California contractor's license and must maintain the license throughout the duration of the project. Bidders must also be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code. Bids submitted by a contractor who is not properly licensed or registered shall be deemed nonresponsive and will not be considered.
3. District will receive sealed bids from bidders as stipulated in the Notice to Bidders.
 - a. All bids must be sealed in an envelope, marked with the name and address of the Bidder, name of the Project, the Project Number and/or bid number, and time of bid opening.
 - b. Bids must be submitted to the PUSD SSSC @ 3200 Loveridge Road, Pittsburg, CA 94565 by date and time shown in the Notice to Bidders.
 - c. Bids must contain all documents as required herein.
4. Bidders are advised that on the date that bids are opened, telephones will not be available at the District Offices for use by bidders or their representatives.
5. Bids will be opened at or after the time indicated for receipt of bids.
6. Bidders must submit bids on the documents titled Bid Form and Proposal, and must submit all other required District forms. Bids not submitted on the District's required forms shall be deemed nonresponsive and shall not be considered. Additional sheets required to fully respond to requested information are permissible.
7. Bidders shall not modify the Bid Form and Proposal or qualify their bids. Bidders shall not submit to the District a re-formatted, re-typed, altered, modified, or otherwise recreated version of the Bid Form and Proposal or other District-provided document.
8. Bids shall be clearly written and without erasure or deletions. District reserves the right to reject any bid containing erasures, deletions, or illegible contents.

9. Bidders must supply all information required by each Bid Document. Bids must be full and complete. District reserves the right in its sole discretion to reject any bid as nonresponsive as a result of any error or omission in the bid. Bidders must complete and submit all of the following documents with the Bid Form and Proposal:
 - a. Bid Bond on the District's form, or other security.
 - b. Designated Subcontractors List.
 - c. Site Visit Certification.
 - d. Non-Collusion Declaration.
10. Bidders must submit with their bids cash, a cashier's check or a certified check payable to District, or a bid bond by an admitted surety insurer of not less than ten percent (10%) of amount of Base Bid, plus all additive alternates ("Bid Bond"). If Bidder chooses to provide a Bid Bond as security, Bidder must use the required form of corporate surety provided by District. The Surety on Bidder's Bid Bond must be an insurer admitted in the State of California and authorized to issue surety bonds in the State of California. Bids submitted without necessary bid security will be deemed nonresponsive and will not be considered.
11. If Bidder to whom the Contract is awarded fails or neglects to enter into the Contract and submit required bonds, insurance certificates, and all other required documents, within **SEVEN (7)** calendar days after the date of the Notice of Award, District may deposit Bid Bond, cash, cashier's check, or certified check for collection, and proceeds thereof may be retained by District as liquidated damages for failure of Bidder to enter into Contract, in the sole discretion of District. It is agreed that calculation of damages District may suffer as a result of Bidder's failure to enter into the Contract would be extremely difficult and impractical to determine and that the amount of the Bidder's required bid security shall be the agreed and conclusively presumed amount of damages.
12. Bidders must submit with the bid the Designated Subcontractors List for those subcontractors who will perform any portion of Work, including labor, rendering of service, or specially fabricating and installing a portion of the Work or improvement according to detailed drawings contained in the plans and specifications, in excess of one half of one percent (0.5%) of total bid. Failure to submit this list when required by law shall result in bid being deemed nonresponsive and the bid will not be considered.
13. All of the listed subcontractors are required to be registered as a public works contractor with the Department of Industrial Relations pursuant to the Labor Code.
 - a. An inadvertent error in listing the California contractor license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's license number is submitted to the District within 24 hours after the bid opening and the corrected number corresponds with the submitted name and location for that subcontractor.

- b. An inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:
 - (1) The subcontractor is registered prior to the bid opening.
 - (2) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.
 - (3) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.
- 14. If a mandatory pre-bid conference and site visit ("Site Visit") is required as referenced in the Notice to Bidders, then Bidders must submit the Site Visit Certification with their Bid. District will transmit to all prospective Bidders of record such Addenda as District in its discretion considers necessary in response to questions arising at the Site Visit. Oral statements shall not be relied upon and will not be binding or legally effective. Addenda issued by the District as a result of the Site Visit, if any, shall constitute the sole and exclusive record and statement of the results of the Site Visit.
- 15. Bidders shall submit the Non-Collusion Declaration with their bids. Bids submitted without the Non-Collusion Declaration shall be deemed nonresponsive and will not be considered.
- 16. The Contractor and all Subcontractors under the Contractor shall pay all workers on all work performed pursuant to the Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code. Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the Department of Industrial Relations, are available upon request at the District's principal office. Prevailing wage rates are also available on the internet at <http://www.dir.ca.gov>.
- 17. Submission of bid signifies careful examination of Contract Documents and complete understanding of the nature, extent, and location of Work to be performed. Bidders must complete the tasks listed below as a condition to bidding, and submission of a bid shall constitute the Bidder's express representation to District that Bidder has fully completed the following:
 - a. Bidder has visited the Site, if required, and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions and federal, state and local laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of Work or that relate to any aspect of the means, methods, techniques, sequences, or procedures of construction to be employed by Bidder and safety precautions and programs incident thereto;

- b. Bidder has conducted or obtained and has understood all examinations, investigations, explorations, tests, reports, and studies that pertain to the subsurface conditions, as-built conditions, underground facilities, and all other physical conditions at or contiguous to the Site or otherwise that may affect the cost, progress, performance, or furnishing of Work, as Bidder considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time, and in accordance with the other terms and conditions of Contract Documents, including specifically the provisions of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies, or similar information or data are or will be required by Bidder for such purposes;
- c. Bidder has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Contract Documents;
- d. Bidder has given the District prompt written notice of all conflicts, errors, ambiguities, or discrepancies that it has discovered in or among the Contract Documents and the actual conditions, and the written resolution(s) thereof by the District is/are acceptable to Bidder;
- e. Bidder has made a complete disclosure in writing to the District of all facts bearing upon any possible interest, direct or indirect, that Bidder believes any representative of the District or other officer or employee of the District presently has or will have in this Contract or in the performance thereof or in any portion of the profits thereof;
- f. Bidder must, prior to bidding, perform the work, investigations, research, and analysis required by this document and that Bidder represented in its Bid Form and Proposal and the Agreement that it performed prior to bidding. Contractor under this Contract is charged with all information and knowledge that a reasonable bidder would ascertain from having performed this required work, investigation, research, and analysis. Bid prices must include entire cost of all work "incidental" to completion of the Work.
- g. Conditions Shown on the Contract Documents: Information as to underground conditions, as-built conditions, or other conditions or obstructions, indicated in the Contract Documents, e.g., on Drawings or in Specifications, has been obtained with reasonable care, and has been recorded in good faith. However, District only warrants, and Bidder may only rely, on the accuracy of limited types of information.
 - (1) As to above-ground conditions or as-built conditions shown or indicated in the Contract Documents, there is no warranty, express or implied, or any representation express or implied, that such information is correctly shown or indicated. This information is verifiable by independent investigation and Bidder is required to make such verification as a condition to bidding. In submitting its Bid, Bidder shall rely on the results of its own independent investigation. In submitting its Bid, Bidder shall not rely on District-supplied information regarding above-ground conditions or as-built conditions.

- (2) As to any subsurface condition shown or indicated in the Contract Documents, Bidder may rely only upon the general accuracy of actual reported depths, actual reported character of materials, actual reported soil types, actual reported water conditions, or actual obstructions shown or indicated. District is not responsible for the completeness of such information for bidding or construction; nor is District responsible in any way for any conclusions or opinions that the Bidder has drawn from such information; nor is the District responsible for subsurface conditions that are not specifically shown (for example, District is not responsible for soil conditions in areas contiguous to areas where a subsurface condition is shown).
 - h. Conditions Shown in Reports and Drawings Supplied for Informational Purposes: Reference is made to the document entitled Geotechnical Engineering and Geologic Hazards Study, dated 12/11/18, for identification of:
 - (1) Subsurface Conditions: Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that have been utilized by Architect in preparing the Contract Documents; and
 - (2) Physical Conditions: Those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that has been utilized by Architect in preparing the Contract Documents.
 - (3) These reports and drawings are **not** Contract Documents and, except for any "technical" data regarding subsurface conditions specifically identified in Geotechnical Data and Existing Conditions, and underground facilities data, Bidder may not in any manner rely on the information in these reports and drawings. Subject to the foregoing, Bidder must make its own independent investigation of all conditions affecting the Work and must not rely on information provided by District.
18. Bids shall be based on products and systems specified in Contract Documents or listed by name in Addenda. Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Bidder may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified. The District is not responsible and/or liable in any way for a Contractor's damages and/or claims related, in any way, to that Contractor's basing its bid on any requested substitution that the District has not approved in advance and in writing. Contractors and materials suppliers who submit requests for substitutions prior to the award of the Contract must do so in writing and in compliance with Public Contract Code section 3400. All requests must comply with the following:
- a. District must receive any notice of request for substitution of a specified item a minimum of **TEN (10)** calendar days prior to bid opening. The Successful Bidder will not be allowed to substitute specified items unless properly noticed.

- b. Within thirty five (35) days after the date of the Notice of Award, the Successful Bidder shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the Specifications. Insufficient information shall be grounds for rejection of substitution.
 - c. Approved substitutions, if any, shall be listed in Addenda. District reserves the right not to act upon submittals of substitutions until after bid opening.
 - d. Substitutions may be requested after Contract has been awarded only if indicated in and in accordance with requirements specified in the Special Conditions and the Specifications.
19. Bidders may examine any available "as-built" drawings of previous work by giving District reasonable advance notice. District will not be responsible for accuracy of "as-built" drawings. The document entitled Existing Conditions applies to all supplied "as-built" drawings.
20. All questions about the meaning or intent of the Contract Documents are to be directed via email to the Architect to Rodolfo Chacon at Chacon Architecture at rodolfo@chaconarchitecture.com, with a copy to the District to E. Keith Holtslander at kholtlander@pittsburgusd.net. Interpretations or clarifications considered necessary by the District in response to such questions will be issued in writing by Addenda and emailed, faxed, mailed, or delivered to all parties recorded by the District as having received the Contract Documents or posted on the District's website at www.pittsburg.k12.ca.us. Questions received less than **SEVEN (7)** calendar days prior to the date for opening bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
21. Addenda may also be issued to modify other parts of the Contract Documents as deemed advisable by the District.
22. Each Bidder must acknowledge each Addendum in its Bid Form and Proposal by number or its Bid shall be considered non-responsive. Each Addendum shall be part of the Contract Documents. A complete listing of Addenda may be secured from the District.
23. This Contract may include alternates. Alternates are defined as alternate products, materials, equipment, systems, methods, or major elements of the construction that may, at the District's option and under terms established in the Contract and pursuant to section 20103.8 of the Public Contract Code, be selected for the Work.
24. The District shall award the Contract, if it awards it at all, to the lowest responsive responsible bidder based on the criteria as indicated in the Notice to Bidders. In the event two or more responsible bidders submit identical bids, the District shall select the Bidder to whom to award the Contract by lot.

25. Time for Completion: District may issue a Notice to Proceed within **NINETY (90)** days from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.
- a. In the event that the District desires to postpone issuing the Notice to Proceed beyond this 90-day period, it is expressly understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed.
 - b. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed beyond a 90-day period. If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to the Contractor, the Contractor may terminate the Contract. Contractor's termination due to a postponement beyond this 90-day period shall be by written notice to District within **TEN (10)** calendar days after receipt by Contractor of District's notice of postponement.
 - c. It is further understood by the Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement and which the District had in writing authorized Contractor to perform prior to issuing a Notice to Proceed.
 - d. Should the Contractor terminate the Contract as a result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.
26. The Bidder to whom Contract is awarded shall execute and submit the following documents by 5:00 p.m. of the **SEVENTH (7th)** calendar day following the date of the Notice of Award. Failure to properly and timely submit these documents entitles District to reject the bid as nonresponsive.
- a. Agreement: To be executed by successful Bidder. Submit four (4) copies, each bearing an original signature.
 - b. Escrow of Bid Documentation: This must include all required documentation. See the document titled Escrow Bid Documentation for more information.
 - c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
 - d. Payment Bond (Contractor's Labor and Material Bond) (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
 - e. Insurance Certificates and Endorsements as required.
 - f. Workers' Compensation Certification.

- g. Prevailing Wage and Related Labor Requirements Certification.
 - h. Disabled Veteran Business Enterprise Participation Certification.
 - i. Drug-Free Workplace Certification.
 - j. Tobacco-Free Environment Certification.
 - k. Hazardous Materials Certification.
 - l. Lead-Based Materials Certification.
 - m. Criminal Background Investigation/Fingerprinting Certification.
 - n. Buy American Certification.
 - o. Registered Subcontractors List: Must include Department of Industrial Relations (DIR) registration number of each subcontractor for all tiers.
27. Any bid protest by any Bidder regarding any other bid must be submitted in writing to the District, before 5:00 p.m. of the **THIRD (3rd)** business day following bid opening.
- a. Only a Bidder who has actually submitted a bid, and who could be awarded the Contract if the bid protest is upheld, is eligible to submit a bid protest. Subcontractors are not eligible to submit bid protests. A Bidder may not rely on the bid protest submitted by another Bidder.
 - b. A bid protest must contain a complete statement of any and all bases for the protest and all supporting documentation. Materials submitted after the bid protest deadline will not be considered.
 - c. The protest must refer to the specific portions of all documents that form the basis for the protest.
 - (1) Without limitation to any other basis for protest, an inadvertent error in listing the California contractor's license number on the Designated Subcontractors List shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the correct contractor's license number is submitted to the District within 24 hours after the bid opening and the corrected number corresponds with the submitted name and location for that subcontractor.
 - (2) Without limitation to any other basis for protest, an inadvertent error listing an unregistered subcontractor shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive provided that any of the following apply:
 - (i) The subcontractor is registered prior to the bid opening.
 - (ii) The subcontractor is registered and has paid the penalty registration fee within 24 hours after the bid opening.

- (iii) The subcontractor is replaced by another registered subcontractor pursuant to Public Contract Code section 4107.
 - d. The protest must include the name, address and telephone number of the person representing the protesting party.
 - e. The party filing the protest must concurrently transmit a copy of the protest and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other bidders or proposers who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.
 - f. The procedure and time limits set forth in this paragraph are mandatory and are each bidder's sole and exclusive remedy in the event of bid protest. Failure to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including filing a Government Code Claim or legal proceedings.
28. District reserves the right to reject any or all bids, including without limitation the right to reject any or all nonconforming, nonresponsive, unbalanced, or conditional bids, to re-bid, and to reject the bid of any bidder if District believes that it would not be in the best interest of the District to make an award to that bidder, whether because the bid is not responsive or the bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by District. District also reserves the right to waive any inconsequential deviations or irregularities in any bid. For purposes of this paragraph, an "unbalanced bid" is one having nominal prices for some work items and/or enhanced prices for other work items.
29. Discrepancies between written words and figures, or words and numerals, will be resolved in favor of figures or numerals.
30. It is the policy of the District that no qualified person shall be excluded from participating in, be denied the benefits of, or otherwise be subjected to discrimination in any consideration leading to the award of contract, based on race, color, gender, sexual orientation, political affiliation, age, ancestry, religion, marital status, national origin, medical condition or disability. The Successful Bidder and its subcontractors shall comply with applicable federal and state laws, including, but not limited to the California Fair Employment and Housing Act, beginning with Government Code section 12900, and Labor Code section 1735.
31. Prior to the award of Contract, District reserves the right to consider the responsibility of the Bidder. District may conduct investigations as District deems necessary to assist in the evaluation of any bid and to establish the responsibility, including, without limitation, qualifications and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to District's satisfaction within the prescribed time.

END OF DOCUMENT

**PREVAILING WAGE AND
RELATED LABOR REQUIREMENTS CERTIFICATION**

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**
between the Pittsburg Unified School District ("District") and _____
_____ ("Contractor" or "Bidder").

I hereby certify that I will conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hours' notice, payroll records, and apprentice and trainee employment requirements, for all Work on the above Project including, without limitation, labor compliance monitoring and enforcement by the Department of Industrial Relations.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

TOBACCO-FREE ENVIRONMENT CERTIFICATION

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**
between the Pittsburg Unified School District ("District") and _____
_____ ("Contractor" or "Bidder").

This Tobacco-Free Environment Certification form is required from the successful Bidder.

Pursuant to, without limitation, 20 U.S.C section 6083, Labor Code section 6400 et seq., Health & Safety Code section 104350 et seq., and District Board policies, all District sites, including the Project site, are tobacco-free environments. Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property.

I acknowledge that I am aware of the District's policy regarding tobacco-free environments at District sites, including the Project site and hereby certify that I will adhere to the requirements of that policy and not permit any of my firm's employees, agents, subcontractors, or my firm's subcontractors' employees or agents, to use tobacco and/or smoke on the Project site.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

HAZARDOUS MATERIALS CERTIFICATION

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**

between Pittsburg Unified School District ("District") and _____ ("Contractor" or "Bidder").

1. Contractor hereby certifies that no asbestos, or asbestos-containing materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal or state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations, ("New Hazardous Material"), shall be furnished, installed, or incorporated in any way into the Project or in any tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for District.
2. Contractor further certifies that it has instructed its employees with respect to the above-mentioned standards, hazards, risks, and liabilities.
3. Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Any or all material containing greater than one-tenth of one percent (0.1%) asbestos shall be defined as asbestos-containing material.
4. Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the District's determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.
5. All Work or materials found to be New Hazardous Material or Work or material installed with equipment containing New Hazardous Material will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the District.
6. Contractor has read and understood the document titled Hazardous Materials Procedures & Requirements, and shall comply with all the provisions outlined therein.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

REGISTERED SUBCONTRACTORS LIST
(Labor Code Section 1771.1)

PROJECT: **Pittsburg HS – Stadium Parking Lot Replacement Project**

Date Submitted (for Updates): _____

Contractor acknowledges and agrees that it must clearly set forth below the name and Department of Industrial Relations (DIR) registration number of each subcontractor **for all tiers** who will perform work or labor or render service to Contractor or its subcontractors in or about the construction of the Work **at least two (2) weeks before the subcontractor is scheduled to perform work**. This document is to be updated as all tiers of subcontractors are identified.

Contractor acknowledges and agrees that, if Contractor fails to list as to any subcontractor of any tier who performs any portion of Work, the Contract is subject to cancellation and the Contractor will be subjected to penalty under applicable law.

If further space is required for the list of proposed subcontractors, attach additional copies of page 2 showing the required information, as indicated below.

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Subcontractor Name: _____

DIR Registration #: _____

Portion of Work: _____

Date: _____

Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

BUY AMERICAN CERTIFICATION

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**
between the Pittsburg Unified School District ("District") and _____
_____ ("Contractor" or "Bidder").

Federal regulations require that all of the iron, steel, and manufactured goods used in projects for the construction, installation, repairs, renovation, modernization, or maintenance of a public building or public work funded in part or in whole by federal stimulus funds, with the exception of projects funded by Qualified School Construction Bonds, be produced in the United States of America, unless a federal department waives this requirement because (1) it is inconsistent with the public interest, (2) the goods are not produced in sufficient quantities or of satisfactory quality in the United States, or (3) the requirement would increase the cost of the Project overall by more than twenty-five percent (25%) ("Buy American").

Contractor shall submit this Certification with its executed agreement, identifying the steps Contractor will take to use goods produced in the United States of America in carrying out this Contract. Bidder should not submit this form with its bid.

Contractor shall retain a copy of this form and may be subject to a future audit.

CERTIFICATION

On behalf of Contractor, I represent and covenant that Contractor will use on the Project only iron, steel and manufactured goods produced in the United States of America except goods for which a federal department has waived this requirement.

I, _____, certify that I am the Contractor's _____
_____ and that the representations and covenants made herein are true and correct. In making this certification, I am aware of section 12650 et seq. of the Government Code providing for the imposition of treble damages for making false claims.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

LEAD-BASED MATERIALS CERTIFICATION

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**
between the Pittsburg Unified School District ("District") and _____
_____. ("Contractor" or "Bidder").

This certification provides notice to the Contractor that:

- (1) Contractor's work may disturb lead-containing building materials.
- (2) Contractor shall notify the District if any work may result in the disturbance of lead-containing building materials.
- (3) Contractor shall comply with the Renovation, Repair and Painting Rule, if lead-based paint is disturbed in a six-square-foot or greater area indoors or a 20-square-foot or greater area outdoors.

1. Lead as a Health Hazard

Lead poisoning is recognized as a serious environmental health hazard facing children today. Even at low levels of exposure, much lower than previously believed, lead can impair the development of a child's central nervous system, causing learning disabilities, and leading to serious behavioral problems. Lead enters the environment as tiny lead particles and lead dust disburses when paint chips, chalks, peels, wears away over time, or is otherwise disturbed. Ingestion of lead dust is the most common pathway of childhood poisoning; lead dust gets on a child's hands and toys and then into a child's mouth through common hand-to-mouth activity. Exposures may result from construction or remodeling activities that disturb lead paint, from ordinary wear and tear of windows and doors, or from friction on other surfaces.

Ordinary construction and renovation or repainting activities carried out without lead-safe work practices can disturb lead-based paint and create significant hazards. Improper removal practices, such as dry scraping, sanding, or water blasting painted surfaces, are likely to generate high volumes of lead dust.

Because the Contractor and its employees will be providing services for the District, and because the Contractor's work may disturb lead-containing building materials, CONTRACTOR IS HEREBY NOTIFIED of the potential presence of lead-containing materials located within certain buildings utilized by the District. All school buildings built prior to 1978 are presumed to contain some lead-based paint until sampling proves otherwise.

2. Overview of California Law

Education Code section 32240 et seq. is known as the Lead-Safe Schools Protection Act. Under this act, the Department of Health Services is to conduct a sample survey of schools in the State of California for the purpose of developing risk factors to predict lead contamination in public schools. (Ed. Code, § 32241.)

Any school that undertakes any action to abate existing risk factors for lead is required to utilize trained and state-certified contractors, inspectors, and workers. (Ed. Code, § 32243, subd. (b).) Moreover, lead-based paint, lead plumbing, and solders, or other potential sources of lead contamination, shall not be utilized in the construction of any new school facility or the modernization or renovation of any existing school facility. (Ed. Code, § 32244.)

Both the Federal Occupational Safety and Health Administration ("Fed/OSHA") and the California Division of Occupational Safety and Health ("Cal/OSHA") have implemented safety orders applicable to all construction work where a contractor's employee may be occupationally exposed to lead.

The OSHA Regulations apply to all construction work where a contractor's employee may be occupationally exposed to lead. The OSHA Regulations contain specific and detailed requirements imposed on contractors subject to those regulations. The OSHA Regulations define construction work as work for construction, alteration, and/or repair, including painting and decorating. Regulated work includes, but is not limited to, the following:

- a. Demolition or salvage of structures where lead or materials containing lead are present;
- b. Removal or encapsulation of materials containing lead;
- c. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;
- d. Installation of products containing lead;
- e. Lead contamination/emergency cleanup;
- f. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed; and
- g. Maintenance operations associated with the construction activities described in the subsection.

Because it is assumed by the District that all painted surfaces (interior as well as exterior) within the District contain some level of lead, it is imperative that the Contractor, its workers and subcontractors fully and adequately comply with all applicable laws, rules and regulations governing lead-based materials (including title 8, California Code of Regulations, section 1532.1).

Contractor shall notify the District if any Work may result in the disturbance of lead-containing building materials. Any and all Work that may result in the disturbance of lead-containing building materials shall be coordinated through the District. A signed copy of this Certification shall be on file prior to beginning Work on the Project, along with all current insurance certificates.

3. Renovation, Repair and Painting Rule, Section 402(c)(3) of the Toxic Substances Control Act

The EPA requires lead safe work practices to reduce exposure to lead hazards created by renovation, repair and painting activities that disturb lead-based paint. Pursuant to the Renovation, Repair and Painting Rule (RRP), renovations in homes, childcare facilities, and schools built prior to 1978 must be conducted by certified renovations firms, using renovators with training by a EPA-accredited training provider, and fully and adequately complying with all applicable laws, rules and regulations governing lead-based materials, including those rules and regulations appearing within title 40 of the Code of Federal Regulations as part 745 (40 CFR 745).

The RRP requirements apply to all contractors who disturb lead-based paint in a six-square-foot or greater area indoors or a 20-square-foot or greater area outdoors. If a DPH-certified inspector or risk assessor determines that a home constructed before 1978 is lead-free, the federal certification is not required for anyone working on that particular building.

4. Contractor's Liability

If the Contractor fails to comply with any applicable laws, rules, or regulations, and that failure results in a site or worker contamination, the Contractor will be held solely responsible for all costs involved in any required corrective actions, and shall defend, indemnify, and hold harmless the District, pursuant to the indemnification provisions of the Contract, for all damages and other claims arising therefrom.

If lead disturbance is anticipated in the Work, only persons with appropriate accreditation, registrations, licenses, and training shall conduct this Work.

It shall be the responsibility of the Contractor to properly dispose of any and all waste products, including, but not limited to, paint chips, any collected residue, or any other visual material that may occur from the prepping of any painted surface. It will be the responsibility of the Contractor to provide the proper disposal of any hazardous waste by a certified hazardous waste hauler. This company shall be registered with the Department of Transportation (DOT) and shall be able to issue a current manifest number upon transporting any hazardous material from any school site within the District.

The Contractor shall provide the District with any sample results prior to beginning Work, during the Work, and after the completion of the Work. The District may request to examine, prior to the commencement of the Work, the lead training records of each employee of the Contractor.

THE CONTRACTOR HEREBY ACKNOWLEDGES, UNDER PENALTY OF PERJURY, THAT IT:

1. HAS RECEIVED NOTIFICATION OF POTENTIAL LEAD-BASED MATERIALS ON THE OWNER'S PROPERTY;
2. IS KNOWLEDGEABLE REGARDING AND WILL COMPLY WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS GOVERNING WORK WITH, AND DISPOSAL, OF LEAD.

THE UNDERSIGNED WARRANTS THAT HE/SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF AND BIND THE CONTRACTOR. THE DISTRICT MAY REQUIRE PROOF OF SUCH AUTHORITY.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

NOTICE OF AWARD

Dated: _____ 20__

To: _____ (Contractor)

To: _____
(Address)

From: Governing Board ("Board") of the Pittsburgh Unified School District ("District" or "Owner")

PROJECT: **Contract No. 26-004, Pittsburgh HS – Stadium Parking Lot Replacement Project**, ("Project").

Contractor has been awarded the referenced Contract on _____, 20__, by action of the District's Board.

The Contract Price is _____ Dollars (\$_____).

Three (3) copies of each of the Contract Documents (except Drawings) accompany this Notice of Award. Three (3) sets of the Drawings will be delivered separately or otherwise made available. Additional copies are available at cost of reproduction.

You must comply with the following conditions precedent within **SEVEN (7)** calendar days of the date of this Notice of Award.

The Contractor shall execute and submit the following documents by 5:00 p.m. of the **SEVENTH (7th)** calendar day following the date of the Notice of Award.

- a. Agreement: To be executed by successful Bidder. Submit four (4) copies, each bearing an original signature.
- b. Escrow of Bid Documentation: This must include all required documentation. See the document titled Escrow Bid Documentation for more information.
- c. Performance Bond (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
- d. Payment Bond (Contractor's Labor & Material Bond) (100%): On the form provided in the Contract Documents and fully executed as indicated on the form.
- e. Insurance Certificates and Endorsements as required.
- f. Workers' Compensation Certification.
- g. Prevailing Wage and Related Labor Requirements Certification.

- h. Disabled Veteran Business Enterprise Participation Certification.
- i. Drug-Free Workplace Certification.
- j. Tobacco-Free Environment Certification.
- k. Hazardous Materials Certification.
- l. Lead-Based Materials Certification.
- m. Criminal Background Investigation/Fingerprinting Certification.
- n. Buy American Certification.
- o. Registered Subcontractors List: Must include Department of Industrial Relations (DIR) registration number of each subcontractor for all tiers.

Failure to comply with these conditions within the time specified will entitle District to consider your bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited, as well as any other rights the District may have against the Contractor.

After you comply with those conditions, District will return to you one fully signed counterpart of the Agreement.

PITTSBURG UNIFIED SCHOOL DISTRICT

BY: _____

NAME: **Sean Vandermey**

TITLE: **Director of Facilities**

END OF DOCUMENT

CRIMINAL BACKGROUND INVESTIGATION
/FINGERPRINTING CERTIFICATION

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**

between the Pittsburg Unified School District ("District") and _____
_____ ("Contractor" or "Bidder").

The undersigned does hereby certify to the governing board of the District as follows:

That I am a representative of the Contractor currently under contract with the District; that I am familiar with the facts herein certified; and that I am authorized and qualified to execute this certificate on behalf of Contractor.

Contractor certifies that it has taken at least one of the following actions with respect to the construction Project that is the subject of the Contract (check all that apply):

- ☐ The Contractor is a sole proprietor and intends to comply with the fingerprinting requirements of Education Code section 45125.1(k) with respect to all Contractor's employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and hereby agrees to the District's preparation and submission of fingerprints such that the California Department of Justice may determine that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1. No work shall commence until such determination by DOJ has been made.

As an authorized District official, I am familiar with the facts herein certified, and am authorized to execute this certificate on behalf of the District and undertake to prepare and submit Contractor's fingerprints as if he or she was an employee of the District.

Date: _____

District Representative's Name and Title: _____

District Representative's Signature: _____

- ☐ The Contractor, who is not a sole proprietor, has complied with the fingerprinting requirements of Education Code section 45125.1 with respect to all Contractor's employees and all of its Subcontractors' employees who may have contact with District pupils in the course of providing services pursuant to the Contract, and the California Department of Justice has determined that none of those employees has been convicted of a felony, as that term is defined in Education Code section 45122.1. A complete and accurate list of Contractor's employees and of all of its subcontractors' employees who may come in contact with District pupils during the course and scope of the Contract is attached hereto; and/or
- ☐ Pursuant to Education Code section 45125.2, Contractor has installed or will install, prior to commencement of Work, a physical barrier at the Work Site, that will limit contact between Contractor's employees and District pupils at all times; and/or

- ☐ Pursuant to Education Code section 45125.2, Contractor certifies that all employees will be under the continual supervision of, and monitored by, an employee of the Contractor who the California Department of Justice has ascertained, or as described below, will ascertain, has not been convicted of a violent or serious felony. The name and title of the employee who will be supervising Contractor's and its subcontractors' employees is:

Name: _____

Title: _____

NOTE: If the Contractor is a sole proprietor, and elects the above option, Contractor must have the above-named employee's fingerprints prepared and submitted by the District, in accordance with Education Code section 45125.1(k). No work shall commence until such determination by DOJ has been made.

As an authorized District official, I am familiar with the facts herein certified, and am authorized to execute this certificate on behalf of the District and undertake to prepare and submit Contractor's fingerprints as if he or she was an employee of the District.

Date: _____

District Representative's Name and Title: _____

District Representative's Signature: _____

- ☐ *The Work on the Contract is either (i) at an unoccupied school site and no employee and/or subcontractor or supplier of any tier of the Contract shall come in contact with the District pupils or (ii) Contractor's employees or any subcontractor or supplier of any tier of the Contract will have only limited contact, if any, with District pupils and the District will take appropriate steps to protect the safety of any pupils that may come in contact with Consultant's employees, subcontractors or suppliers so that the fingerprinting and criminal background investigation requirements of Education Code section 45125.1 shall not apply to Contractor under the Contract.*

As an authorized District official, I am familiar with the facts herein certified, and am authorized to execute this certificate on behalf of the District.

Date: _____

District Representative's Name and Title: _____

District Representative's Signature: _____

Contractor's responsibility for background clearance extends to all of its employees, Subcontractors, and employees of Subcontractors coming into contact with District pupils regardless of whether they are designated as employees or acting as independent contractors of the Contractor.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

Attachment "B"
PROGRAM STABILIZATION AGREEMENT
FOR PITTSBURG UNIFIED SCHOOL DISTRICT
CAPITAL IMPROVEMENT PROGRAM

INTRODUCTION/FINDINGS

The purpose of this Agreement is to promote efficiency of construction operations during the Pittsburg Unified School District's Capital Improvement Program ("the Program") and provide for peaceful settlement of labor disputes and grievances without strikes or lockouts, thereby promoting the public interest in assuring the timely and economical completion of the Program.

WHEREAS, the successful completion of the Program is of the utmost importance to the Pittsburg Unified School District; and

WHEREAS, large numbers of workers of various skills will be required in the performance of the construction work, including those to be represented by the unions affiliated with the Contra Costa Building and Construction Trades Council

WHEREAS, it is recognized that on a Program of this magnitude with multiple contractors and bargaining units on the job site at the same time over an extended period of time, the potential for work disruption is substantial without an overriding commitment to maintain continuity of work; and

WHEREAS, the interests of the general public, the District, the Unions and Contractor/Employers would be best served if the construction work proceeded in an orderly manner without disruption because of strikes, sympathy strikes, work stoppages, picketing, lockouts, slowdowns or other interferences with work; and

WHEREAS, the Contractor/Employers and the Unions desire to mutually establish and stabilize wages, hours and working conditions for the workers employed on the Program by the Contractor/Employer(s) and the Union(s) to the end that a satisfactory, continuous and harmonious relationship will exist among the parties to this Agreement; and

WHEREAS, this Agreement is not intended to replace, interfere, abrogate, diminish or modify existing local or national collective bargaining agreements in effect during the duration of the Program, insofar as a legally binding agreement exists between the Contractor/Employer(s) and the affected Union(s) except to the extent that the provisions of this Agreement are inconsistent with said collective bargaining agreements, in which event, the provisions of this Agreement shall prevail; and

WHEREAS, the contracts for the construction of the Program will be awarded in accordance with the applicable provisions of the California State Public Contract Code; and

WHEREAS, the District has the absolute right to select the lowest responsible bidder for the award of construction contracts or the “Best Value” submission for Design-Build contracts on the Program; and

WHEREAS, the parties signatory to this Agreement pledge their full good faith and trust to work towards mutually satisfactory completion of the Program;

NOW, THEREFORE, IT IS AGREED BETWEEN AND AMONG THE PARTIES HERETO, AS FOLLOWS:

ARTICLE I

DEFINITIONS

1.1 “Agreement” means this Program Stabilization Agreement, plus Appendices A,

____, ____

1.2 “District” means the Pittsburgh Unified School District and the administrative staff under its Superintendent.

1.3 “Contractor/Employer(s)” means any individual, firm, partnership or corporation, or combination thereof, including joint ventures, which is an independent business enterprise and has entered into a contract with the District or any of its contractors or subcontractors of any tier, with respect to the construction of any part of the Program under contract terms and conditions approved by the District and which incorporate the Agreement.

1.4 “Construction Contract” means the public works or improvement contracts which have been signed by the District and which are necessary to complete the Program.

“Construction Contract” does not include a contract between the District and any firm or individual performing construction management, program management, project management, architectural services, engineering services, project inspection services, special inspection services or testing (consistent with Section 2.1), landscape architectural services, CEQA or other environmental evaluation services, or any other services that are not “hands on” construction work on the Program, as defined herein.

1.5 “Master Agreement” means the Master Collective Bargaining Agreement of each craft union signatory hereto, copies of which have been made available by the Council to the District and are on file with the Council and which are incorporated herein by reference and designated the “**Schedule A(s)**,” and are listed in Appendix _____.

1.6 “Program” means the Capital Improvement Program as funded by the Pittsburgh Unified School District Bond Program.

1.7 “Program Manager” or “Construction Manager” means the business entity(ies) designated by the District to oversee all phases of construction on the Program and is (are)

1.8 “Project” means the individual construction Project that has a total minimum value of one millions dollars (\$1,000,000) or more that is a part of the Program and designated to be covered by this Agreement in Exhibit A. The District may, at its discretion, designate other projects with a total value of less than one million dollars (\$1,000,000) to be covered by this Agreement if the District believes it is in the best interest of the District to do so. -Routine maintenance of District properties are not covered by the scope of this Agreement.

1.9 “Union” or “Unions” means the Contra Costa Building and Construction Trades Council, AFL-CIO (“Council”) and all affiliated unions (“Signatory Unions”).

ARTICLE II

SCOPE OF AGREEMENT

2.1 Parties: The Agreement shall apply and is limited to all Contractors/Employers, at whatever tier, performing Construction Contracts on the Project, including on-site testing and inspection where such work is traditionally covered by a collective bargaining agreement with a Union, and the District and the Contra Costa Building and Construction Trades Council, AFL-CIO (“Council”) and (“Signatory Unions”).

2.2 Project Description: This Agreement shall govern the award of all construction contracts identified by the District as part of the Program and that satisfy the requirements for a Project as defined herein. Exhibit A, attached to this Agreement and incorporated herein by reference, is a list of Construction Contracts to be covered by this Agreement. The District has the absolute right to combine, consolidate, add, or cancel Project(s) or portions of Project(s) identified as part of the Program. Should the District remove any Project listed in Exhibit A from the Program and thereafter authorize that construction work be commenced on the Project,

the Project shall be performed under the terms of this Agreement. Once a construction Project is completed, it is no longer covered by this Agreement. For the purposes of this Agreement, a construction Project shall be considered completed upon filing of a Notice of Completion.

2.3 Program Labor Disputes: All Program labor disputes involving the application or interpretation of the collective bargaining agreement to which a signatory Contractor/Employer and a signatory Union are parties shall be resolved pursuant to the resolution procedures of the collective bargaining agreement. All disputes relating to the interpretation or application of the Program Stabilization Agreement shall be subject to resolution pursuant to the grievance arbitration procedure set forth herein.

2.4 Work covered by this Project Stabilization Agreement within the craft jurisdiction of the Elevator Constructors will be performed under the terms of the National Agreement of the International Union of Elevator Constructors except that Articles IV (WORK STOPPAGES, STRIKES, SYMPATHY STRIKES AND LOCKOUTS), XII (GRIEVANCE ARBITRATION PROCEDURE), and XIII (JURISDICTIONAL DISPUTES) of the Project Stabilization Agreement shall prevail and be applied to such work.

2.5 Exclusions:

(1) The Agreement shall be limited to construction work on the Projects listed in Exhibit A and is not intended to, and shall not govern any construction work performed at the District at anytime prior to the effective date, or after the expiration or termination of the Agreement.

(2) The Agreement is not intended to, and shall not affect or govern the award of public works contracts by the District which are outside the approved scope of the Projects.

(3) The Agreement is not intended to, and shall not affect the operation or maintenance of the District.

(4) The Agreement shall not apply to a Contractor/Employer's executives, managerial employees, engineering employees, supervisors (except those covered by existing building and construction trades collective bargaining agreements), office and clerical employees.

(5) This Agreement shall not apply to employees of the District.

(6) This Agreement shall not apply to contracts awarded pursuant to any emergency public works project(s) or any project using federal funds.

ARTICLE III

EFFECT OF AGREEMENT

3.1 By executing this Agreement, the Unions and the District agree to be bound by each and all of the provisions of the Agreement.

3.2 By accepting the award of a construction contract for a Project, whether as contractor or subcontractor, the Contractor/Employer agrees to be bound by each and every provision of the Agreement and agrees that it will evidence its acceptance prior to the commencement of work by executing the Letter of Assent in the form attached hereto as Addendum A.

3.3 At the time that any Contractor/Employer enters into a subcontract with any subcontractor providing for the performance of a construction contract, the Contractor/Employer shall provide a copy of this Agreement to said subcontractor and shall require the subcontractor as a part of accepting an award of a construction subcontract to agree in writing to be bound by each and every provision of this Agreement prior to the commencement of work. If a

Contractor/Employer requires a subcontractor to agree in writing to comply with the terms of this Agreement as a condition of awarding work to the subcontractor, the Contractor/Employer shall not be liable in any way for the subcontractor's failure to pay the wages and benefits required by this Agreement except as required by the provisions of the California Labor Code.

3.4 This Agreement shall only be binding on the signatory parties hereto and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such party.

ARTICLE IV

WORK STOPPAGES, STRIKES, SYMPATHY STRIKES AND LOCKOUTS

4.1 The Unions, District and Contractor/Employers agree that for the duration of the Program:

(1) There shall be no strikes, sympathy strikes, work stoppages, picketing, handbilling or otherwise advising the public that a labor dispute exists, or slowdowns of any kind, for any reason, by the Unions or employees employed on a Project, at the job site of the Program or at any other facility of the District because of a dispute on a Project or with a Contractor/Employer on the Project. It shall not be considered a violation of this provision for a Union to withhold labor (but not to picket) from - any Contractor/Employer who fails to make its timely payment of Trust Fund contributions or fails to meet its weekly payroll. Although disputes arising between the Unions and Contractor(s)/Employer(s) on other projects are not governed by this Agreement, a Union may not take any action against Contractor(s)/Employer(s) on District property and/or on a District Project because of a dispute between the Unions and Contractor(s)/Employer(s) on other projects.

(2) As to employees employed on a Project, there shall be no lockout of any kind by a Contractor/Employer covered by the Agreement.

(3) If a Master Agreement between a Contractor/Employer and the Union expires before the Contractor/Employer completes the performance of a construction contract and the Union or Contractor/Employer gives notice of demands for a new or modified Master Agreement, the Union agrees that it will not strike the Contractor/Employer on said contract for work covered under this Agreement, and the Union and the Contractor/Employer agree that the expired collective bargaining agreement shall continue in full force and effect for work covered under this Agreement until a new or modified Master Agreement is reached between the Union and Contractor Employer. If the new or modified Master Agreement reached between the Union and Contractor/Employer provides that any terms of compensation of the Master Agreement shall be retroactive, the Contractor/Employer agrees to comply with any retroactive terms of the new or modified Master Agreement which is applicable to employees employed on a project to the date those retroactive terms became effective and to make payment of those retroactive amounts within seven (7) days.

4.2 Any party to this Agreement may institute the following procedure, prior to any other action at law or equity, when a breach of this Article is alleged to have occurred:

(1) A party invoking this procedure shall notify Gerald McKay, as the permanent arbitrator, or, Thomas Angelo, as the alternate under this procedure. In the event that the permanent arbitrator is unavailable at any time, the alternate will be contacted. If neither is available, then a selection shall be made from the list of arbitrators in Article 12.2 Notice to the arbitrator shall be by the most expeditious means available, with notices by facsimile or telephone to the party alleged to be in violation and to the Contra Costa Building and Construction Trades council and involved local Union if a Union is alleged to be in violation.

(2) Upon receipt of said notice, the District will contact the designated

arbitrator named above or his alternate who will attempt to convene a hearing within twenty-four (24) hours if it is contended that the violation still exists.

(3) The arbitrator shall notify the parties by facsimile or telephone of the place and time for the hearing. Said hearing shall be completed in one session, which, with appropriate recesses at the arbitrator's discretion, shall not exceed twenty-four (24) hours unless otherwise agreed upon by all parties. A failure of any party to attend said hearings shall not delay the hearing of evidence or the issuance of any award by the arbitrator. Gerald McKay's address, phone number and fax number, are:

PO Box 406

Burlingame, CA 94011-0405

Phone: (650) 588-6655

FAX: (650) 340-1511

Thomas Angelo's address, phone number and fax number are:

PO Box 1937

Mill Valley CA 94943

Phone: (415) 381-1701

Fax: (415) 380-9792

(4) The sole issue at the hearing shall be whether or not a violation of Article IV, Section 4.1 of the Agreement has occurred. The arbitrator shall have no authority to consider any matter of justification, explanation or mitigation of such violation or to award damages, which issue is reserved for court proceedings, if any. The award shall be issued in writing within three (3) hours after the close of the hearing, and may be issued without a written opinion. If any party desires a written opinion, one shall be issued within fifteen (15) days, but

its issuance shall not delay compliance with or enforcement of the award. The arbitrator may order cessation of the violation of this Article and other appropriate relief and such award shall be served on all parties by hand or registered mail upon issuance.

(5) Such award may be enforced by any Court of competent jurisdiction upon the filing of this Agreement and all other relevant documents referred to above in the following manner. Written notice of the filing of such enforcement proceedings shall be given to the other party. In the proceeding to obtain a temporary order enforcing the arbitrator's award as issued under Section 4.2(4) of this Article, all parties waive the right to a hearing and agree that such proceedings may be ex parte. Such agreement does not waive any party's right to participate in a hearing for a final order or enforcement. The Court's order or orders enforcing the arbitrator's award shall be served on all parties by hand or delivered by certified mail.

(6) Any rights created by statute or law governing arbitration proceedings inconsistent with the above procedure or which interfere with compliance are waived by the parties.

(7) The fees and expenses of the arbitrator shall be divided equally between the parties.

(8) The parties to this Agreement agree that the labor organizations have not waived their legal rights to undertake otherwise lawful activity with regard to any dispute or disputes which they may have regarding non-Program construction work and operations; provided, however, that any such activities by the signatory Unions shall not disrupt or interfere in any way with any work done at any District site. Recognizing the above and, in order to carry out the principles of this Agreement, the parties agree:

A. Should a signatory Union have a dispute with regard to non-

covered work on or adjacent to any District site, the signatory union will notify the Contra Costa Building and Construction Trades Council and shall not undertake on or adjacent to the property, any public activity regarding the dispute. Representatives of the union and the Council shall meet with the representatives of the District to discuss and review the valid, legal manner and means by which the signatory union may undertake its activities with regard to this dispute (giving due consideration in such discussions and review to the traditional concerns for the ongoing operations of the Project) and to the importance of the continuity of the work covered by the Master Agreement, and develop a program which allows the signatory union to exercise its legal rights, but at the same time eliminates any possible disruptive effect on the ongoing Project construction work; and finally

(9) Should any signatory Union or the District (or its Program Manager/Project Contractors) become aware of a possible or actual labor dispute involving non-Project construction work or operations and involving non-signatory unions which may result in public activity on or about any District site by such non-signatory unions, the representative of each will jointly meet to discuss such activity and to work together, using their best efforts, to avoid having such activity adversely impact or otherwise delay or interfere with ongoing Project construction contracts.

(10) To the extent any provision in this Article IV conflicts with the dispute resolution provisions of Public Contract Code section 20104, et seq, this Article IV shall be null and void.

ARTICLE V

PRECONSTRUCTION CONFERENCE

5.1 A preconstruction conference shall be held prior to the commencement of each construction Project. Such conference shall be attended by a representative each from the participating Contractor/Employers and Union(s) and the Program Manager.

ARTICLE VI

NO DISCRIMINATION

6.1 The Contractor/Employers and Unions agree not to engage in any form of discrimination on the ground or because of, race, color, creed, national origin, ancestry, age, sex, sexual orientation, disability or Acquired Immune Deficiency Syndrome or AIDS Related Condition (AIDS/ARC), against any employee, or applicant for employment, on the Program.

ARTICLE VII

UNION SECURITY

7.1 The Contractor/Employers recognize the Union(s) as the sole bargaining representative of all craft employees working within the scope of this Agreement.

7.2 No employee covered by this Agreement is required to join any Union as a condition of being first employed on the Project.

7.3 All employees working on the Project shall be governed by the applicable Union Security clause of the applicable craft's "Schedule A" Agreement. Employees hired by the Contractor(s) shall, as a condition of employment, be responsible for the payment of the applicable monthly working dues and any associated fees uniformly required for union membership in the local union which is signatory to this Agreement. Further, there is nothing in this Agreement that would prevent non-union employees from joining the local union.

7.4 Authorized representatives of the Unions shall have access to the Projects whenever work covered by this Agreement is being, has been, or will be performed on the Projects, provided it is not disruptive to the work of the Projects or the operation of the District.

ARTICLE VIII

REFERRAL

8.1 Contractor/Employers performing construction work on the Project described in the Agreement shall, in filling craft job requirements be bound by and utilize the registration facilities and referral systems established or authorized by the signatory Unions when such procedures are not in violation of Federal law. The Contractor/Employer(s) shall have the right to reject any applicant referred by the Union(s), in accordance with the applicable Master Agreement.

8.2 The Contractor(s) shall have the unqualified right to select and hire directly all supervisors above the level of General Foreman it considers necessary and desirable, without such persons being referred by the Union(s).

8.3 In the event that referral facilities maintained by the Unions are unable to fill the requisition of a Contractor/Employer for employees within forty-eight (48) hour period (Saturday, Sundays and Holidays excluded) after such requisition is made by the Contractor/Employer, the Contractor/Employer shall be free to obtain work persons from any source.

8.4 Unions will exert their utmost efforts to recruit sufficient numbers of skilled craft persons to fulfill the requirements of the Contractor/Employers. The parties to this Agreement support the development of increased numbers of skilled construction workers from graduates of District high schools first, residents of Pittsburg second, and residents of the East

Bay Area third, to meet the needs of the Program and the requirements of the industry generally. Toward that end, the Unions agree to encourage the referral and utilization, to the extent permitted by law and the hiring hall procedures, of qualified graduates of District high schools, residents of Pittsburg, and East Bay Area residents as journeymen and apprentices on this Program and entrance into such apprenticeship and training programs as may be operated by the signatory Unions.

8.5 Recognizing the special needs of this Project and the acute shortage of skilled craftspeople, the Unions shall consider a Contractor's request to transfer key employees to work on this Project in a manner consistent with the Union's referral procedures.

ARTICLE IX

BENEFITS

9.1 All Contractor/Employers agree to pay contributions to the established vacation, pension and other form of deferred compensation plan, apprenticeship, and health benefit funds for each hour worked on the project in the amounts designated in the Master Agreement of the applicable craft.

9.2 The Contractor/Employers shall not be required to pay contributions to any other trust funds that are not contained in the published prevailing wage determination to satisfy their obligation under this Article except those Contractor/Employers who are signatory to the Master Agreements with the respective trades shall continue to pay all trust fund contributions as outlined in such Master Agreements.

9.3 By signing this Agreement, the Contractor/Employers adopt and agree to be bound by the written terms of the legally established Trust Agreements as described in Section 9.1 above specifying the detailed basis on which payments are to be made into, and benefits

paid out of, such Trust Funds.

9.4 Wages, Hours, Terms and Conditions of Employment: The wages, hours and other terms and conditions of employment on a Project shall be governed by the Master Agreement of the respective crafts, copies of which shall be on file with the District, to the extent such Master Agreement is not inconsistent with this Agreement. Where a subject is covered by the Master Agreement and not covered by this Agreement, the Master Agreement will prevail. When a subject is covered by both the Master Agreement and this Agreement, to the extent there is any inconsistency, this Agreement will prevail

ARTICLE X

NOT USED.

ARTICLE XI

COMPLIANCE

11.1 It shall be the responsibility of the Contractor/Employers and Unions to investigate and monitor compliance with the provisions of the Agreement contained in Article IX. Nothing in this agreement shall be construed to interfere with or supersede the usual and customary legal remedies available to the Unions and/or employee benefit Trust Funds to collect delinquent Trust Fund contributions from Employers on the Project. The District shall monitor and enforce compliance with the prevailing wage requirements of the State and Contractor/Employers' compliance with this Agreement if the District operates a labor compliance program (LCP) on the Project and if that LCP requires the District to monitor and enforce this compliance.

ARTICLE XII

GRIEVANCE ARBITRATION PROCEDURE

12.1 The parties understand and agree that in the event any dispute arises out of the meaning, interpretation or application of the provisions of this Agreement, the same shall be settled by means of the procedures set out herein. No grievance shall be recognized unless the grieving party (Local Union or District Council on its own behalf, or on behalf of an employee whom it represents, or a contractor on its own behalf) provides notice in writing to the signatory party with whom it has a dispute within five (5) days after becoming aware of the dispute but in no event more than thirty (30) days after it reasonably should have become aware of the event giving rise to the dispute. The time limits in Section 12.1 may be extended by mutual written agreement of the parties.

12.2 Grievances shall be settled according to the following procedures:

Step 1: Within five (5) business days after the receipt of the written notice of the grievance, the Business Representative of the involved Local Union or District Council, or his/her designee, or the representative of the employee, and the representative of the involved Contractor/Employer shall confer and attempt to resolve the grievance.

Step 2: In the event that the representatives are unable to resolve the dispute within the five (5) business days after its referral to Step 1, either involved party may submit it within three (3) business days to the Grievance Committee, which shall meet within five (5) business days after such referral (or such longer time as is mutually agreed upon by all representatives on the Grievance Committee), to confer in an attempt to resolve the grievance. The

Grievance Committee shall be comprised of

- two (2) representatives of the District;
- one (1) representative of the Program Manager;
and
- three (3) representative of the Contra Costa
Building & Construction Trades Council.

If the dispute is not resolved within such time (five (5) business days after its referral or such longer time as mutually agreed upon) it may be referred within five (5) business days by either party to Step 3.

Step 3: Within five (5) business days after referral of a dispute to Step 3, the representatives shall choose a mutually agreed upon arbitrator for final and binding arbitration. The parties agree that if the permanent arbitrator or his alternate is not available, an arbitrator shall be selected by the alternate striking method from the list of five (5) below:

1. Barbara Chavany
2. Thomas Angelo
3. William Riker
4. Barry Winograd
5. Chuck Askin

The decision of the Arbitrator shall be binding on all parties. The Arbitrator shall have no authority to change, amend, add to or detract from any of the provisions of the Agreement.

The expense of the Arbitrator shall be borne equally by both parties.

The Arbitrator shall arrange for a hearing on the earliest available date from the date of his/her selection. A decision shall be given to the parties within five (5) calendar days after completion of the hearing unless such time is extended by mutual agreement. A written opinion may be requested by a party from the presiding Arbitrator.

The time limits specified in any step of the Grievance Procedure set forth in Section 12.2 may be extended by mutual agreement of the parties initiated by the written request of one party to the other, at the appropriate step of the Grievance Procedure. However, failure to process a grievance, or failure to respond in writing within the time limits provided above, without an agreed upon extension of time, shall be deemed a waiver of such grievance without prejudice, or without precedent to the processing of and/or resolution of like or similar grievances or disputes.

In order to encourage the resolution of disputes and grievances at Steps 1 and 2 of this Grievance Procedure, the parties agree that such settlements shall not be precedent setting.

ARTICLE XIII

JURISDICTIONAL DISPUTES

13.1 There will be no strikes, no work stoppages, no picketing, sympathy strikes, slow downs or other interferences with the work because of jurisdictional disputes between signatory Unions.

13.2 All Contractors and Subcontractors shall stipulate to and have the responsibility for making work assignments in accordance with the current rules, regulations and procedures of the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry by the Building & Construction Trades Department, AFL-CIO, or any successor plan.

In the event of a jurisdictional dispute between any signatory Unions, it is agreed that the

following procedures shall be taken in an attempt to resolve the matter:

- Step 1: The appropriate Union Representatives of the involved Crafts shall meet with the affected Contractor/Employer in an attempt to resolve the dispute within twenty-four (24) hours.
- Step 2: If no settlement is reached, the appropriate International Union Representatives from each affected Craft will meet with the affected Contractor/Employer within five (5) calendar days.
- Step 3: If no settlement is reached within five (5) calendar days, such dispute shall be referred to and settled by the current procedure established by the building and Construction Trades Department of the American Federation of Labor – Congress of the Industrial Organization. In any event, the parties hereto agree that there will be no slowdown or stoppage of work, no picketing or other interferences and each agrees that the decisions of the authorities stipulated herein shall be final and binding upon them.

13.3 If any union or Contractor/Employer fails to immediately and fully comply with a final decision rendered in any jurisdictional dispute, the District, the Contractor/Employer or the Union shall have the immediate right to seek full legal redress for such conduct including, but not limited to, injunctive relief and/or damages.

13.4 If there is a strike, sympathy strike, work stoppage, slowdown, picketing or otherwise advising the public that a labor dispute exists or interference with the progress of the Program by reason of a jurisdictional dispute, the District and/or the Contractor/Employer affected by said Union conduct, shall have the right to seek full legal redress in the Courts of

California, including injunctive relief and damages, after complying with the emergency arbitration provisions of Article IV.

ARTICLE XIV

APPRENTICES

14.1 Recognizing the need to maintain continuing support of programs designed to develop adequate numbers of competent workers in the construction industry, the Contractor/Employer(s) shall employ apprentices of a State approved Apprenticeship Program in the respective crafts to perform such work as is within their capabilities and which is customarily performed by the craft in which they are indentured.

14.2 The apprentice ratios will be in compliance with the applicable provisions of the California Labor Code and Prevailing Wage Rate Determination.

14.3 There shall be no restrictions on the utilization of apprentices in performing the work of their craft provided they are properly supervised.

ARTICLE XV

HELMETS TO HARDHATS

15.1 The Employers and the Unions recognize a desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. When appropriate, the Employers and Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (hereinafter "Center") and the Center's "Helmets to Hardhats" program to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and other needs a

identified by the parties.

15.1 The Unions and Employers agree to coordinate with the Center to create and maintain an integrated database of veterans interested in working on this Project and of apprenticeship and employment opportunities for the Project. To the extent permitted by law, the Unions will give credit to such veterans for bonafide, provable past experience.

ARTICLE XVI

MANAGEMENT RIGHTS

16.1 The Contractor/Employer(s) shall retain full and exclusive authority for the management of their operations, including the right to direct their work force in their sole discretion. No rules, customs or practices shall be permitted or observed which limit or restrict production, or limit or restrict the working efforts of employees except that lawful manning provisions in the Master Agreement shall be recognized.

16.2 There shall be no limitation or restriction upon the choice of materials or upon the full use and installation of equipment, machinery, package units, factory pre-cast prefabricated or preassembled materials, tools or other labor saving devices. Lawful fabrication provisions of the appropriate national or local collective bargaining agreement(s) shall be applicable.

ARTICLE XVII

SAVINGS CLAUSE

17.1 The parties agree that in the event any article, provision, clause, sentence or word of the Agreement is determined to be illegal or void as being in contravention of any applicable law, by a court of competent jurisdiction, the remainder of the Agreement shall remain in full force and effect. The parties further agree that if any article, provision, clause, sentence or word

of the Agreement is determined to be illegal or void, by a court of competent jurisdiction, the parties shall substitute, by mutual agreement, in its place and stead, an article, provision, clause, sentence or work which will meet the objections to its validity and which will be in accordance with the intent and purpose of the article, provision, clause, sentence or work in question.

17.2 The parties also agree that in the event that a decision of a court of competent jurisdiction materially alters the terms of the Agreement such that the intent of the parties is defeated, then the entire Agreement shall be null and void.

17.3 If a court of competent jurisdiction determines the all or part of the Agreement is invalid and/or enjoins the District from complying with all or part of its provisions and the District accordingly determines that the Agreement will not be required as part of an award to a Contractor/Employer, the unions will no longer be bound by the provisions of Article IV.

ARTICLE XVIII

18.1 This agreement shall become effective on the day the District awards the first contract covered by the scope of this Agreement, provided that all Union signatories have first executed this Agreement, all applicable Master Agreement(s) are on file with the District, and shall continue in full force and effect until the Projects are complete.

18.2 The District or the Council may terminate this Agreement upon seven (7) days written notice to the other party for any project(s) that the District has not yet awarded to contractor(s) to construct.

Pittsburg Unified School District

BY: Mark Banta

DATE: 4/26/06

Contra Costa Building & Construction Trades Council AFL-CIO (Council)

BY: _____

Greg Feere

C.E.O.

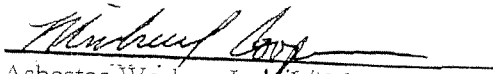
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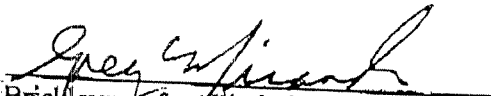
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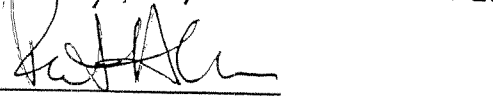
PROGRAM STABILIZATION AGREEMENT
Pittsburg Unified School District
Capital Improvement Program

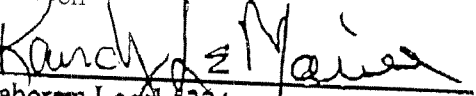
SIGNATURES

Signatory Unions:

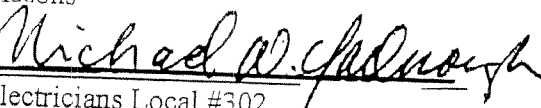

Asbestos Workers Local #16

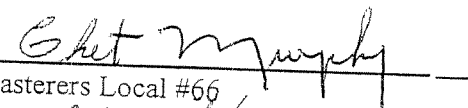

Bricklayers & Allied Craft Workers Local

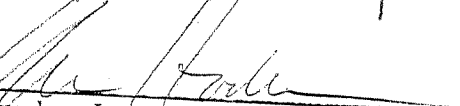

Northern California Carpenters Regional Council

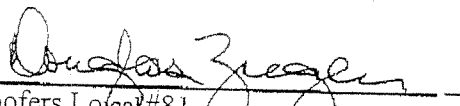

Laborers Local #324

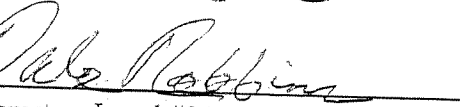

District Council of Plasterers & Cement Masons

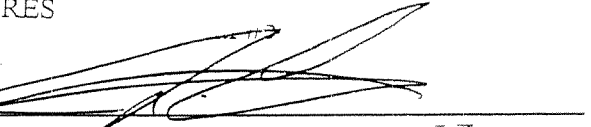

Electricians Local #302

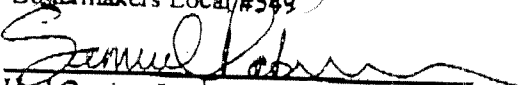

Plasterers Local #66

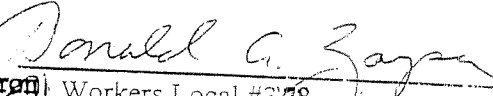

Plumbers Local #159

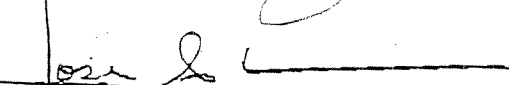

Roofers Local #81


Teamsters Local #315

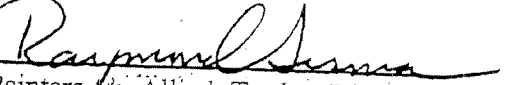

Boilermakers Local #549

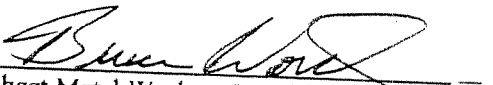

Hod Carriers Local #166

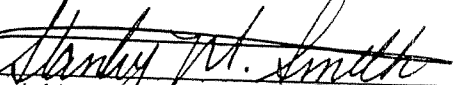

Iron Workers Local #378


Northern California District Council of Laborers


Operating Engineers Local #3

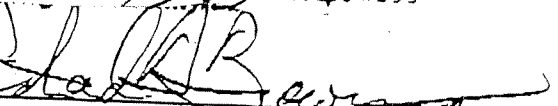

Painters & Allied Trades District Council #16


Sheet Metal Workers Local #104


Sprinkler Fitters Local #483


Steamfitters Local #342


Underground Utility/Landscape #355


Elevator Construction Local #8

PITTSBURG UNIFIED SCHOOL DISTRICT
CONSTRUCTION STABILIZATION PROGRAM

EXHIBIT A

Description

Addendum A: Agreed To Letter of Assent

[Date]

[Addressee]

[Address]

[City and State]

Re: (NAME OF PROJECT),

Project Stabilization Agreement -- Letter of Assent

Dear Mr./Ms.

The undersigned party confirms that it agrees to be a party to and bound by the
(NAME OF PROJECT), Project Stabilization Agreement, together with all appendixes and any
and all amendments and supplements now existing.

By executing this Letter of Assent, the undersigned party subscribes to, adopts and agrees to be
bound by the written terms of the legally established trust agreements specifying the detailed
basis upon which contributions are to be made into, and benefits made out of, such trust funds
and ratifies and accepts the trustees appointed by the parties to such trust funds.

Such obligation to be a party to and bound by this Agreement shall extend to all work covered by said Agreement undertaken by the undersigned party on the (NAME OF PROJECT). The undersigned party shall require all of its subcontractors, of whatever tier, to become similarly bound for all their work within the scope of this Agreement by signing an identical Letter of Assent.

This letter shall constitute a subscription agreement, to the extent of the terms of the letter.

CONTRACTOR/SUBCONTRACTOR: _____

California State License Number: _____

Name and Signature of Authorized Person: _____
(Print Name)

(Title)

(Signature)

(Telephone Number)

(Facsimile Number)

AGREEMENT

THIS AGREEMENT IS MADE AND ENTERED INTO THIS ____ DAY OF _____, **2024**, by and between the Pittsburgh Unified School District ("District") and _____ ("Contractor").

WITNESSETH: That the parties hereto have mutually covenanted and agreed, and by these presents do covenant and agree with each other, as follows:

- 1. The Work:** Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, and material necessary to perform and complete in a good and workmanlike manner, the work of the following project:

Contract No.: 26-004, Pittsburgh HS – Stadium Parking Lot Replacement Project ("Project" or "Contract" or "Work")

It is understood and agreed that the Work shall be performed and completed as required in the Contract Documents including, without limitation, the Drawings and Specifications and submission of all documents required to secure funding or by the Division of the State Architect for close-out of the Project, under the direction and supervision of, and subject to the approval of, the District or its authorized representative.

- 2. The Contract Documents:** The complete Contract consists of all Contract Documents as defined in the General Conditions and incorporated herein by this reference. Any and all obligations of the District and Contractor are fully set forth and described in the Contract Documents. All Contract Documents are intended to cooperate so that any Work called for in one and not mentioned in the other or vice versa is to be executed the same as if mentioned in all Contract Documents.
- 3. Interpretation of Contract Documents:** Should any question arise concerning the intent or meaning of Contract Documents, including the Drawings or Specifications, the question shall be submitted to the District for interpretation. If a conflict exists in the Contract Documents, valid, written modifications, beginning with the most recent, shall control over this Agreement (if any), which shall control over the Special Conditions, which shall control over any Supplemental Conditions, which shall control over the General Conditions, which shall control over the remaining Division 0 documents, which shall control over Division 1 Documents which shall control over Division 2 through Division 49 documents, which shall control over figured dimensions, which shall control over large-scale drawings, which shall control over small-scale drawings. In no case shall a document calling for lower quality and/or quantity material or workmanship control. The decision of the District in the matter shall be final.
- 4. Time for Completion:** It is hereby understood and agreed that all on-site Work, under this Contract, shall be completed on or before **Friday, July 17, 2026**, and that all Work under this Contract shall be completed on or before **Friday, August 21, 2026 ("Contract Time")** as specified in the District's Notice to Proceed.

5. **Completion - Extension of Time:** Should the Contractor fail to complete this Contract, and the Work provided herein, within the time fixed for completion, due allowance being made for the contingencies provided for herein, the Contractor shall become liable to the District for all loss and damage that the District may suffer on account thereof. The Contractor shall coordinate its Work with the Work of all other contractors. The District shall not be liable for delays resulting from Contractor's failure to coordinate its Work with other contractors in a manner that will allow timely completion of Contractor's Work. Contractor shall be liable for delays to other contractors caused by Contractor's failure to coordinate its Work with the Work of other contractors.
6. **Liquidated Damages:** Time is of the essence for all work under this Agreement. It is hereby understood and agreed that it is and will be difficult and/or impossible to ascertain and determine the actual damage that the District will sustain in the event of and by reason of Contractor's delay; therefore, Contractor agrees that it shall pay to the District the sum of **Two Thousand Dollars (\$2,000.00)** per day as liquidated damages for each and every day's delay beyond the time herein prescribed in finishing the Work.

It is hereby understood and agreed that this amount is not a penalty.

In the event that any portion of the liquidated damages is not paid to the District, the District may deduct that amount from any money due or that may become due the Contractor under this Agreement, and such deduction does not constitute a withholding or penalty. The District's right to assess liquidated damages is as indicated herein and in the General Conditions.

The time during which the Contract is delayed for cause, as hereinafter specified, may extend the time of completion for a reasonable time as the District may grant, provided that Contractor has complied with the claims procedure of the Contract Documents. This provision does not exclude the recovery of damages by either party under other provisions in the Contract Documents.

7. **Loss Or Damage:** The District and its agents and authorized representatives shall not in any way or manner be answerable or suffer loss, damage, expense, or liability for any loss or damage that may happen to the Work, or any part thereof, or in or about the same during its construction and before acceptance, and the Contractor shall assume all liabilities of every kind or nature arising from the Work, either by accident, negligence, theft, vandalism, or any cause whatsoever; and shall hold the District and its agents and authorized representatives harmless from all liability of every kind and nature arising from accident, negligence, or any cause whatsoever.
8. **Insurance and Bonds:** Prior to issuance of the Notice to Proceed by the District, Contractor shall provide all required certificates of insurance and insurance endorsements, and payment and performance bonds as evidence thereof. Prior to issuance of the Notice to Proceed by the District, Contractor shall provide all required certificates of insurance, insurance endorsements, and payment and performance bonds as evidence thereof.

9. **Prosecution of Work:** If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this Contract, the District, may, pursuant to the General Conditions and without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.
10. **Authority of Architect, Project Inspector, and DSA:** Contractor hereby acknowledges that the Architect(s), the Project Inspector(s), and the Division of the State Architect ("DSA") have authority to approve and/or suspend Work if the Contractor's Work does not comply with the requirements of the Contract Documents, Title 24 of the California Code of Regulations, and all applicable laws and regulations. The Contractor shall be liable for any delay caused by its non-compliant Work.
11. **Assignment of Contract:** Neither the Contract, nor any part thereof, nor any moneys due or to become due thereunder, may be assigned by the Contractor without the prior written approval of the District, nor without the written consent of the Surety on the Contractor's Performance Bond (the "Surety"), unless the Surety has waived in writing its right to notice of assignment.
12. **Classification of Contractor's License:** Contractor hereby acknowledges that it currently holds valid Type A or B Contractor's license(s) issued by the State of California, Contractors' State License Board, in accordance with division 3, chapter 9, of the Business and Professions Code and in the classification called for in the Contract Documents.
13. **Registration as Public Works Contractor:** The Contractor and all Subcontractors currently are registered as public works contractors with the Department of Industrial Relations, State of California, in accordance with Labor Code section 1771.1.
14. **Payment of Prevailing Wages:** The Contractor and all Subcontractors shall pay all workers on all Work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code.
15. **Labor Compliance:** This Project is subject to labor compliance monitoring and enforcement by the Department of Industrial Relations pursuant to Labor Code section 1771.4 and Title 8 of the California Code of Regulations. Contractor specifically acknowledges and understands that it shall perform the Work of this Agreement while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code, including, without limitation, the requirement that the Contractor and all of its Subcontractors shall timely submit complete and accurate electronic certified payroll records as required by the Contract Documents, or the District may not issue payment.

- 16. Contract Price:** In consideration of the foregoing covenants, promises, and agreements on the part of the Contractor, and the strict and literal fulfillment of each and every covenant, promise, and agreement, and as compensation agreed upon for the Work and construction, erection, and completion as aforesaid, the District covenants, promises, and agrees that it will well and truly pay and cause to be paid to the Contractor in full, and as the full Contract Price and compensation for construction, erection, and completion of the Work hereinabove agreed to be performed by the Contractor, the following price:

_____ Dollars (\$ _____),

in lawful money of the United States, which sum is to be paid according to the schedule provided by the Contractor and accepted by the District and subject to additions and deductions as provided in the Contract. This amount supersedes any previously stated and/or agreed to amount(s).

- 17. No Representations:** No representations have been made other than as set forth in writing in the Contract Documents, including this Agreement. Each of the Parties to this Agreement warrants that it has carefully read and understood the terms and conditions of this Agreement and all Contract Documents, and that it has not relied upon the representations or advice of any other Party or any attorney not its own.
- 18. Entire Agreement:** The Contract Documents, including this Agreement, set forth the entire agreement between the parties hereto and fully supersede any and all prior agreements, understandings, written or oral, between the parties hereto pertaining to the subject matter thereof.
- 19. Severability:** If any term, covenant, condition, or provision in any of the Contract Documents is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remainder of the provisions in the Contract Documents shall remain in full force and effect and shall in no way be affected, impaired, or invalidated thereby.

IN WITNESS WHEREOF, accepted and agreed on the date indicated above:

CONTRACTOR

PITTSBURG UNIFIED SCHOOL DISTRICT

By: _____

By: **Sean Vandermey**

Title: _____

Title: **DIRECTOR OF FACILITIES**

NOTE: If the party executing this Contract is a corporation, a certified copy of the by-laws, or of the resolution of the Board of Directors, authorizing the officers of said corporation to execute the Contract and the bonds required thereby must be attached hereto.

END OF DOCUMENT

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

**AGREEMENT
DOCUMENT 00 52 13-4**

POST BID INTERVIEW

PART 1 – GENERAL

1.01 SUMMARY

If requested by the District, this Section requires the apparent low bidder to attend and participate in a Post Bid Interview with the Construction Project Manager, prior to award of any contract by the District. The Post Bid Interview will be scheduled by the Construction Project Manager within three (3) calendar days after the date of bid.

1.02 REQUIRED ATTENDANCE

- A. A duly authorized representative of the apparent low bidder is required to attend the Post Bid Interview, in person.
- B. The apparent low bidder's authorized representative must have signatory authority on behalf of the apparent low bidder.
- C. Failure to attend the Post Bid Interview will be considered just cause for the District to reject the Bid.

1.03 POST BID INTERVIEW PROCEDURE

- A. The Construction Project Manager will review the Bid with the attendees.
- B. The Construction Project Manager will review the Contract Documents with the attendees, including but not limited to:
 - (1) Insurance
 - (2) Bonding
 - (3) Addenda
 - (4) Pre-Bid Clarifications
 - (5) Scope of Work
 - (6) Bid Packages Descriptions
 - (7) Bid Alternates
 - (8) Contract Plans
 - (9) Contract Specifications
 - (10) Project Schedule and Schedule Requirements

- (11) Critical Dates Requirement for Other Bid Packages
- (12) Prevailing Wage Requirements
- (13) Liquidated Damages
- (14) Required Documentation for Contract Administration
- (15) Contract Coordination Requirements

1.04 POST BID INTERVIEW DOCUMENTATION

The Construction Project Manager will document the Post Bid Interview on the form attached to this Section. Both the apparent low bidder and the Construction Project Manager are required to sign the Post Bid Interview Documentation.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

POST BID INTERVIEW

CONSTRUCTION PROJECT MANAGER

[Name]

[Address 1]

[Address 2]

[Phone]

[Fax]

BIDDER: _____

DATE: _____ TIME: _____ PHONE: _____

I. INTRODUCTIONS:

A. Present

CONTRACTOR

CONTRACTOR

[CM]

[CM]

II. PROPOSED CONTRACT:

III. PURPOSE OF INTERVIEW IS TO ASSURE A MUTUAL UNDERSTANDING OF THE FOLLOWING:

A. Do you acknowledge submission of a complete and accurate bid?	Yes	No
B. Do you acknowledge the Bid Document submittal timelines after NOA and NTP and can you meet those timelines?	Yes	No
C. Do you acknowledge the requirements for the escrow of bid documents?	Yes	No
D. Are you comfortable with your listed subcontractors?	Yes	No

IV. CONTRACTUAL REQUIREMENTS:

A. Do you understand you are a prime contractor?	Yes	No
B. Can you meet specified insurance requirements?	Yes	No
1. Do any of your policies that require Additional Insured endorsements exceed the minimum coverage requirements?	Yes	No
2. Are you requesting that the District accept an Umbrella or Excess Liability Insurance Policy to meet the policy limit?	Yes	No
3. Will there be a gap between the per occurrence amount of any underlying policy and the start of the coverage under the Umbrella or Excess Liability Insurance Policy?	Yes	No

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

**POST BID INTERVIEW
DOCUMENT 00 45 90-3**

C.	Will you provide the Performance Bond and Labor and Material Bond for 100% of the Contract Price as stipulated?	Yes	No
1.	Cost for bond: _____%	Yes	No
2.	Is the cost of your bond in your base bid?	Yes	No
3.	Is your surety licensed to issue bonds in California?	Yes	No
D.	Do you understand the fingerprinting requirements?	Yes	No
E.	Is it understood that all workers must be paid prevailing wage?	Yes	No
F.	Is it understood that all subcontractors of every tier must be registered as a public works contractor with the Department of Industrial Relations?	Yes	No
V. SCOPE OF WORK:			
A.	Acknowledged Receipt of Addenda #1-__	Yes	No
B.	Are the costs for addenda items included in your bid? (if applicable)	Yes	No
C.	Do you have a complete understanding of your Scope of Work under the proposed Agreement?	Yes	No
D.	You have re-reviewed the documents and understand the Scope of the Work. Are there any items that require clarification?	Yes	No
If yes, please identify them.			
1.	_____		

2.	_____		

3.	_____		

	Is (are) there additional cost(s) for the above item(s)?	Yes	No
E.	Have you reviewed bid alternative(s) #1-__? (if applicable)	Yes	No
F.	Are the costs for bid alternatives included in your bid?	Yes	No
G.	Are the plans and specifications clear and understandable to your satisfaction?	Yes	No
H.	Do you acknowledge that the time to submit notice of requests for substitution of specified materials has expired?	Yes	No

PITTSBURG UNIFIED SCHOOL DISTRICT
Pittsburg HS – Stadium Parking Lot
Replacement Project

**POST BID INTERVIEW
DOCUMENT 00 45 90-4**

VI. SCHEDULE:

A. Do you acknowledge and agree to the stipulated completion dates and milestones in the contract? Yes No

1. Will you provide a detailed construction schedule to _____ within the required ten (10) days of the Notice to Proceed, per the contract? Yes No

2. Can you meet the submittal deadline? Yes No

3. It is understood that the Project schedule is critical and that that weekend and overtime work may be required to meet the milestones. Yes No

4. It is understood that if rain does occur, then all dewatering and protection of work is required, per the contract. Yes No
If not, what do you believe must change and why? _____

B. Identify critical materials, deliveries, long lead items and other dependencies, including Owner Furnished items that could affect the completion of your work. Yes No

1. _____

2. _____

3. _____

4. _____

5. _____

C. Do you understand that there is going to be maintenance and other construction taking place on site during the course of the project? Yes No

VII. EXECUTION OF WORK

A. Do you understand the access to the site? Yes No

B. Do you understand the staging area restrictions? Yes No

C. Have you included protection of [asphalt, floors, and roofs]? Yes No

- D. Do you understand that the site is occupied by students, teachers, administrators, parents, etc.? Yes No

VIII. CONTRACTOR COMMENTS/SUGGESTIONS:

1. _____
2. _____
3. _____
4. _____
5. _____

IX. CONTRACTOR

You agree the information contained herein is part of your contractual obligations. Your signature acknowledges your agreement to perform all Work in the Contract Documents, and that costs for all Work are included in your bid.

The foregoing information is true and accurate, and I am authorized to sign as an officer of the company I am representing.

[Company Name]

Signature _____ Title: _____

Date: _____

X. CONSTRUCTION PROJECT MANAGER

Signature _____ Title: _____

Date: _____

Title of Document: POST BID INTERVIEW

Number of Pages: _____

Date of Document: _____

END OF DOCUMENT

DRUG-FREE WORKPLACE CERTIFICATION

CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project**
between the Pittsburg Unified School District ("District") and _____
_____. ("Contractor" or "Bidder").

This Drug-Free Workplace Certification form is required from the successful Bidder pursuant to Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any state agency must certify that it will provide a drug-free workplace by doing certain specified acts. In addition, the Act provides that each contract or grant awarded by a state agency may be subject to suspension of payments or termination of the contract or grant, and the contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

The District is not a "state agency" as defined in the applicable section(s) of the Government Code, but the District is a local agency and public school district under California law and requires all contractors on District projects to comply with the provisions and requirements of the Drug-Free Workplace Act of 1990.

Contractor shall certify that it will provide a drug-free workplace by doing all of the following:

- a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace and specifying actions which will be taken against employees for violations of the prohibition.
- b. Establishing a drug-free awareness program to inform employees about all of the following:
 - (1) The dangers of drug abuse in the workplace.
 - (2) The person's or organization's policy of maintaining a drug-free workplace.
 - (3) The availability of drug counseling, rehabilitation, and employee-assistance programs.
 - (4) The penalties that may be imposed upon employees for drug abuse violations.
- c. Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required above, and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will publish a statement notifying employees concerning (a) the prohibition of controlled substance at the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the Contract be given a copy of the statement required by section 8355(a), and requiring that the employee agree to abide by the terms of that statement.

I also understand that if the District determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of section 8355, that the Contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of the aforementioned Act.

I acknowledge that I am aware of the provisions of and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

NOTICE TO PROCEED

Dated: _____, **2026**

TO: _____
("Contractor")

ADDRESS: _____

PROJECT: **Pittsburg HS – Stadium Parking Lot Replacement Project**

CONTRACT NO.: **26-004** between the Pittsburg Unified School District and Contractor ("Contract").

You are notified that the Contract Time under the above Contract will commence to run on **Monday, March 23, 2026**. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Agreement executed by Contractor, the date of completion of all on site Work, under this Contract, is **Friday, July 17, 2026**, and the date of completion of all Work under this Contract is **Friday, August 21, 2026** ("**Contract Time**").

You must submit the following documents by 5:00 p.m. of the TENTH (10th) calendar day following the date of this Notice to Proceed:

- a. Contractor's preliminary schedule of construction.
- b. Contractor's preliminary schedule of values for all of the Work.
- c. Contractor's preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals
- d. Contractor's Safety Plan specifically adapted for the Project.
- e. A complete subcontractors list, including the name, address, telephone number, email address, facsimile number, California State Contractors License number, license classification, Department of Industrial Relations registration number, and monetary value of all Subcontracts.

Thank you. We look forward to a very successful Project.

PITTSBURG UNIFIED SCHOOL DISTRICT

BY: _____

NAME: **Sean Vandermey**

TITLE: **DIRECTOR OF FACILITIES**

END OF DOCUMENT

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

**NOTICE TO PROCEED
DOCUMENT 00 55 00-1**

PERFORMANCE BOND
(100% of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Pittsburgh Unified School District, ("District") and _____, ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

Contract No.: 26-004, Pittsburgh HS – Stadium Parking Lot Replacement Project

("Project" or "Contract") which Contract dated _____, **2026**, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, said Principal is required under the terms of the Contract to furnish a bond for the faithful performance of the Contract.

NOW, THEREFORE, the Principal and _____ ("Surety") are held and firmly bound unto the Board of the District in the penal sum of _____

Dollars (\$_____), lawful money of the United States, 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, to:

- Promptly perform all the work required to complete the Project; and
- Pay to the District all damages the District incurs as a result of the Principal's failure to perform all the Work required to complete the Project.

Or, at the District's sole discretion and election, the Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by the District of the lowest responsible bidder, arrange for a contract between such bidder and the District and make available as Work progresses sufficient funds to pay the cost of completion less the "balance of the Contract Price," and to pay and perform all obligations of Principals under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages. The term "balance of the Contract Price," as used in this paragraph, shall mean the total amount payable to Principal by the District under the Contract and any modifications thereto, less the amount previously paid by the District to the Principal, less any withholdings by the District allowed under the Contract. District shall not be required or obligated to accept a tender of a completion contractor from the Surety for any or no reason.

The condition of the obligation is such that, if the above bound Principal, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions, and agreements in the Contract and any alteration thereof made as therein provided, on its part to be kept and performed at the time and in the intent and meaning, including all contractual guarantees and warranties of materials and workmanship, and shall indemnify and save harmless the District, its trustees, officers and agents, as therein stipulated, then this obligation shall become null and void, otherwise it shall be and remain in full force and virtue.

Surety expressly agrees that the District may reject any contractor or subcontractor proposed by Surety to fulfill its obligations in the event of default by the Principal. Surety shall not utilize Principal in completing the Work nor shall Surety accept a Bid from Principal for completion of the Work if the District declares the Principal to be in default and notifies Surety of the District's objection to Principal's further participation in the completion of the Work.

As a condition precedent to the satisfactory completion of the Contract, the above obligation shall hold good for a period equal to the warranty and/or guarantee period of the Contract, during which time Surety's obligation shall continue if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the District from loss or damage resulting from or caused by defective materials or faulty workmanship. The obligations of Surety hereunder shall continue so long as any obligation of Contractor remains. Nothing herein shall limit the District's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond. The Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond by any overpayment or underpayment by the District that is based upon estimates approved by the Architect. The Surety does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the Contract or to the work or to the specifications.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____ day of _____, 20____.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

PAYMENT BOND
Contractor's Labor & Material Bond
(100% Of Contract Price)

(Note: Contractor must use this form, NOT a surety company form.)

KNOW ALL PERSONS BY THESE PRESENTS:

WHEREAS, the governing board ("Board") of the Pittsburgh Unified School District, ("District") and _____, ("Principal") have entered into a contract for the furnishing of all materials and labor, services and transportation, necessary, convenient, and proper to perform the following project:

Contract No.: 26-004, Pittsburgh HS – Stadium Parking Lot Replacement Project

("Project" or "Contract") which Contract dated _____, **2026**, and all of the Contract Documents attached to or forming a part of the Contract, are hereby referred to and made a part hereof; and

WHEREAS, pursuant to law and the Contract, the Principal is required, before entering upon the performance of the work, to file a good and sufficient bond with the body by which the Contract is awarded in an amount equal to one hundred percent (100%) of the Contract price, to secure the claims to which reference is made in sections 9000 through 9510 and 9550 through 9566 of the Civil Code, and division 2, part 7, of the Labor Code.

NOW, THEREFORE, the Principal and _____ ("Surety") are held and firmly bound unto all laborers, material men, and other persons referred to in said statutes in the sum of _____ Dollars (\$_____), lawful money of the United States, being a sum not less than the total amount payable by the terms of Contract, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, or assigns, jointly and severally, by these presents.

The condition of this obligation is that if the Principal or any of its subcontractors, or their heirs, executors, administrators, successors, or assigns of any, all, or either of them shall fail to pay for any labor, materials, provisions, or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal or any of his or its subcontractors of any tier under Section 13020 of the Unemployment Insurance Code with respect to such work or labor, that the Surety will pay the same in an amount not exceeding the amount herein above set forth, and also in case suit is brought upon this bond, will pay a reasonable attorney's fee to be awarded and fixed by the court, and to be taxed as costs and to be included in the judgment therein rendered.

It is hereby expressly stipulated and agreed that this bond shall inure to the benefit of any and all persons, companies, and corporations entitled to file claims under section 9100 of the Civil Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

Should the condition of this bond be fully performed, then this obligation shall become null and void; otherwise it shall be and remain in full force and affect.

And the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of Contract or the specifications accompanying the same shall in any manner affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration, or addition.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed an original thereof, have been duly executed by the Principal and Surety above named, on the _____ day of _____, 20____.

Principal	Surety
By	By
	Name of California Agent of Surety
	Address of California Agent of Surety
	Telephone No. of California Agent of Surety

Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.

END OF DOCUMENT

GUARANTEE FORM

_____ ("Contractor") hereby agrees that the **Pittsburg HS – Stadium Parking Lot Replacement Project** ("Work" of Contractor) which Contractor has installed for the Pittsburg Unified School District ("District") for the following project:

PROJECT: **Pittsburg HS – Stadium Parking Lot Replacement Project**

("Project" or "Contract") has been performed in accordance with the requirements of the Contract Documents and that the Work as installed will fulfill the requirements of the Contract Documents.

The undersigned agrees to repair or replace any or all of such Work that may prove to be defective in workmanship or material together with any other adjacent Work that may be displaced in connection with such replacement within a period of **Two (2)** years from the date of completion as defined in Public Contract Code section 7107, subdivision (c), ordinary wear and tear and unusual abuse or neglect excepted. The date of completion is _____, 20____.

In the event of the undersigned's failure to comply with the above-mentioned conditions within a reasonable period of time, as determined by the District, but not later than seven (7) days after being notified in writing by the District, the undersigned authorizes the District to proceed to have said defects repaired and made good at the expense of the undersigned. The undersigned shall pay the costs and charges therefor upon demand.

Date: _____

Proper Name of Contractor: _____

Signature: _____

Print Name: _____

Title: _____

Representatives to be contacted for service subject to terms of Contract:

Name: _____

Address: _____

Phone No.: _____

Email: _____

END OF DOCUMENT

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

**GUARANTEE FORM
DOCUMENT 00 65 36-1**

AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS

THIS AGREEMENT AND RELEASE OF CLAIMS ("Agreement and Release") IS MADE AND ENTERED INTO THIS _____ DAY OF _____, 20____ by and between the PITTSBURG UNIFIED SCHOOL DISTRICT ("District") and _____ ("Contractor"), whose place of business is _____.

RECITALS:

1. District and Contractor entered into CONTRACT NO.: **26-004, Pittsburg HS – Stadium Parking Lot Replacement Project** ("Contract" or "Project") in the County of Contra Costa, California.
2. The Work under the Contract was completed on _____, and a Notice of Completion was recorded with the County Recorder on _____.

NOW, THEREFORE, it is mutually agreed between District and Contractor as follows:

AGREEMENT AND RELEASE

3. Contractor will only be assessed liquidated damages as detailed below:

Original Contract Sum	\$ _____
Modified Contract Sum	\$ _____
Payment to Date	\$ _____
Liquidated Damages	\$ _____
Payment Due Contractor	\$ _____
4. Subject to the provisions hereof, District shall forthwith pay to Contractor the undisputed sum of _____ Dollars (\$_____) under the Contract, less any amounts represented by any notice to withhold funds on file with District as of the date of such payment.
5. Contractor acknowledges and hereby agrees that there are no unresolved or outstanding claims in dispute against District arising from the performance of work under the Contract, except for the claims described in Paragraph 6 and continuing obligations described in Paragraph 8. It is the intention of the parties in executing this Agreement and Release that this Agreement and Release shall be effective as a full, final and general release of all claims, demands, actions, causes of action, obligations, costs, expenses, damages, losses and liabilities of Contractor against District and all of its respective agents, employees, trustees, inspectors, assignees, consultants and transferees, except for any Disputed Claim that may be set forth in Paragraph 6 and the continuing obligations described in Paragraph 8 hereof.

6. The following claims are disputed (hereinafter, the "Disputed Claims") and are specifically excluded from the operation of this Agreement and Release:

<u>Claim No.</u>	<u>Description of Claim</u>	<u>Amount of Claim</u>	<u>Date Claim Submitted</u>
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____
_____	_____	\$ _____	_____

[If further space is required, attach additional sheets showing the required information.]

7. Consistent with California Public Contract Code section 7100, Contractor hereby agrees that, in consideration of the payment set forth in Paragraph 4 hereof, Contractor hereby releases and forever discharges District, all its agents, employees, inspectors, assignees, and transferees from any and all liability, claims, demands, actions, or causes of action of whatever kind or nature arising out of or in any way concerned with the Work under the Contract.
8. Guarantees and warranties for the Work, and any other continuing obligation of Contractor, shall remain in full force and effect as specified in the Contract Documents.
9. To the furthest extent permitted by California law, Contractor shall defend, indemnify, and hold harmless the District, its agents, representatives, officers, consultants, employees, trustees, and volunteers (the "indemnified parties") from any and all losses, liabilities, claims, suits, and actions of any kind, nature, and description, including, but not limited to, attorneys' fees and costs, directly or indirectly arising out of, connected with, or resulting from the performance of the Contract unless caused wholly by the sole negligence or willful misconduct of the District.
10. Contractor hereby waives the provisions of California Civil Code section 1542 which provides as follows:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.

11. The provisions of this Agreement and Release are contractual in nature and not mere recitals and shall be considered independent and severable. If any such provision or any part thereof shall be at any time held invalid in whole or in part under any federal, state, county, municipal, or other law, ruling, or regulations, then such provision, or part thereof, shall remain in force and effect to the extent permitted by law, and the remaining provisions of this Agreement and Release shall also remain in full force and effect, and shall be enforceable.
12. All rights of District shall survive completion of the Work or termination of Contract, and execution of this Release.

* * * CAUTION: THIS IS A RELEASE - READ BEFORE EXECUTING * * *

PITTSBURG UNIFIED SCHOOL DISTRICT

Signature: _____

Print Name: _____

Title: _____

CONTRACTOR: _____

Signature: _____

Print Name: _____

Title: _____

END OF DOCUMENT

HAZARDOUS MATERIALS
PROCEDURES & REQUIREMENTS

1. Summary

This document includes information applicable to hazardous materials and hazardous waste abatement.

2. Notice of Hazardous Waste or Materials

- a. Contractor shall give notice in writing to the District, the Construction Manager, and the Architect promptly, before any of the following materials are disturbed, and in no event later than twenty-four (24) hours after first observance, of any:
 - (1) Material that Contractor believes may be a material that is hazardous waste or hazardous material, as defined in section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;
 - (2) Other material that may present a substantial danger to persons or property exposed thereto in connection with Work at the site.
- b. Contractor's written notice shall indicate whether the hazardous waste or material was shown or indicated in the Contract Documents to be within the scope of Work, and whether the materials were brought to the site by Contractor, its Subcontractors, suppliers, or anyone else for whom Contractor is responsible. As used in this section the term "hazardous materials" shall include, without limitation, asbestos, lead, Polychlorinated biphenyl (PCB), petroleum and related hydrocarbons, and radioactive material.
- c. In response to Contractor's written notice, the District shall investigate the identified conditions.
- d. If the District determines that conditions do not involve hazardous materials or that no change in terms of Contract is justified, the District shall so notify Contractor in writing, stating reasons. If the District and Contractor cannot agree on whether conditions justify an adjustment in Contract Price or Contract Time, or on the extent of any adjustment, Contractor shall proceed with the Work as directed by the District.
- e. If after receipt of notice from the District, Contractor does not agree to resume Work based on a reasonable belief it is unsafe, or does not agree to resume Work under special conditions, then District may order such portion of Work that is in connection with such hazardous condition or such affected area to be deleted from the Work, or performed by others, or District may

invoke its rights to terminate the Contract in whole or in part. District will determine entitlement to or the amount or extent of an adjustment, if any, in Contract Price or Contract Time as a result of deleting such portion of Work, or performing the Work by others.

- f. If Contractor stops Work in connection with any hazardous condition and in any area affected thereby, Contractor shall immediately redeploy its workers, equipment, and materials, as necessary, to other portions of the Work to minimize delay and disruption.

3. Additional Warranties and Representations

- a. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have the required levels of familiarity with the Site and the Work, training, and ability to comply fully with all applicable laws and contractual requirements for safe and expeditious performance of the Work, including whatever training is or may be required regarding the activities to be performed (including, but not limited to, all training required to address adequately the actual or potential dangers of Contract performance).
- b. Contractor represents and warrants that it, its employees, and its subcontractors and their employees, shall at all times have and maintain in good standing any and all certifications and licenses required by applicable federal, state, and other governmental and quasi-governmental requirements applicable to the Work.
- c. Contractor represents and warrants that it has studied carefully all requirements of the Specifications regarding procedures for demolition, hazardous waste abatement, or safety practices, specified in the Contract, and prior to submitting its bid, has either (a) verified to its satisfaction that the specified procedures are adequate and sufficient to achieve the results intended by the Contract Documents, or (b) by way of approved "or equal" request or request for clarification and written Addenda, secured changes to the specified procedures sufficient to achieve the results intended by the Contract Documents. Contractor accepts the risk that any specified procedure will result in a completed Project in full compliance with the Contract Documents.

4. Monitoring and Testing

- a. District reserves the right, in its sole discretion, to conduct air monitoring, earth monitoring, Work monitoring, and any other tests (in addition to testing required under the agreement or applicable law), to monitor Contract requirements of safe and statutorily compliant work methods and (where applicable) safe re-entry level air standards under state and federal law upon completion of the job, and compliance of the work with periodic and final inspection by public and quasi-public entities having jurisdiction.

- b. Contractor acknowledges that District has the right to perform, or cause to be performed, various activities and tests including, but not limited to, preabatement, during abatement, and post-abatement air monitoring, that District shall have no obligation to perform said activities and tests, and that a portion of said activities and tests may take place prior to the completion of the Work by Contractor. In the event District elects to perform these activities and tests, Contractor shall afford District ample access to the Site and all areas of the Work as may be necessary for the performance of these activities and tests. Contractor will include the potential impact of these activities or tests by District in the Contract Price and the Scheduled Completion Date.
- c. Notwithstanding District's rights granted by this paragraph, Contractor may retain its own industrial hygiene consultant at Contractor's own expense and may collect samples and may perform tests including, but not limited to, preabatement, during abatement, and post-abatement personal air monitoring, and District reserves the right to request documentation of all such activities and tests performed by Contractor relating to the Work and Contractor shall immediately provide that documentation upon request.

5. Compliance with Laws

- a. Contractor shall perform safe, expeditious, and orderly work in accordance with the best practices and the highest standards in the hazardous waste abatement, removal, and disposal industry, the applicable law, and the Contract Documents, including, but not limited to, all responsibilities relating to the preparation and return of waste shipment records, all requirements of the law, delivering of all requisite notices, and obtaining all necessary governmental and quasi-governmental approvals.
- b. Contractor represents that it is familiar with and shall comply with all laws applicable to the Work or completed Work including, but not limited to, all federal, state, and local laws, statutes, standards, rules, regulations, and ordinances applicable to the Work relating to:
 - (1) The protection of the public health, welfare and environment;
 - (2) Storage, handling, or use of asbestos, PCB, lead, petroleum based products, radioactive material, or other hazardous materials;
 - (3) The generation, processing, treatment, storage, transport, disposal, destruction, or other management of asbestos, PCB, lead, petroleum, radioactive material, or hazardous waste materials or other waste materials of any kind; and
 - (4) The protection of environmentally sensitive areas such as wetlands and coastal areas.

6. Disposal

- a. Contractor has the sole responsibility for determining current waste storage, handling, transportation, and disposal regulations for the job Site and for each waste disposal facility. Contractor must comply fully at its sole cost and expense with these regulations and any applicable law. District may, but is not obligated to, require submittals with this information for it to review consistent with the Contract Documents.
- b. Contractor shall develop and implement a system acceptable to District to track hazardous waste from the Site to disposal, including appropriate "Hazardous Waste Manifests" on the EPA form, so that District may track the volume of waste it put in each landfill and receive from each landfill a certificate of receipt.
- c. Contractor shall provide District with the name and address of each waste disposal facility prior to any disposal, and District shall have the express right to reject any proposed disposal facility. Contractor shall not use any disposal facility to which District has objected. Contractor shall document actual disposal or destruction of waste at a designated facility by completing a disposal certificate or certificate of destruction forwarding the original to the District.

7. Permits

- a. Before performing any of the Work, and at such other times as may be required by applicable law, Contractor shall deliver all requisite notices and obtain the approval of all governmental and quasi-governmental authorities having jurisdiction over the Work. Contractor shall submit evidence satisfactory to District that it and any disposal facility:
 - (1) have obtained all required permits, approvals, and the like in a timely manner both prior to commencement of the Work and thereafter as and when required by applicable law; and
 - (2) are in compliance with all such permits, approvals and the regulations.

For example, before commencing any work in connection with the Work involving asbestos-containing materials, or PCBs, or other hazardous materials subject to regulation, Contractor agrees to provide the required notice of intent to renovate or demolish to the appropriate state or federal agency having jurisdiction, by certified mail, return receipt requested, or by some other method of transmittal for which a return receipt is obtained, and to send a copy of that notice to District. Contractor shall not conduct any Work involving asbestos-containing materials or PCBs unless Contractor has first confirmed that the appropriate agency having jurisdiction is in receipt of the required notification. All permits, licenses, and bonds that are required by governmental or quasi-governmental authorities, and all

fees, deposits, tap fees, offsite easements, and asbestos and PCB disposal facilities expenses necessary for the prosecution of the Work, shall be procured and paid for by Contractor. Contractor shall give all notices and comply with the all applicable laws bearing on the conduct of the Work as drawn and specified. If Contractor observes or reasonably should have observed that Plans and Specifications and other Contract Documents are at variance therewith, it shall be responsible for promptly notifying District in writing of such fact. If Contractor performs any Work contrary to applicable laws, it shall bear all costs arising therefrom.

- b. In the case of any permits or notices held in District's name or of necessity to be made in District's name, District shall cooperate with Contractor in securing the permit or giving the notice, but the Contractor shall prepare for District review and execution upon approval, all necessary applications, notices, and other materials.

8. Indemnification

To the fullest extent permitted by law, the indemnities and limitations of liability expressed throughout the Contract Documents apply with equal force and effect to any claims or liabilities imposed or existing by virtue of the removal, abatement, and disposal of hazardous waste. This includes, but is not limited to, liabilities connected to the selection and use of a waste disposal facility, a waste transporter, personal injury, property damage, loss of use of property, damage to the environment or natural resources, or "disposal" and "release" of materials associated with the Work (as defined in 42 U.S.C. § 9601 *et seq.*).

9. Termination

District shall have an absolute right to terminate for default immediately without notice and without an opportunity to cure should Contractor knowingly or recklessly commit a material breach of the terms of the Contract Documents, or any applicable law, on any matter involving the exposure of persons or property to hazardous waste. However, if the breach of contract exposing persons or property to hazardous waste is due solely to an ordinary, unintentional, and non-reckless failure to exercise reasonable care, then the procedures for termination for cause shall apply without modification.

END OF DOCUMENT

SPECIAL CONDITIONS

1. Mitigation Measures

Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act. (Public Resources Code section 21000 *et seq.*)

2. Modernization Projects

2.1 Access. Access to the school buildings and entry to buildings, classrooms, restrooms, mechanical rooms, electrical rooms, or other rooms, for construction purposes, must be coordinated with District and onsite District personnel before Work is to start. Unless agreed to otherwise in writing, only a school custodian will be allowed to unlock and lock doors in existing building(s). The custodian will be available only while school is in session. If a custodian is required to arrive before 7:00 a.m. or leave after 3:30 p.m. to accommodate Contractor's Work, the overtime wages for the custodian will be paid by the Contractor, unless at the discretion of the District, other arrangements are made in advance.

2.2 Keys. Upon request, the District may, at its own discretion, provide keys to the school site for the convenience of the Contractor. The Contractor agrees to pay all expenses to re-key the entire school site and all other affected District buildings if the keys are lost or stolen, or if any unauthorized party obtains a copy of the key or access to the school.

2.3 Maintaining Services. The Contractor is advised that Work is to be performed in spaces regularly scheduled for instruction. Interruption and/or periods of shutdown of public access, electrical service, water service, lighting, or other utilities shall be only as arranged in advance with the District. Contractor shall provide temporary services to all facilities interrupted by Contractor's Work.

2.4 Maintaining Utilities. The Contractor shall maintain in operation during duration of Contract, drainage lines, storm drains, sewers, water, gas, electrical, steam, and other utility service lines within working area.

2.5 Confidentiality. Contractor shall maintain the confidentiality of all information, documents, programs, procedures and all other items that Contractor encounters while performing the Work. This requirement shall be ongoing and shall survive the expiration or termination of this Contract and specifically includes, without limitation, all student, parent, and employee disciplinary information and health information.

2.6 Work during Instructional Time. By submitting its bid, Contractor affirms that Work may be performed during ongoing instruction in existing facilities. If so, Contractor agrees to cooperate to the best of its ability to minimize any

disruption to school operations and any use of school facilities by the public up to, and including, rescheduling specific work activities, at no additional cost to District.

2.7 No Work during Student Testing. Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State or Federally-required tests.

3. Badge Policy for Contractors

All Contractors doing work for the District will provide their workers with identification badges. These badges will be worn by all members of the Contractor's staff who are working in a District facility.

3.1 Badges must be filled out in full and contain the following information:

3.1.1 Name of Contractor

3.1.2 Name of Employee

3.1.3 Contractor's address and phone number

3.2 Badges are to be worn when the Contractor or his/her employees are on site and must be visible at all times. Contractors must inform their employees that they are required to allow District employees, the Architect, the Construction Manager, the Program Manager, or the Project Inspector to review the information on the badges upon request.

3.3 Continued failure to display identification badges as required by this policy may result in the individual being removed from the Project or assessment of fines against the Contractor.

4. Substitution for Specified Items

4.1 Whenever in the Specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be followed by the words "or equal." Contractor may, unless otherwise stated, offer any material, process, or article that shall be substantially equal or better in every respect to that so indicated or specified.

4.1.1 If the material, process, or article offered by Contractor is not, in the opinion of the District, substantially equal or better in every respect to that specified, then Contractor shall furnish the material, process, or article specified in the Specifications without any additional compensation or change order.

4.1.2 This provision shall not be applicable with respect to any material, product, thing or service for which District made findings and gave notice in accordance with Public Contract Code section 3400(c); therefore, Contractor shall not be entitled to request a substitution with respect to those materials, products or services.

4.2 A request for a substitution shall be submitted as follows:

4.2.1 Contractor shall notify the District in writing of any request for a substitution at least ten (10) days prior to bid opening as indicated in the Instructions to Bidders.

4.2.2 Requests for Substitutions after award of the Contract shall be submitted within thirty-five (35) days of the date of the Notice of Award.

4.3 Within 35 days after the date of the Notice of Award, Contractor shall provide data substantiating a request for substitution of "an equal" item, including but not limited to the following:

4.3.1 All variations of the proposed substitute from the material specified including, but not limited to, principles of operation, materials, or construction finish, thickness or gauge of materials, dimensions, weight, and tolerances;

4.3.2 Available maintenance, repair or replacement services;

4.3.3 Increases or decreases in operating, maintenance, repair, replacement, and spare parts costs;

4.3.4 Whether or not acceptance of the substitute will require other changes in the Work (or in work performed by the District or others under Contract with the District); and

4.3.5 The time impact on any part of the Work resulting directly or indirectly from acceptance of the proposed substitute.

4.4 No substitutions shall be made until approved, in writing, by the District. The burden of proof as to equality of any material, process, or article shall rest with Contractor. The Contractor warrants that if substitutes are approved:

4.4.1 The proposed substitute is equal or superior in all respects to that specified, and that such proposed substitute is suitable and fit for the intended purpose and will perform adequately the function and achieve the results called for by the general design and the Contract Documents;

4.4.2 The Contractor provides the same warranties and guarantees for the substitute that would be provided for that specified;

4.4.3 The Contractor shall be fully responsible for the installation of the substitute and any changes in the Work required, either directly or indirectly, because of the acceptance of such substitute, with no increase in Contract Price or Contract Time. Incidental changes or extra component parts required to accommodate the substitute will be made by the Contractor without a change in the Contract Price or Contract Time;

4.4.4 The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute; and

4.4.5 The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit.

4.5 In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

4.6 In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

4.7 Contractor shall be responsible for any costs the District incurs for professional services, DSA fees, or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods. District may deduct those costs from any amounts owing to the Contractor for the review of the request for substitution, even if the request for substitution is not approved. District, at its sole discretion, shall deduct from the payments due to and/or invoice Contractor for all the professional services and/or DSA fees or delay to the Project Schedule, if applicable, while DSA reviews changes for the convenience of Contractor and/or to accommodate Contractor's means and methods arising herein.

5. Weather Days

Delays due to Adverse Weather conditions will only be permitted in compliance with the provisions in the General Conditions and only if the number of days of Adverse Weather exceeds the following parameters and Contractor can verify that the excess days of Adverse Weather caused delays:

January	<u>11</u>	July	<u>0</u>
February	<u>10</u>	August	<u>0</u>
March	<u>10</u>	September	<u>1</u>
April	<u>6</u>	October	<u>4</u>
May	<u>3</u>	November	<u>7</u>
June	<u>1</u>	December	<u>10</u>

6. Insurance Policy Limits

All of Contractor's insurance shall be with insurance companies with an A.M. Best rating of no less than **AAA**. The limits of insurance shall not be less than:

Commercial General Liability	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	[E.G.] Low Risk: \$1,000,000 per occurrence; \$2,000,000 aggregate
		Intermediate Risk: \$2,000,000 per occurrence; \$4,000,000 aggregate
		High Risk: \$5,000,000 per occurrence; \$10,000,000 aggregate
Automobile Liability – Any Auto	Combined Single Limit	[E.G.] Personal vehicles: \$500,000 Commercial vehicles: \$1,000,000
		Personal vehicles: \$100,000 per person/ \$300,000 per accident
Workers' Compensation		Statutory limits pursuant to State law
Employers' Liability		[E.G. \$0]
Builder's Risk (Course of Construction)		Issued for the value and scope of Work indicated herein.
Pollution Liability		[E.G. \$0]

7. Permits, Certificates, Licenses, Fees, Approvals

7.1 Payment for Permits, Certificates, Licenses, Fees, and Approvals. As required in the General Conditions, the Contractor shall secure and pay for all permits, licenses, approvals, and certificates necessary for the prosecution of the Work with the exception of the following:

7.1.1 With respect to the above-listed items, Contractor shall be responsible for securing such items; however, District will be responsible for payment of these charges or fees. Contractor shall notify the District of the amount due with respect to such items and to whom the amount is payable. Contractor shall provide the District with an invoice and receipt with respect to such charges or fees.

7.2 General Permit For Storm Water Discharges Associated With Construction and Land Disturbance Activities

7.2.1 Contractor acknowledges that all California school districts are obligated to develop and implement the following requirements for the discharge of storm water to surface waters from its construction and land disturbance activities (storm water requirements), without limitation:

7.2.1.1 Municipal Separate Storm Sewer System (MS4) is a system of conveyances used to collect and/or convey storm water, including, without limitation, catch basins, curbs, gutters, ditches, man-made channels, and storm drains.

7.2.1.2 Storm Water Pollution Prevention Plan ("SWPPP") contains specific best management practices ("BMPs") and establishes numeric effluent limitations at:

7.2.1.2.1 Sites where the District engages in maintenance (e.g., fueling, cleaning, repairing) for transportation activities.

7.2.1.2.2 Construction sites where:

7.2.1.2.2.1 One (1) or more acres of soil will be disturbed, or

7.2.1.2.2.2 The project is part of a larger common plan of development that disturbs more than one (1) acre of soil.

7.2.2 Contractor shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

7.2.3 At no additional cost to the District, Contractor shall provide a Qualified Storm Water Practitioner who shall be onsite and implement and monitor any and all SWPPP requirements applicable to the Project, including but not limited to:

7.2.3.1 At least forty eight (48) hours prior to a forecasted rain event, implementing the Rain Event Action Plan (REAP) for any rain event requiring implementation of the REAP, including any erosion and sediment control measures needed to protect all exposed portions of the site; and

7.2.3.2 Monitoring any Numeric Action Levels (NALs), if applicable.

8. As-Builts and Record Drawings

8.27 When called for by Division 1, Contractor shall submit As-Built Drawings pursuant to the Contract Documents consisting of one set of computer-aided design and drafting ("CADD") files in the following format **PDF** plus one set of As-Built Drawings on bond copy paper.

8.28 Contractor shall submit Record Drawings pursuant to the Contract Documents consisting of one set of computer-aided design and drafting ("CADD")

files in the following format **PDF** plus one set of Record Drawings on bond copy paper.

9. Fingerprinting

Contractor shall comply with the provisions of Education Code section 45125.2 regarding the submission of employee fingerprints to the California Department of Justice and the completion of criminal background investigations of its employees, its subcontractor(s), and its subcontractors' employees. Contractor shall not permit any employee to have any contact with District pupils until such time as Contractor has verified in writing to the governing board of the District, that such employee has not been convicted of a violent or serious felony, as defined in Education Code section 45122.1. Contractor shall fully complete and perform all tasks required pursuant to the Criminal Background Investigation/ Fingerprinting Certification.

10. Disabled Veteran Business Enterprises

This Project uses or may plan to use funds allocated pursuant to the State of California School Facility Program ("Program") for the construction and/or modernization of school buildings. Therefore, Section 17076.11 of the Education Code requires the District to have a participation goal for disabled veteran business enterprises ("DVBE") of at least three percent (3%), per year, of the overall dollar amount expended each year by the District on projects that receive state funding and the Contractor must submit the Disabled Veteran Business Enterprise Participation Certification to the District with its executed Agreement, identifying the steps Contractor took to solicit DVBE participation in conjunction with this Contract.

13. Preliminary Schedule of Values

The preliminary schedule of values shall include, at a minimum, the following information and the following structure:

Replace provision in the General Conditions with the following provisions:

10.1.1.2.3. The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

10.1.2.3.1 Mobilization and layout combined to equal not more than **[1]**%;

10.1.1.2.3.2 Submittals, samples and shop drawings combined to equal not more than **[3]**%;

10.1.1.2.3.3 Bonds and insurance combined to equal not more than **[2]**%.

END OF DOCUMENT

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GENERAL CONDITIONS

1. CONTRACT TERMS AND DEFINITIONS

1.1 Definitions

Wherever used in the Contract Documents, the following terms shall have the meanings indicated, which shall be applicable to both the singular and plural thereof:

1.1.1 Adverse Weather: Shall be only weather that satisfies all of the following conditions: (1) unusually severe precipitation, sleet, snow, hail, or extreme temperature conditions in excess of the norm for the location and time of year it occurred based on the closest weather station data averaged over the past five years, (2) that is unanticipated and would cause unsafe work conditions and/or is unsuitable for scheduled work that should not be performed during inclement weather (i.e., exterior finishes), and (3) at the Project.

1.1.2 Allowance Expenditure Directive: Written authorization for expenditure of allowance, if any.

1.1.3 Approval, Approved, and/or Accepted: Written authorization, unless stated otherwise.

1.1.4 Architect (or "Design Professional in General Responsible Charge"): The individual, partnership, corporation, joint venture, or any combination thereof, named as Architect, who will have the rights and authority assigned to the Architect in the Contract Documents. The term Architect means the Design Professional in General Responsible Charge as defined in DSA PR 13-02 on this Project or the Architect's authorized representative.

1.1.5 As-Builts: Reproducible blue line prints of drawings to be prepared on a monthly basis pursuant to the Contract Documents, that reflect changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed since the preceding monthly submittal. See **Record Drawings**.

1.1.6 Bidder: A contractor who intends to provide a proposal to the District to perform the Work of this Contract.

1.1.7 Change Order: A written order to the Contractor authorizing an addition to, deletion from, or revision in the Work, and/or authorizing an adjustment in the Contract Price or Contract Time.

1.1.8 Claim: A Dispute that remains unresolved at the conclusion of the all the applicable Dispute Resolution requirements provided herein.

1.1.9 Construction Change Directive: A written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work.

1.1.10 Construction Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Construction Manager is used on the Project that is the subject of this Contract, then all references to Construction Manager herein shall be read to refer to District.

1.1.11 Construction Schedule: The progress schedule of construction of the Project as provided by Contractor and approved by District.

1.1.12 Contract, Contract Documents: The Contract consists exclusively of the documents evidencing the agreement of the District and Contractor, identified as the Contract Documents. The Contract Documents consist of the following documents:

- 1.1.12.1** Notice to Bidders
- 1.1.12.2** Instructions to Bidders
- 1.1.12.3** Bid Form and Proposal
- 1.1.12.4** Bid Bond
- 1.1.12.5** Designated Subcontractors List
- 1.1.12.6** Site Visit Certification (if a site visit was required)
- 1.1.12.7** Non-Collusion Declaration
- 1.1.12.8** Notice of Award
- 1.1.12.9** Notice to Proceed
- 1.1.12.10** Agreement
- 1.1.12.11** Escrow of Bid Documentation
- 1.1.12.12** Escrow Agreement for Security Deposits in Lieu of Retention (if applicable)
- 1.1.12.13** Performance Bond
- 1.1.12.14** Payment Bond (Contractor's Labor & Material Bond)
- 1.1.12.15** General Conditions
- 1.1.12.16** Special Conditions (if applicable)
- 1.1.12.17** Project Labor Agreement (if applicable)
- 1.1.12.18** Hazardous Materials Procedures and Requirements
- 1.1.12.19** Workers' Compensation Certification
- 1.1.12.20** Prevailing Wage Certification
- 1.1.12.21** Disabled Veteran Business Enterprise Participation Certification (if applicable)
- 1.1.12.22** Drug-Free Workplace Certification (if applicable)
- 1.1.12.23** Tobacco-Free Environment Certification
- 1.1.12.24** Hazardous Materials Certification (if applicable)
- 1.1.12.25** Lead-Based Materials Certification (if applicable)
- 1.1.12.26** Imported Materials Certification (if applicable)
- 1.1.12.27** Criminal Background Investigation/Fingerprinting Certification
- 1.1.12.28** Buy American Certification (if applicable)
- 1.1.12.29** Roofing Project Certification (if applicable)
- 1.1.12.30** Registered Subcontractors List
- 1.1.12.31** Iran Contracting Act Certification (if applicable)
- 1.1.12.32** Post Bid Interview

- 1.1.12.33** All Plans, Technical Specifications, and Drawings
- 1.1.12.34** Any and all addenda to any of the above documents
- 1.1.12.35** Any and all change orders or written modifications to the above documents if approved in writing by the District

1.1.13 Contract Price: The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

1.1.14 Contract Time: The time period stated in the Agreement for the completion of the Work.

1.1.15 Contractor: The person or persons identified in the Agreement as contracting to perform the Work to be done under this Contract, or the legal representative of such a person or persons.

1.1.16 Daily Job Report(s): Daily Project reports prepared by the Contractor's employee(s) who are present on Site, which shall include the information required herein.

1.1.17 Day(s): Unless otherwise designated, day(s) means calendar day(s).

1.1.18 Department of Industrial Relations (or "DIR"): is responsible, among other things, for labor compliance monitoring and enforcement of California prevailing wage laws and regulations for public works contracts.

1.1.19 Design Professional in General Responsible Charge: See definition of **Architect** above.

1.1.20 Dispute: A separate demand by Contractor for a time extension, or payment of money or damages arising from Work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or Contractor is not otherwise entitled to; or an amount of payment disputed by the District.

1.1.21 District: The public agency or the school district for which the Work is performed. The governing board of the District or its designees will act for the District in all matters pertaining to the Contract. The District may, at any time,

1.1.21.1 Direct the Contractor to communicate with or provide notice to the Construction Manager or the Architect on matters for which the Contract Documents indicate the Contractor will communicate with or provide notice to the District; and/or

1.1.21.2 Direct the Construction Manager or the Architect to communicate with or direct the Contractor on matters for which the Contract Documents indicate the District will communicate with or direct the Contractor.

1.1.22 Drawings (or "Plans"): The graphic and pictorial portions of the Contract Documents showing the design, location, scope and dimensions of the work, generally including plans, elevations, sections, details, schedules, sequence of operation, and diagrams.

1.1.23 DSA: Division of the State Architect.

1.1.24 Force Account Directive: A process that may be used when the District and the Contractor cannot agree on a price for a specific portion of work or before the Contractor prepares a price for a specific portion of work and whereby the Contractor performs the work as indicated herein on a time and materials basis.

1.1.25 Job Cost Reports: Any and all reports or records detailing the costs associated with work performed on or related to the Project that Contractor shall maintain for the Project. Specifically, Job Cost Reports shall contain, but are not limited by or to, the following information: a description of the work performed or to be performed on the Project; quantity, if applicable, of work performed (hours, square feet, cubic yards, pounds, etc.) for the Project; Project budget; costs for the Project to date; estimated costs to complete the Project; and expected costs at completion. The Job Cost Reports shall also reflect all Contract cost codes, change orders, elements of non-conforming work, back charges, and additional services.

1.1.26 Labor Commissioner's Office (or "Labor Commissioner", also known as the Division of Labor Standards Enforcement ("DLSE")): Division of the DIR responsible for adjudicating wage claims, investigating discrimination and public works complaints, and enforcing Labor Code statutes and Industrial Welfare Commission orders.

1.1.27 Municipal Separate Storm Sewer System (or "MS4"): A system of conveyances used to collect and/or convey storm water, including, without limitation, catch basins, curbs, gutters, ditches, man-made channels, and storm drains.

1.1.28 Plans: See **Drawings**.

1.1.29 Premises: The real property owned by the District on which the Site is located.

1.1.30 Product(s): New material, machinery, components, equipment, fixtures and systems forming the Work, including existing materials or components required and approved by the District for reuse.

1.1.31 Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work.

1.1.32 Program Manager: The individual, partnership, corporation, joint venture, or any combination thereof, or its authorized representative, named as such by the District. If no Program Manager is designated for Project that is the subject of this Contract, then all references to Project Manager herein shall be read to refer to District.

1.1.33 Project: The planned undertaking as provided for in the Contract Documents.

1.1.34 Project Inspector (or "Inspector"): The individual(s) retained by the District in accordance with title 24 of the California Code of Regulations to monitor and inspect the Project.

1.1.35 Project Labor Agreement (or "PLA"): a pre-hire collective bargaining agreement in accordance with Public Contract Code section 2500 et seq. that establishes terms and conditions of employment for a specific construction project or projects and/or is an agreement described in Section 158(f) of Title 29 of the United States Code.

1.1.36 Proposed Change Order (or "PCO"): a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

1.1.37 Provide: Shall include "provide complete in place," that is, "furnish and install," and "provide complete and functioning as intended in place" unless specifically stated otherwise.

1.1.38 Qualified SWPPP Practitioners (or "QSP"): certified personnel that attended a State Water Resources Control Board sponsored or approved training class and passed the qualifying exam.

1.1.39 Record Drawings: Reproducible drawings (or Plans) prepared pursuant to the requirements of the Contract Documents that reflect all changes made during the performance of the Work, recording differences between the original design of the Work and the Work as constructed upon completion of the Project. See also **As-Builts**.

1.1.40 Request for Information (or "RFI"): A written request prepared by the Contractor requesting that the Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that the Contractor believes is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address problems that have arisen under field conditions.

1.1.41 Request for Substitution for Specified Item: A request by Contractor to substitute an equal or superior material, product, thing, or service for a specific material, product, thing, or service that has been designated in the Contract Documents by a specific brand or trade name.

1.1.42 Safety Orders: Written and/or verbal orders for construction issued by the California Division of Occupational Safety and Health ("CalOSHA") or by the United States Occupational Safety and Health Administration ("OSHA").

1.1.43 Safety Plan: Contractor's safety plan specifically adapted for the Project. Contractor's Safety Plan shall comply with all provisions regarding Project safety, including all applicable provisions in these General Conditions.

1.1.44 Samples: Physical examples that illustrate materials, products, equipment, finishes, colors, or workmanship and that, when approved in accordance with the Contract Documents, establish standards by which portions of the Work will be judged.

1.1.45 Shop Drawings: All drawings, prints, diagrams, illustrations, brochures, schedules, and other data that are prepared by the Contractor, a subcontractor,

manufacturer, supplier, or distributor, that illustrate how specific portions of the Work shall be fabricated or installed.

1.1.46 Site: The Project site as shown on the Drawings.

1.1.47 Specifications: That portion of the Contract Documents, Division 1 through Division 49, and all technical sections, and addenda to all of these, if any, consisting of written descriptions and requirements of a technical nature of materials, equipment, construction methods and systems, standards, and workmanship.

1.1.48 State: The State of California.

1.1.49 Storm Water Pollution Prevention Plan (or "SWPPP"): A document which identifies sources and activities at a particular facility that may contribute pollutants to storm water and contains specific control measures and time frames to prevent or treat such pollutants.

1.1.50 Subcontractor: A contractor and/or supplier who is under contract with the Contractor or with any other subcontractor, regardless of tier, to perform a portion of the Work of the Project.

1.1.51 Submittal Schedule: The schedule of submittals as provided by Contractor and approved by District.

1.1.52 Surety: The person, firm, or corporation that executes as surety the Contractor's Performance Bond and Payment Bond, and must be a California admitted surety insurer as defined in the Code of Civil Procedure section 995.120.

1.1.53 Work: All labor, materials, equipment, components, appliances, supervision, coordination, and services required by, or reasonably inferred from, the Contract Documents, that are necessary for the construction and completion of the Project.

1.2 Laws Concerning the Contract

Contract is subject to all provisions of the Constitution and laws of California and the United States governing, controlling, or affecting District, or the property, funds, operations, or powers of District, and such provisions are by this reference made a part hereof. Any provision required by law to be included in this Contract shall be deemed to be inserted.

1.3 No Oral Agreements

No oral agreement or conversation with any officer, agent, or employee of District, either before or after execution of Contract, shall affect or modify any of the terms or obligations contained in any of the documents comprising the Contract.

1.4 No Assignment

Contractor shall not assign this Contract or any part thereof including, without limitation, any services or money to become due hereunder without the prior written consent of the District. Assignment without District's prior written consent shall be null and void. Any

assignment of money due or to become due under this Contract shall be subject to a prior lien for services rendered or material supplied for performance of work called for under this Contract in favor of all persons, firms, or corporations rendering services or supplying material to the extent that claims are filed pursuant to the Civil Code, Code of Civil Procedure, Government Code, Labor Code, and/or Public Contract Code, and shall also be subject to deductions for liquidated damages or withholding of payments as determined by District in accordance with this Contract. Contractor shall not assign or transfer in any manner to a Subcontractor or supplier the right to prosecute or maintain an action against the District.

1.5 Notice and Service Thereof

1.5.1 Any notice from one party to the other or otherwise under Contract shall be in writing and shall be dated and signed by the party giving notice or by a duly authorized representative of that party. Any notice shall not be effective for any purpose whatsoever unless served in one of the following manners:

1.5.1.1 If notice is given by personal delivery thereof, it shall be considered delivered on the day of delivery.

1.5.1.2 If notice is given by overnight delivery service, it shall be considered delivered one (1) day after date deposited, as indicated by the delivery service.

1.5.1.3 If notice is given by depositing same in United States mail, enclosed in a sealed envelope, it shall be considered delivered three (3) days after date deposited, as indicated by the postmarked date.

1.5.1.4 If notice is given by registered or certified mail with postage prepaid, return receipt requested, it shall be considered delivered on the day the notice is signed for.

1.5.1.5 Electronic mail may be used for convenience but is not a substitute for the notice and service requirements herein.

1.6 No Waiver

The failure of District in any one or more instances to insist upon strict performance of any of the terms of this Contract or to exercise any option herein conferred shall not be construed as a waiver or relinquishment to any extent of the right to assert or rely upon any such terms or option on any future occasion. No action or failure to act by the District, Architect, or Construction Manager shall constitute a waiver of any right or duty afforded the District under the Contract, nor shall any action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

1.7 Substitutions for Specified Items

Unless the Special Conditions contain different provisions, Contractor shall not substitute different items for any items identified in the Contract Documents without prior written approval of the District.

1.8 Materials and Work

1.8.1 Except as otherwise specifically stated in this Contract, Contractor shall provide and pay for all materials, labor, tools, equipment, transportation, supervision, temporary constructions of every nature, and all other services, management, and facilities of every nature whatsoever necessary to execute and complete this Contract, in a good and workmanlike manner, within the Contract Time.

1.8.2 Unless otherwise specified, all materials shall be new and of the best quality of their respective kinds and grades as noted or specified, workmanship shall be of good quality, and Contractor shall use all diligence to inform itself fully as to the required manufacturer's instructions and to comply therewith.

1.8.3 Materials shall be furnished in ample quantities and at such times as to insure uninterrupted progress of Work and shall be stored properly and protected from the elements, theft, vandalism, or other loss or damage as required.

1.8.4 For all materials and equipment specified or indicated in the Drawings, the Contractor shall provide all labor, materials, equipment, and services necessary for complete assemblies and complete working systems, functioning as intended. Incidental items not indicated on Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to provide a complete assembly or system, shall be furnished as though itemized here in every detail. In all instances, material and equipment shall be installed in strict accordance with each manufacturer's most recent published recommendations and specifications.

1.8.5 Contractor shall, after award of Contract by District and after relevant submittals have been approved, place orders for materials and/or equipment as specified so that delivery of same may be made without delays to the Work. Contractor shall, upon demand from District, present documentary evidence showing that orders have been placed.

1.8.6 District reserves the right but has no obligation, in response to Contractor's neglect or failure in complying with the above instructions, to place orders for such materials and/or equipment as the District may deem advisable in order that the Work may be completed at the date specified in the Agreement, and all expenses incidental to the procuring of said materials and/or equipment shall be paid for by Contractor or deducted from payment(s) to Contractor.

1.8.7 Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver the Site to District, together with all improvements and appurtenances constructed or placed thereon by it, and free from any claims, liens, or charges. Contractor further agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any work covered by the Contract shall have any right to lien any portion of the Premises or any improvement or appurtenance thereon, except that Contractor may install metering devices or other equipment of utility companies or of political subdivision, title to which is commonly retained by utility company or political subdivision. In the event of installation of any such metering device or equipment, Contractor shall advise District as to owner thereof.

1.8.7.1 If a lien or a claim based on a stop payment notice of any nature should at any time be filed against the Work or any District property, by any entity that has supplied material or services at the request of the Contractor, Contractor and Contractor's Surety shall promptly, on demand by District and at Contractor's and Surety's own expense, take any and all action necessary to cause any such lien or a claim based on a stop payment notice to be released or discharged immediately therefrom.

1.8.7.2 If the Contractor fails to furnish to the District within ten (10) calendar days after demand by the District, satisfactory evidence that a lien or a claim based on a stop payment notice has been so released, discharged, or secured, the District may discharge such indebtedness and deduct the amount required therefor, together with any and all losses, costs, damages, and attorney's fees and expense incurred or suffered by District from any sum payable to Contractor under the Contract.

1.8.8 Nothing contained in this Article, however, shall defeat or impair the rights of persons furnishing materials or labor under any bond given by Contractor for their protection or any rights under any law permitting such protection or any rights under any law permitting such persons to look to funds due Contractor in hands of District (e.g., stop payment notices), and this provision shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing material for work when no formal contract is entered into for such material.

1.8.9 Title to new materials and/or equipment for the Work of this Contract and attendant liability for its protection and safety shall remain with Contractor until incorporated in the Work of this Contract and accepted by District. No part of any materials and/or equipment shall be removed from its place of storage except for immediate installation in the Work of this Contract. Should the District, in its discretion, allow the Contractor to store materials and/or equipment for the Work off-site, Contractor will store said materials and/or equipment at a bonded warehouse and with appropriate insurance coverage at no cost to District. Contractor shall keep an accurate inventory of all materials and/or equipment in a manner satisfactory to District or its authorized representative and shall, at the District's request, forward it to the District.

2. [RESERVED]

3. ARCHITECT

3.1 The Architect shall represent the District during the Project and will observe the progress and quality of the Work on behalf of the District. Architect shall have the authority to act on behalf of District to the extent expressly provided in the Contract Documents and to the extent determined by District. Architect shall have authority to reject materials, workmanship, and/or the Work whenever rejection may be necessary, in Architect's reasonable opinion, to insure the proper execution of the Contract.

3.2 Architect shall, with the District and on behalf of the District, determine the amount, quality, acceptability, and fitness of all parts of the Work, and interpret the Specifications, Drawings, and shall, with the District, interpret all other Contract Documents.

3.3 Architect shall have all authority and responsibility established by law, including title 24 of the California Code of Regulations.

3.4 Contractor shall provide District and the Construction Manager with a copy of all written communication between Contractor and Architect at the same time as that communication is made to Architect, including, without limitation, all RFIs, correspondence, submittals, claims, and proposed change orders.

4. CONSTRUCTION MANAGER

4.1 If a Construction Manager is used on this Project ("Construction Manager" or "CM"), the Construction Manager will provide administration of the Contract on the District's behalf. After execution of the Contract and Notice to Proceed, all correspondence and/or instructions from Contractor and/or District shall be forwarded through the Construction Manager. The Construction Manager will not be responsible for and will not have control or charge of construction means, methods, techniques, sequences, or procedures or for safety precautions in connection with the Work, which shall all remain the Contractor's responsibility.

4.2 The Construction Manager, however, will have authority to reject materials and/or workmanship not conforming to the Contract Documents, as determined by the District, the Architect, and/or the Project Inspector. The Construction Manager shall also have the authority to require special inspection or testing of any portion of the Work, whether it has been fabricated, installed, or fully completed. Any decision made by the Construction Manager, in good faith, shall not give rise to any duty or responsibility of the Construction Manager to: the Contractor; any Subcontractor; the Contractor or Subcontractor's respective agents, employees; or other persons performing any of the Work. The Construction Manager shall have free access to any or all parts of Work at any time.

4.3 If the District does not use a Construction Manager on this Project, all references to Construction Manager or CM shall be read as District.

5. INSPECTOR, INSPECTIONS, AND TESTS

5.1 Project Inspector

5.1.1 One or more Project Inspector(s), including special Project Inspector(s), as required, will be assigned to the Work by District, in accordance with requirements of title 24, part 1, of the California Code of Regulations, to enforce the building code and monitor compliance with Plans and Specifications for the Project previously approved by the DSA. Duties of Project Inspector(s) are specifically defined in section 4-342 of said part 1 of title 24.

5.1.2 No Work shall be carried on except with the knowledge and under the inspection of the Project Inspector(s). The Project Inspector(s) shall have free access to any or all parts of Work at any time. Contractor shall furnish Project Inspector(s) reasonable opportunities for obtaining such information as may be necessary to keep Project Inspector(s) fully informed respecting progress and manner of work and character of materials, including, but not limited to, submission of form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector at least 48 hours in advance of the

commencement and completion of construction of each and every aspect of the Work. Forms are available on the DSA's website at: <http://www.dgs.ca.gov/dsa/Forms.aspx>. Inspection of Work shall not relieve Contractor from an obligation to fulfill this Contract. Project Inspector(s) and the DSA are authorized to suspend work whenever the Contractor and/or its Subcontractor(s) are not complying with the Contract Documents. Any work stoppage by the Project Inspector(s) and/or DSA shall be without liability to the District. Contractor shall instruct its Subcontractors and employees accordingly.

5.1.3 If Contractor and/or any Subcontractor requests that the Project Inspector(s) perform any inspection off-site, this shall only be done if it is allowable pursuant to applicable regulations and DSA approval, if the Project Inspector(s) agree to do so, and at the expense of the Contractor.

5.2 Tests and Inspections

5.2.1 Tests and Inspections shall comply with title 24, part 1, California Code of Regulations, group 1, article 5, section 4-335, and with the provisions of the Specifications.

5.2.2 The District will select an independent testing laboratory to conduct the tests. Selection of the materials required to be tested shall be by the laboratory or the District's representative and not by the Contractor. The Contractor shall notify the District's representative a sufficient time in advance of its readiness for required observation or inspection.

5.2.3 The Contractor shall notify the District's representative a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents, which must be by terms of the Contract Documents be tested, in order that the District may arrange for the testing of same at the source of supply. This notice shall be provided, at a minimum, seventy-two (72) hours prior to the manufacture of the material that needs to be tested.

5.2.4 Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required, shall not be incorporated into and/or onto the Project.

5.2.5 The District will select the testing laboratory and pay for the cost of all tests and inspections. Contractor shall reimburse the District for any and all laboratory costs or other testing costs for any materials found to be not in compliance with the Contract Documents. At the District's discretion, District may elect to deduct laboratory or other testing costs for noncompliant materials from the Contract Price, and such deduction shall not constitute a withholding.

5.3 Costs for After Hours and/or Off Site Inspections

If the Contractor performs Work outside the Inspector's regular working hours or requests the Inspector to perform inspections off Site, costs of any inspections required outside regular working hours or off Site shall be borne by the Contractor and may be invoiced to the Contractor by the District or the District may deduct those expenses from the next Progress Payment.

6. CONTRACTOR

Contractor shall construct and complete, in a good and workmanlike manner, the Work for the Contract Price including any adjustment(s) to the Contract Price pursuant to provisions herein regarding changes to the Contract Price. Except as otherwise noted, Contractor shall provide and pay for all labor, materials, equipment, permits (excluding DSA), fees, licenses, facilities, transportation, taxes, bonds and insurance, and services necessary for the proper execution and completion of the Work, except as indicated herein.

6.1 Status of Contractor

6.1.1 Contractor is and shall at all times be deemed to be an independent contractor and shall be wholly responsible for the manner in which it and its Subcontractors perform the services required of it by the Contract Documents. Nothing herein contained shall be construed as creating the relationship of employer and employee, or principal and agent, between the District, or any of the District's employees or agents, and Contractor or any of Contractor's Subcontractors, agents or employees. Contractor assumes exclusively the responsibility for the acts of its agents, and employees as they relate to the services to be provided during the course and scope of their employment. Contractor, its Subcontractors, agents, and its employees shall not be entitled to any rights or privileges of District employees. District shall be permitted to monitor the Contractor's activities to determine compliance with the terms of this Contract.

6.1.2 As required by law, Contractor and all Subcontractors shall be properly licensed and regulated by the Contractors State License Board, 9821 Business Park Drive, Sacramento, California 95827, <http://www.cslb.ca.gov>.

6.1.3 As required by law, Contractor and all Subcontractors shall be properly registered as public works contractors by the Department of Industrial Relations at: <https://efiling.dir.ca.gov/PWCR/ActionServlet?action=displayPWCRegistrationForm> or current URL.

6.1.4 Contractor represents that it has no existing interest and will not acquire any interest, direct or indirect, which could conflict in any manner or degree with the performance of Work required under this Contract and that no person having any such interest shall be employed by Contractor.

6.2 Project Inspection Card(s)

Contractor shall verify that forms DSA 152 (or the current version applicable at the time the Work is performed) are issued for the Project prior to the commencement of construction.

6.3 Contractor's Supervision

6.3.1 During progress of the Work, Contractor shall keep on the Premises, and at all other locations where any Work related to the Contract is being performed, an experienced and competent project manager and construction superintendent who are employees of the Contractor, to whom the District does not object and at least one of whom shall be fluent in English, written and verbal.

6.3.2 The project manager and construction superintendent shall both speak fluently the predominant language of the Contractor's employees.

6.3.3 Before commencing the Work herein, Contractor shall give written notice to District of the name of its project manager and construction superintendent. Neither the Contractor's project manager nor construction superintendent shall be changed except with prior written notice to District. If the Contractor's project manager and/or construction superintendent proves to be unsatisfactory to Contractor, or to District, any of the District's employees, agents, the Construction Manager, or the Architect, Contractor shall notify District in writing before any change occurs, but no less than two (2) business days prior. Any replacement of the project manager and/or construction superintendent shall be made promptly and must be satisfactory to the District. The Contractor's project manager and construction superintendent shall each represent Contractor, and all directions given to Contractor's project manager and/or construction superintendent shall be as binding as if given to Contractor.

6.3.4 Contractor shall give efficient supervision to Work, using its best skill and attention. Contractor shall carefully study and compare all Contract Documents, Drawings, Specifications, and other instructions and shall at once report to District, Construction Manager, and Architect any error, inconsistency, or omission that Contractor or its employees and Subcontractors may discover, in writing, with a copy to District's Project Inspector(s). The Contractor shall have responsibility for discovery of errors, inconsistencies, or omissions.

6.4 Duty to Provide Fit Workers

6.4.1 Contractor and Subcontractor(s) shall at all times enforce strict discipline and good order among their employees and shall not employ or work any unfit person or anyone not skilled in work assigned to that person. It shall be the responsibility of Contractor to ensure compliance with this requirement. District may require Contractor to permanently remove unfit persons from Project Site.

6.4.2 Any person in the employ of Contractor or Subcontractor(s) whom District may deem incompetent or unfit shall be excluded from working on the Project and shall not again be employed on the Project except with the prior written consent of District.

6.4.3 The Contractor shall furnish labor that can work in harmony with all other elements of labor employed or to be employed in the Work.

6.4.4 If Contractor intends to make any change in the name or legal nature of the Contractor's entity, Contractor must first notify the District in writing prior to making any contemplated change. The District shall determine in writing if Contractor's intended change is permissible while performing this Contract.

6.5 Field Office

6.5.1 Contractor shall provide a temporary office on the Work Site for the District's use exclusively, during the term of the Contract.

6.6 Purchase of Materials and Equipment

The Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from District to assure that there will be no delays.

6.7 Documents on Work

6.7.1 Contractor shall at all times keep on the Work Site, or at another location as the District may authorize in writing, one legible copy of all Contract Documents, including Addenda and Change Orders, and Titles 19 and 24 of the California Code of Regulations, the specified edition(s) of the Uniform Building Code, all approved Drawings, Plans, Schedules, and Specifications, and all codes and documents referred to in the Specifications, and made part thereof. These documents shall be kept in good order and available to District, Construction Manager, Architect, Architect's representatives, the Project Inspector(s), and all authorities having jurisdiction. Contractor shall be acquainted with and comply with the provisions of these titles as they relate to this Project. (See particularly the duties of Contractor, Title 24, Part 1, California Code of Regulations, section 4-343.) Contractor shall also be acquainted with and comply with all California Code of Regulations provisions relating to conditions on this Project, particularly Titles 8 and 17. Contractor shall coordinate with Architect and Construction Manager and shall submit its verified report(s) according to the requirements of Title 24.

6.7.2 Daily Job Reports.

6.7.2.1 Contractor shall maintain, at a minimum, at least one (1) set of Daily Job Reports on the Project. These must be prepared by the Contractor's employee(s) who are present on Site, and must include, at a minimum, the following information:

- 6.7.2.1.1** A brief description of all Work performed on that day.
- 6.7.2.1.2** A summary of all other pertinent events and/or occurrences on that day.
- 6.7.2.1.3** The weather conditions on that day.
- 6.7.2.1.4** A list of all Subcontractor(s) working on that day, including DIR registration numbers.
- 6.7.2.1.5** A list of each Contractor employee working on that day and the total hours worked for each employee.
- 6.7.2.1.6** A complete list of all equipment on Site that day, whether in use or not.
- 6.7.2.1.7** A complete list of all materials, supplies, and equipment delivered on that day.
- 6.7.2.1.8** A complete list of all inspections and tests performed on that day.

6.7.2.2 Each day Contractor shall provide a copy of the previous day's Daily Job Report to the District or the Construction Manager.

6.8 Preservation of Records

Contractor shall maintain, and District shall have the right to inspect, Contractor's financial records for the Project, including, without limitation, Job Cost Reports for the Project in compliance with the criteria set forth herein. The District shall have the right to examine and audit all Daily Job Reports or other Project records of Contractor's project manager(s), project superintendent(s), and/or project foreperson(s), all certified payroll records and/or related documents including, without limitation, Job Cost Reports, payroll, payment, timekeeping and tracking documents; all books, estimates, records, contracts, documents, bid documents, bid cost data, subcontract job cost reports, and other data of the Contractor, any Subcontractor, and/or supplier, including computations and projections related to bidding, negotiating, pricing, or performing the Work or Contract modification, in order to evaluate the accuracy, completeness, and currency of the cost, manpower, coordination, supervision, or pricing data at no additional cost to the District. These documents may be duplicative and/or be in addition to any Bid Documents held in escrow by the District. The Contractor shall make available at its office at all reasonable times the materials described in this paragraph for the examination, audit, or reproduction until three (3) years after final payment under this Contract. Notwithstanding the provisions above, Contractor shall provide any records requested by any governmental agency, if available, after the time set forth above.

6.9 Integration of Work

6.9.1 Contractor shall do all cutting, fitting, patching, and preparation of Work as required to make its several parts come together properly, to fit it to receive or be received by work of other contractors, and to coordinate tolerances to various pieces of work, showing upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and shall conform them as District and/or Architect may direct.

6.9.2 Contractor shall make its own layout of lines and elevations and shall be responsible for the accuracy of both Contractor's and Subcontractors' work resulting therefrom.

6.9.3 Contractor and all Subcontractors shall take all field dimensions required in performance of the Work, and shall verify all dimensions and conditions on the Site. All dimensions affecting proper fabrication and installation of all Work must be verified prior to fabrication by taking field measurements of the true conditions. If there are any discrepancies between dimensions in drawings and existing conditions which will affect the Work, Contractor shall bring such discrepancies to the attention of the District and Architect for adjustment before proceeding with the Work. In doing so, it is recognized that Contractor is not acting in the capacity of a licensed design professional, and that Contractor's examination is made in good faith to facilitate construction and does not create an affirmative responsibility to detect errors, omissions or inconsistencies in the Contract Documents or to ascertain compliance with applicable laws, building codes or regulations. Following receipt of written notice from Contractor, the District and/or Architect shall inform Contractor what action, if any, Contractor shall take with regard to such discrepancies.

6.9.4 All costs caused by noncompliant, defective, or delayed Work shall be borne by Contractor, inclusive of repair work.

6.9.5 Contractor shall not endanger any work performed by it or anyone else by cutting, excavating, or otherwise altering work and shall not cut or alter work of any other contractor except with consent of District.

6.10 Notifications

6.10.1 Contractor shall notify the Architect and Project Inspector, in writing, of the commencement of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or the most current version applicable at the time the Work is performed) to the Project Inspector. Forms are available on the DSA's website at: <http://www.dgs.ca.gov/dsa/Forms.aspx>.

6.10.2 Contractor shall notify the Architect and Project Inspector, in writing, of the completion of construction of each and every aspect of the Work at least 48 hours in advance by submitting form DSA 156 (or current version) to the Project Inspector.

6.11 Obtaining of Permits, Licenses and Registrations

Contractor shall secure and pay for all permits (except DSA), licenses, registrations, approvals and certificates necessary for prosecution of Work, including but not limited to those listed in the Special Conditions, if any, before the date of the commencement of the Work or before the permits, licenses, registrations, approvals and certificates are legally required to continue the Work without interruption. The Contractor shall obtain and pay, only when legally required, for all licenses, registrations, approvals, permits, inspections, and inspection certificates required to be obtained from or issued by any authority having jurisdiction over any part of the Work included in the Contract. All final permits, licenses, registrations, approvals and certificates shall be delivered to District before demand is made for final payment.

6.12 Royalties and Patents

6.12.1 Contractor shall obtain and pay, only when legally required, all royalties and license fees necessary for prosecution of Work before the earlier of the date of the commencement of the Work or the date that the license is legally required to continue the Work without interruption. Contractor shall defend suits or claims of infringement of patent, copyright, or other rights and shall hold the District, the Architect, and the Construction Manager harmless and indemnify them from loss on account thereof except when a particular design, process, or make or model of product is required by the Contract Documents. However, if the Contractor has reason to believe that the required design, process, or product is an infringement of a patent or copyright, the Contractor shall indemnify and defend the District, Architect and Construction Manager against any loss or damage unless the Contractor promptly informs the District of its information.

6.12.2 The review by the District or Architect of any method of construction, invention, appliance, process, article, device, or material of any kind shall be only its adequacy for the Work and shall not approve use by the Contractor in violation of any patent or other rights of any person or entity.

6.13 Work to Comply With Applicable Laws and Regulations

6.13.1 Contractor shall give all notices and comply with the following specific laws, ordinances, rules, and regulations and all other applicable laws, ordinances, rules, and regulations bearing on conduct of Work as indicated and specified, including but not limited to the appropriate statutes and administrative code sections. If Contractor observes that Drawings and Specifications are at variance therewith, or should Contractor become aware of the development of conditions not covered by Contract Documents that may result in finished Work being at variance therewith, Contractor shall promptly notify District in writing and any changes deemed necessary by District shall be made as provided in Contract for changes in Work.

6.13.1.1 National Electrical Safety Code, U. S. Department of Commerce

6.13.1.2 National Board of Fire Underwriters' Regulations

6.13.1.3 International Building Code, latest addition, and the California Code of Regulations, title 24, and other amendments

6.13.1.4 Manual of Accident Prevention in Construction, latest edition, published by A.G.C. of America

6.13.1.5 Industrial Accident Commission's Safety Orders, State of California

6.13.1.6 Regulations of the State Fire Marshall (title 19, California Code of Regulations) and Pertinent Local Fire Safety Codes

6.13.1.7 Americans with Disabilities Act

6.13.1.8 Education Code of the State of California

6.13.1.9 Government Code of the State of California

6.13.1.10 Labor Code of the State of California, division 2, part 7, Public Works and Public Agencies

6.13.1.11 Public Contract Code of the State of California

6.13.1.12 California Art Preservation Act

6.13.1.13 U. S. Copyright Act

6.13.1.14 U. S. Visual Artists Rights Act

6.13.2 Contractor shall comply with all applicable mitigation measures, if any, adopted by any public agency with respect to this Project pursuant to the California Environmental Quality Act (Public Resources Code section 21000 et seq.).

6.13.3 If Contractor performs any Work that it knew, or through exercise of reasonable care should have known, to be contrary to any applicable laws,

ordinance, rules, or regulations, Contractor shall bear all costs arising therefrom and arising from the correction of said Work.

6.13.4 Where Specifications or Drawings state that materials, processes, or procedures must be approved by the DSA, State Fire Marshall, or other body or agency, Contractor shall be responsible for satisfying requirements of such bodies or agencies applicable at the time the Work is performed, and as determined by those bodies or agencies.

6.14 Safety/Protection of Persons and Property

6.14.1 The Contractor will be solely and completely responsible for conditions of the Work Site, including safety of all persons and property during performance of the Work. This requirement will apply continuously and not be limited to normal working hours.

6.14.2 The wearing of hard hats will be mandatory at all times for all personnel on Site. Contractor shall supply sufficient hard hats to properly equip all employees and visitors.

6.14.3 Any construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the Work Site.

6.14.4 Implementation and maintenance of safety programs shall be the sole responsibility of the Contractor.

6.14.5 The Contractor shall furnish to the District a copy of the Contractor's safety plan within the time frame indicated in the Contract Documents and specifically adapted for the Project.

6.14.6 Contractor shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Contract and shall take all necessary measures and be responsible for the proper care and completion and final acceptance by District. All Work shall be solely at Contractor's risk with the exception of damage to the Work caused by "acts of God" as defined in Public Contract Code section 7105.

6.14.7 Contractor shall take, and require Subcontractors to take, all necessary precautions for safety of workers on the Project and shall comply with all applicable federal, state, local, and other safety laws, standards, orders, rules, regulations, and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where Work is being performed and to provide a safe and healthful place of employment. Contractor shall furnish, erect, and properly maintain at all times, all necessary safety devices, safeguards, construction canopies, signs, nets, barriers, lights, and watchmen for protection of workers and the public and shall post danger signs warning against hazards created by such features in the course of construction.

6.14.8 Hazards Control – Contractor shall store volatile wastes in covered metal containers and remove them from the Site daily. Contractor shall prevent accumulation of wastes that create hazardous conditions. Contractor shall provide adequate ventilation during use of volatile or noxious substances.

6.14.9 Contractor shall designate a responsible member of its organization on the Project, whose duty shall be to post information regarding protection and obligations of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety, and health of workers. Name and position of person so designated shall be reported to District by Contractor.

6.14.10 Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, Contractor shall correct such violation promptly.

6.14.11 Contractor shall comply with any District storm water requirements that are approved by the District and applicable to the Project, at no additional cost to the District.

6.14.12 In an emergency affecting safety of life or of work or of adjoining property, Contractor, without special instruction or authorization, shall act, at its discretion, to prevent such threatened loss or injury. Any compensation claimed by Contractor on account of emergency work shall be determined by agreement.

6.14.13 All salvage materials will become the property of the Contractor and shall be removed from the Site unless otherwise called for in the Contract Documents. However, the District reserves the right to designate certain items of value that shall be turned over to the District unless otherwise directed by District.

6.14.14 All connections to public utilities and/or existing on-site services shall be made and maintained in such a manner as to not interfere with the continuing use of same by the District during the entire progress of the Work.

6.14.15 Contractor shall provide such heat, covering, and enclosures as are necessary to protect all Work, materials, equipment, appliances, and tools against damage by weather conditions, such as extreme heat, cold, rain, snow, dry winds, flooding, or dampness.

6.14.16 The Contractor shall protect and preserve the Work from all damage or accident, providing any temporary roofs, window and door coverings, boxings, or other construction as required by the Architect. The Contractor shall be responsible for existing structures, walks, roads, trees, landscaping, and/or improvements in working areas; and shall provide adequate protection therefore. If temporary removal is necessary of any of the above items, or damage occurs due to the Work, the Contractor shall replace same at his expense with same kind, quality, and size of Work or item damaged. This shall include any adjoining property of the District and others.

6.14.17 Contractor shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property, and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations.

6.14.18 Contractor shall confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits, or directions of

Architect, and shall not interfere with the Work or unreasonably encumber Premises or overload any structure with materials. Contractor shall enforce all instructions of District and Architect regarding signs, advertising, fires, and smoking, and require that all workers comply with all regulations while on Project Site.

6.14.19 Contractor, Contractor's employees, Subcontractors, Subcontractors' employees, or any person associated with the Work shall conduct themselves in a manner appropriate for a school site. No verbal or physical contact with neighbors, students, and faculty, profanity, or inappropriate attire or behavior will be permitted. District may require Contractor to permanently remove non-complying persons from Project Site.

6.14.20 Contractor shall take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed, Contractor shall have a civil engineer, registered as a professional engineer in California, replace them at no cost to District.

6.14.21 In the event that the Contractor enters into any agreement with owners of any adjacent property to enter upon the adjacent property for the purpose of performing the Work, Contractor shall fully indemnify, defend, and hold harmless each person, entity, firm, or agency that owns or has any interest in adjacent property. The form and content of the agreement of indemnification shall be approved by the District prior to the commencement of any Work on or about the adjacent property. The Contractor shall also indemnify the District as provided in the indemnification provision herein. These provisions shall be in addition to any other requirements of the owners of the adjacent property.

6.15 Working Evenings and Weekends

Contractor may be required to work increased hours, evenings, and/or weekends at no additional cost to the District. Contractor shall give the District seventy-two (72) hours' notice prior to performing any evening and/or weekend work. Contractor shall perform all evening and/or weekend work only upon District's approval and in compliance with all applicable rules, regulations, laws, and local ordinances including, without limitation, all noise and light limitations. Contractor shall reimburse the District for any increased or additional Inspector charges as a result of Contractor's increased hours, or evening and/or weekend work.

6.16 Cleaning Up

6.16.1 The Contractor shall provide all services, labor, materials, and equipment necessary for protecting and securing the Work, all school occupants, furnishings, equipment, and building structure from damage until its completion and final acceptance by District. Dust barriers shall be provided to isolate dust and dirt from construction operations. At completion of the Work and portions thereof, Contractor shall clean to the original state any areas beyond the Work area that become dust laden as a result of the Work. The Contractor must erect the necessary warning signs and barricades to ensure the safety of all school occupants. The Contractor at all times must maintain good housekeeping practices to reduce the risk of fire damage and must make a fire extinguisher, fire blanket, and/or fire watch, as applicable, available at each location where cutting, braising, soldering, and/or welding is being performed or where there is an increased risk of fire.

6.16.2 Contractor at all times shall keep Premises, including property immediately adjacent thereto, free from debris such as waste, rubbish (including personal rubbish of workers, e.g., food wrappers, etc.), and excess materials and equipment caused by the Work. Contractor shall not leave debris under, in, or about the Premises (or surrounding property or neighborhood), but shall promptly remove same from the Premises on a daily basis. If Contractor fails to clean up, District may do so and the cost thereof shall be charged to Contractor. If Contract is for work on an existing facility, Contractor shall also perform specific clean-up on or about the Premises upon request by the District as it deems necessary for the continuing education process. Contractor shall comply with all related provisions of the Specifications.

6.16.3 If the Construction Manager, Architect, or District observes the accumulation of trash and debris, the District will give the Contractor a 24-hour written notice to mitigate the condition.

6.16.4 Should the Contractor fail to perform the required clean-up, or should the clean-up be deemed unsatisfactory by the District, the District will then perform the clean-up. All cost associated with the clean-up work (including all travel, payroll burden, and costs for supervision) will be deducted from the Contract Price, or District may withhold those amounts from payment(s) to Contractor.

7. SUBCONTRACTORS

7.1 Contractor shall provide the District with information for all Subcontracts as indicated in the Contractor's Submittals and Schedules Section herein.

7.2 No contractual relationship exists between the District and any Subcontractor, supplier, or sub-subcontractor by reason of this Contract.

7.3 Contractor agrees to bind every Subcontractor by terms of this Contract as far as those terms that are applicable to Subcontractor's work including, without limitation, all labor, wage & hour, apprentice and related provisions and requirements. If Contractor shall subcontract any part of this Contract, Contractor shall be as fully responsible to District for acts and omissions of any Subcontractor and of persons either directly or indirectly employed by any Subcontractor, including Subcontractor caused Project delays, as it is for acts and omissions of persons directly employed by Contractor. The divisions or sections of the Specifications and/or the arrangement of the drawings are not intended to control the Contractor in dividing the Work among Subcontractors or limit the work performed by any trade.

7.4 District's consent to, or approval of, or failure to object to, any Subcontractor under this Contract shall not in any way relieve Contractor of any obligations under this Contract and no such consent shall be deemed to waive any provisions of this Contract.

7.5 Contractor is directed to familiarize itself with sections 4100 through 4114 of the Public Contract Code of the State of California, as regards subletting and subcontracting, and to comply with all applicable requirements therein. In addition, Contractor is directed to familiarize itself with sections 1720 through 1861 of the Labor Code of the State of California, as regards the payment of prevailing wages and related issues, and to comply with all applicable requirements therein including, without

limitation, section 1775 and the Contractor's and Subcontractors' obligations and liability for violations of prevailing wage law and other applicable laws.

7.6 No Contractor whose Bid is accepted shall, without consent of the awarding authority and in full compliance with section 4100 et seq. of the Public Contract Code, including, without limitation, sections 4107, 4107.5, and 4109 of the Public Contract Code, and section 1771.1 of the Labor Code, either:

7.6.1 Substitute any person as a Subcontractor in place of the Subcontractor designated in the original Bid; or

7.6.2 Permit any Subcontract to be assigned or transferred, or allow any portion of the Work to be performed by anyone other than the original Subcontractor listed in the Bid; or

7.6.3 Sublet or subcontract any portion of the Work in excess of one-half of one percent (0.5%) of the Contractor's total bid as to which his original bid did not designate a Subcontractor.

7.7 The Contractor shall be responsible for the coordination of the trades, Subcontractors, sub-subcontractors, and material or equipment suppliers working on the Project.

7.7.1 If the Contract is valued at \$1 million or more and uses, or plans to use, state bond funds, then Contractor is responsible for ensuring that first tier Subcontractors holding C-4, C-7, C-10, C-16, C-20, C-34, C-36, C-38, C-42, C-43, and/or C-46 licenses are prequalified by the District to work on the Project pursuant to Public Contract Code section 20111.6.

7.7.2 Contractor is responsible for ensuring that all Subcontractors are properly registered as public works contractors by the Department of Industrial Relations.

7.8 Contractor is solely responsible for settling any differences between the Contractor and its Subcontractor(s) or between Subcontractors.

7.9 Contractor must include in all of its subcontracts the assignment provisions as indicated in the Termination section of these General Conditions.

8. OTHER CONTRACTS/CONTRACTORS

8.1 District reserves the right to let other contracts, and/or to perform work with its own forces, in connection with the Project. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly coordinate and connect Contractor's Work with the work of other contractors.

8.2 In addition to Contractor's obligation to protect its own Work, Contractor shall protect the work of any other contractor that Contractor encounters while working on the Project.

8.3 If any part of Contractor's Work depends for proper execution or results upon work of District or any other contractor, the Contractor shall inspect and, before

proceeding with its Work, promptly report to the District in writing any defects in District's or any other contractor's work that render Contractor's Work unsuitable for proper execution and results. Contractor shall be held accountable for damages to District for District's or any other contractor's work that Contractor failed to inspect or should have inspected. Contractor's failure to inspect and report shall constitute Contractor's acceptance of all District's or any other contractor's work as fit and proper for reception of Contractor's Work, except as to defects that may develop in District's or any other contractor's work after execution of Contractor's Work and not caused by execution of Contractor's Work.

8.4 To ensure proper execution of its subsequent work, Contractor shall measure and inspect work already in place and shall at once report to the District in writing any discrepancy between that executed work and the Contract Documents.

8.5 Contractor shall ascertain to its own satisfaction the scope of the Project and nature of District's or any other contracts that have been or may be awarded by District in prosecution of the Project to the end that Contractor may perform this Contract in light of the other contracts, if any.

8.6 Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy of the Site, the Premises, or of the Project. Contractor shall not cause any unnecessary hindrance or delay to the use and/or school operation(s) of the Premises and/or to District or any other contractor working on the Project. If simultaneous execution of any contract or school operation is likely to cause interference with performance of Contractor's Contract, Contractor shall coordinate with those contractor(s), person(s), and/or entity(s) and shall notify the District of the resolution.

9. DRAWINGS AND SPECIFICATIONS

9.1 A complete list of all Drawings that form a part of the Contract is to be found as an index on the Drawings themselves, and/or may be provided to the Contractor and/or in the Table of Contents.

9.2 Materials or Work described in words that so applied have a well-known technical or trade meaning shall be deemed to refer to recognized standards, unless noted otherwise.

9.3 Trade Name or Trade Term. It is not the intention of this Contract to go into detailed descriptions of any materials and/or methods commonly known to the trade under "trade name" or "trade term." The mere mention or notation of "trade name" or "trade term" shall be considered a sufficient notice to Contractor that it will be required to complete the work so named, complete, finished, and operable, with all its appurtenances, according to the best practices of the trade.

9.4 The naming of any material and/or equipment shall mean furnishing and installing of same, including all incidental and accessory items thereto and/or labor therefor, as per best practices of the trade(s) involved, unless specifically noted otherwise.

9.5 Contract Documents are complementary, and what is called for by one shall be binding as if called for by all. As such, Drawings and Specifications are intended to be fully cooperative and to agree. However, if Contractor observes that Drawings and

Specifications are in conflict with the Contract Documents, Contractor shall promptly notify District and Architect in writing, and any necessary changes shall be made as provided in the Contract Documents.

9.6 In the case of discrepancy or ambiguity in the Contract Documents, the order of precedence in the Agreement shall prevail. However, in the case of discrepancy or ambiguity solely between and among the Drawings and Specifications, the discrepancy or ambiguity shall be resolved in favor of the interpretation that will provide District with the functionally complete and operable Project described in the Drawings and Specifications. In case of ambiguity, conflict, or lack of information, District will furnish clarifications with reasonable promptness.

9.7 Drawings and Specifications are intended to comply with all laws, ordinances, rules, and regulations of constituted authorities having jurisdiction, and where referred to in the Contract Documents, the laws, ordinances, rules, and regulations shall be considered as a part of the Contract within the limits specified. Contractor shall bear all expense of correcting work done contrary to said laws, ordinances, rules, and regulations.

9.8 As required by Section 4-317(c), Part 1, Title 24, CCR: "Should any existing conditions such as deterioration or non-complying construction be discovered which is not covered by the DSA-approved documents wherein the finished work will not comply with Title 24, California Code of Regulations, a construction change document, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by DSA before proceeding with the repair work."

9.9 Ownership of Drawings

All copies of Plans, Drawings, Designs, Specifications, and copies of other incidental architectural and engineering work, or copies of other Contract Documents furnished by District, are the property of District. They are not to be used by Contractor in other work and, with the exception of signed sets of Contract Documents, are to be returned to District on request at completion of Work, or may be used by District as it may require without any additional costs to District. Neither the Contractor nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. District hereby grants the Contractor, Subcontractors, sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings prepared for the Project in the execution of their Work under the Contract Documents.

10. CONTRACTOR'S SUBMITTALS AND SCHEDULES

Contractor's submittals shall comply with the provisions and requirements of the Specifications including, without limitation Submittals.

10.1 Schedule of Work, Schedule of Submittals, and Schedule of Values

10.1.1 Within **TEN (10)** calendar days after the date of the Notice to Proceed (unless otherwise specified in the Specifications), the Contractor shall prepare and submit to the District for review, in a form supported by sufficient data to substantiate its accuracy as the District may require:

10.1.1.1 Preliminary Schedule. A preliminary schedule of construction indicating the starting and completion dates of the various stages of the Work, including any information and following any form as may be specified in the Specifications. Once approved by District, this shall become the Construction Schedule. This schedule shall include and identify all tasks that are on the Project's critical path with a specific determination of the start and completion of each critical path task as well as all Contract milestones and each milestone's completion date(s) as may be required by the District.

10.1.1.2 Preliminary Schedule of Values. A preliminary schedule of values for all of the Work, which must include quantities and prices of items aggregating the Contract Price and must subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Unless the Special Conditions contain different limits, this preliminary schedule of values shall include, at a minimum, the following information and the following structure:

10.1.1.2.1 Divided into at least the following categories:

- 10.1.1.2.1.1** Overhead and profit;
- 10.1.1.2.1.2** Supervision;
- 10.1.1.2.1.3** General conditions;
- 10.1.1.2.1.4** Layout;
- 10.1.1.2.1.5** Mobilization;
- 10.1.1.2.1.6** Submittals;
- 10.1.1.2.1.7** Bonds and insurance;
- 10.1.1.2.1.8** Close-out/Certification documentation;
- 10.1.1.2.1.9** Demolition;
- 10.1.1.2.1.10** Installation;
- 10.1.1.2.1.11** Rough-in;
- 10.1.1.2.1.12** Finishes;
- 10.1.1.2.1.13** Testing;
- 10.1.1.2.1.14** Punchlist and acceptance.

10.1.1.2.2 And also divided by each of the following areas:

- 10.1.1.2.2.1** Site work;
- 10.1.1.2.2.2** By each building;
- 10.1.1.2.2.3** By each floor.

10.1.1.2.3 The preliminary schedule of values shall not provide for values any greater than the following percentages of the Contract value:

- 10.1.1.2.3.1** Mobilization and layout combined to equal not more than 1%;
- 10.1.1.2.3.2** Submittals, samples and shop drawings combined to equal not more than 3%;
- 10.1.1.2.3.3** Bonds and insurance combined to equal not more than 2%.

10.1.1.2.4 Closeout documentation shall have a value in the preliminary schedule of not less than 5%.

10.1.1.2.5 Notwithstanding any provision of the Contract Documents to the contrary, payment of the Contractor's overhead, supervision, general conditions costs, and profit, as reflected in the Cost Breakdown, shall be paid based on percentage complete, with the disbursement of Progress Payments and the Final Payment.

10.1.1.2.6 Contractor shall certify that the preliminary schedule of values as submitted to the District is accurate and reflects the costs as developed in preparing Contractor's bid. The preliminary schedule of values shall be subject to the District's review and approval of the form and content thereof. In the event that the District objects to any portion of the preliminary schedule of values, the District shall notify the Contractor, in writing, of the District's objection(s) to the preliminary schedule of values. Within five (5) calendar days of the date of the District's written objection(s), Contractor shall submit a revised preliminary schedule of values to the District for review and approval. The foregoing procedure for the preparation, review and approval of the preliminary schedule of values shall continue until the District has approved the entirety of the preliminary schedule of values.

10.1.1.2.7 Once the preliminary schedule of values is approved by the District, this shall become the Schedule of Values. The Schedule of Values shall not be thereafter modified or amended by the Contractor without the prior consent and approval of the District, which may be granted or withheld in the sole discretion of the District.

10.1.1.3 Preliminary Schedule of Submittals. A preliminary schedule of submittals, including Shop Drawings, Product Data, and Samples submittals. Once approved by District, this shall become the Submittal Schedule. All submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those submittals shall be forwarded to the District so as not to delay the Construction Schedule. Upon request by the District, Contractor shall provide an electronic copy of all submittals to the District. All submittals shall be submitted no later than 90 days after the Notice to Proceed.

10.1.1.4 Safety Plan. Contractor's Safety Plan specifically adapted for the Project. Contractor's Safety Plan shall comply with the following requirements:

10.1.1.4.1 All applicable requirements of California Division of Occupational Safety and Health ("CalOSHA") and/or of the United States Occupational Safety and Health Administration ("OSHA").

10.1.1.4.2 All provisions regarding Project safety, including all applicable provisions in these General Conditions.

10.1.1.4.3 Contractor's Safety Plan shall be in English and in the language(s) of the Contractor's and its Subcontractors' employees.

10.1.1.5 Complete Registered Subcontractors List. The name, address, telephone number, facsimile number, California State Contractors License number, classification, DIR registration number and monetary value of all

Subcontracts of any tier for parties furnishing labor, material, or equipment for completion of the Project.

10.1.2 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.1.3 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.1.4 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.1.5 All submittals and schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.2 Monthly Progress Schedule(s)

10.2.1 Contractor shall provide Monthly Progress Schedule(s) to the District. A Monthly Progress Schedule shall update the approved Construction Schedule or the last Monthly Progress Schedule, showing all work completed and to be completed as well as updating the Registered Subcontractors List. The monthly Progress Schedule shall be sent within the timeframe requested by the District and shall be in a format acceptable to the District and contain a written narrative of the progress of work that month and any changes, delays, or events that may affect the work. The process for District approval of the Monthly Progress Schedule shall be the same as the process for approval of the Construction Schedule.

10.2.2 Contractor shall submit Monthly Progress Schedule(s) with all payment applications.

10.2.3 Contractor must provide all schedules both in hard copy and electronically, in a format (e.g., Microsoft Project or Primavera) approved in advance by the District.

10.2.4 The District will review the schedules submitted and the Contractor shall make changes and corrections in the schedules as requested by the District and resubmit the schedules until approved by the District.

10.2.5 The District shall have the right at any time to revise the schedule of values if, in the District's sole opinion, the schedule of values does not accurately reflect the value of the Work performed.

10.2.6 All submittals and schedules must be approved by the District before Contractor can rely on them as a basis for payment.

10.3 Material Safety Data Sheets (MSDS)

Contractor is required to ensure Material Safety Data Sheets are available in a readily accessible place at the Work Site for any material requiring a Material Safety Data Sheet

per the federal "Hazard Communication" standard, or employees' "right to know" law. The Contractor is also required to ensure proper labeling on substances brought onto the job site and that any person working with the material or within the general area of the material is informed of the hazards of the substance and follows proper handling and protection procedures. Two additional copies of the Material Safety Data Sheets shall also be submitted directly to the District.

11. SITE ACCESS, CONDITIONS, AND REQUIREMENTS

11.1 Site Investigation

Before bidding on this Work, Contractor shall make a careful investigation of the Site and thoroughly familiarize itself with the requirements of the Contract. By the act of submitting a bid for the Work included in this Contract, Contractor shall be deemed to have made a complete study and investigation, and to be familiar with and accepted the existing conditions of the Site.

Prior to commencing the Work, Contractor and the District's representative shall survey the Site to document the condition of the Site. Contractor will record the survey in digital videotape format and provide an electronic copy to the District within fourteen (14) days of the survey. This electronic record shall serve as a basis for determining any damages caused by the Contractor during the Project. The Contractor may also document any pre-existing conditions in writing, provided that both the Contractor and the District's representative agree on said conditions and sign a memorandum documenting the same.

11.2 Soils Investigation Report

11.2.1 When a soils investigation report obtained from test holes at Site or for the Project is available, that report may be available to the Contractor but shall not be a part of this Contract and shall not alleviate or excuse the Contractor's obligation to perform its own investigation. Any information obtained from that report or any information given on Drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only, is not guaranteed, does not form a part of this Contract, and Contractor may not rely thereon. By submitting its bid, Contractor acknowledges that it has made visual examination of Site and has made whatever tests Contractor deems appropriate to determine underground condition of soil.

11.2.2 Contractor agrees that no claim against District will be made by Contractor for damages and hereby waives any rights to damages if, during progress of Work, Contractor encounters subsurface or latent conditions at Site materially differing from those shown on Drawings or indicated in Specifications, or for unknown conditions of an unusual nature that differ materially from those ordinarily encountered in the work of the character provided for in Plans and Specifications, except as indicated in the provisions of these General Conditions regarding trenches, trenching, and/or existing utility lines.

11.3 Access to Work

District and its representatives shall at all times have access to Work wherever it is in preparation or progress, including storage and fabrication. Contractor shall provide safe

and proper facilities for such access so that District's representatives may perform their functions.

11.4 Layout and Field Engineering

11.4.1 All field engineering required for layout of this Work and establishing grades for earthwork operations shall be furnished by Contractor at its expense. This Work shall be done by a qualified, California-registered civil engineer approved in writing by District and Architect. Any required Record and/or As-Built Drawings of Site development shall be prepared by the approved civil engineer.

11.4.2 The Contractor shall be responsible for having ascertained pertinent local conditions such as location, accessibility, and general character of the Site and for having satisfied itself as to the conditions under which the Work is to be performed. Contractor shall follow best practices, including but not limited to potholing to avoid utilities. District shall not be liable for any claim for allowances because of Contractor's error, failure to follow best practices, or negligence in acquainting itself with the conditions at the Site.

11.4.3 Contractor shall protect and preserve established benchmarks and monuments and shall make no changes in locations without the prior written approval of District. Contractor shall replace any benchmarks or monuments that are lost or destroyed subsequent to proper notification of District and with District's approval.

11.5 Utilities

Utilities shall be provided as indicated in the Specifications.

11.6 Sanitary Facilities

Sanitary facilities shall be provided as indicated in the Specifications.

11.7 Surveys

Contractor shall provide surveys done by a California-licensed civil engineer surveyor to determine locations of construction, grading, and site work as required to perform the Work.

11.8 Regional Notification Center

The Contractor, except in an emergency, shall contact the appropriate regional notification center at least two (2) days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement that is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the District, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and/or carried out by the Contractor unless an inquiry identification number has been assigned to the Contractor or any Subcontractor and the Contractor has given the District the identification number. Any damages arising from Contractor's failure to make appropriate notification shall be at the sole risk and expense of the Contractor.

Any delays caused by failure to make appropriate notification shall be at the sole risk of the Contractor and shall not be considered for an extension of the Contract Time.

11.9 Existing Utility Lines

11.9.1 Pursuant to Government Code section 4215, District assumes the responsibility for removal, relocation, and protection of main or trunk utility lines and facilities located on the construction Site at the time of commencement of construction under this Contract with respect to any such utility facilities that are not identified in the Plans and Specifications. Contractor shall not be assessed for liquidated damages for delay in completion of the Project caused by failure of District or the owner of a utility to provide for removal or relocation of such utility facilities.

11.9.2 Locations of existing utilities provided by District shall not be considered exact, but approximate within a reasonable margin and shall not relieve Contractor of responsibilities to exercise reasonable care or costs of repair due to Contractor's failure to do so. District shall compensate Contractor for the costs of locating, repairing damage not due to the failure of Contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the Plans and Specifications with reasonable accuracy, and for equipment necessarily idle during such work.

11.9.3 No provision herein shall be construed to preclude assessment against Contractor for any other delays in completion of the Work. Nothing in this Article shall be deemed to require District to indicate the presence of existing service laterals, appurtenances, or other utility lines, within the exception of main or trunk utility lines or whenever the presence of these utilities on the Site of the construction Project can be inferred from the presence of other visible facilities, such as buildings, meter junction boxes, on or adjacent to the Site of the construction.

11.9.4 If Contractor, while performing Work under this Contract, discovers utility facilities not identified by District in Contract Plans and Specifications, Contractor shall immediately notify the District and the utility in writing. The cost of repair for damage to above-mentioned visible facilities without prior written notification to the District shall be borne by the Contractor.

11.10 Notification

Contractor understands, acknowledges and agrees that the purpose for prompt notification to the District pursuant to these provisions is to allow the District to investigate the condition(s) so that the District shall have the opportunity to decide how the District desires to proceed as a result of the condition(s). Accordingly, failure of Contractor to promptly notify the District in writing, pursuant to these provisions, shall constitute Contractor's waiver of any claim for damages or delay incurred as a result of the condition(s).

11.11 Hazardous Materials

Contractor shall comply with all provisions and requirements of the Contract Documents related to hazardous materials including, without limitation, Hazardous Materials Procedures and Requirements.

11.12 No Signs

Neither the Contractor nor any other person or entity shall display any signs not required by law or the Contract Documents at the Site, fences trailers, offices, or elsewhere on the Site without specific prior written approval of the District.

12. TRENCHES

12.1 Trenches Greater Than Five Feet

Pursuant to Labor Code section 6705, if the Contract Price exceeds \$25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, promptly submit to the District and/or a registered civil or structural engineer employed by the District or Architect, a detailed plan, stamped by a licensed engineer retained by the Contractor, showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

12.2 Excavation Safety

If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Construction Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by the District or by the person to whom authority to accept has been delegated by the District.

12.3 No Tort Liability of District

Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the District or any of its employees.

12.4 No Excavation without Permits

The Contractor shall not commence any excavation Work until it has secured all necessary permits including the required CalOSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

12.5 Discovery of Hazardous Waste and/or Unusual Conditions

12.5.1 Pursuant to Public Contract Code section 7104, if the Work involves digging trenches or other excavations that extend deeper than four feet below the Surface, the Contractor shall promptly, and before the following conditions are disturbed, notify the District, in writing, of any:

12.5.1.1 Material that the Contractor believes may be material that is hazardous waste, as defined in section 25117 of the Health and Safety Code, is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.

12.5.1.2 Subsurface or latent physical conditions at the Site differing from those indicated.

12.5.1.3 Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

12.5.2 The District shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work, shall issue a Change Order under the procedures described herein.

12.5.3 In the event that a dispute arises between District and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law that pertain to the resolution of disputes and protests.

13. INSURANCE AND BONDS

13.1 Insurance

Unless different provisions and/or limits are indicated in the Special Conditions, all insurance required of Contractor and/or its Subcontractor(s) shall be in the amounts and include the provisions set forth herein.

13.1.1 Commercial General Liability and Automobile Liability Insurance

13.1.1.1 Contractor shall procure and maintain, during the life of this Contract, Commercial General Liability Insurance and Automobile Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, personal injury, death, advertising injury, and medical payments arising from operations under this Contract. This coverage shall be provided in a form at least as broad as Insurance Services (ISO) Form CG 0001 11188. Contractor shall ensure that Products Liability and Completed Operations coverage, Fire Damage Liability, and Any Auto including owned, non-owned, and hired, are included within the above policies and at the required limits, or Contractor shall procure and maintain these coverages separately.

13.1.1.2 Contractor's deductible or self-insured retention for its Commercial General Liability Insurance policy shall not exceed \$25,000 unless approved in writing by District.

13.1.1.3 All such policies shall be written on an occurrence form.

13.1.2 Excess Liability Insurance

13.1.2.1 Contractor may procure and maintain, during the life of this Contract, an Excess Liability Insurance Policy to meet the policy limit requirements of the required policies if Contractor's underlying policy limits are less than required.

13.1.2.2 There shall be no gap between the per occurrence amount of any underlying policy and the start of the coverage under the Excess Liability Insurance Policy. Any Excess Liability Insurance Policy shall be written on a following form and shall protect Contractor, District, State, Construction Manager(s), Project Manager(s), and Architect(s) in amounts and including the provisions as set forth in the Supplementary Conditions (if any) and/or Special Conditions, and that complies with all requirements for Commercial General Liability and Automobile Liability and Employers' Liability Insurance.

13.1.2.3 The District, in its sole discretion, may accept the Excess Liability Insurance Policy that bring Contractor's primary limits to the minimum requirements herein.

13.1.3 Subcontractor(s): Contractor shall require its Subcontractor(s), if any, to procure and maintain Commercial General Liability Insurance, Automobile Liability Insurance, and Excess Liability Insurance (if Subcontractor elects to satisfy, in part the insurance required herein by procuring and maintaining an Excess Liability Insurance Policy) with forms of coverage and limits equal to the amounts required of the Contractor.

13.1.4 Workers' Compensation and Employers' Liability Insurance

13.1.4.1 In accordance with provisions of section 3700 of the California Labor Code, the Contractor and every Subcontractor shall be required to secure the payment of compensation to its employees.

13.1.4.2 Contractor shall procure and maintain, during the life of this Contract, Workers' Compensation Insurance and Employers' Liability Insurance for all of its employees engaged in work under this Contract, on/or at the Site of the Project. This coverage shall cover, at a minimum, medical and surgical treatment, disability benefits, rehabilitation therapy, and survivors' death benefits. Contractor shall require its Subcontractor(s), if any, to procure and maintain Workers' Compensation Insurance and Employers' Liability Insurance for all employees of Subcontractor(s). Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by Contractor's insurance. If any class of employee or employee engaged in Work under this Contract, on or at the Site of the Project, is not protected under the Workers' Compensation Insurance, Contractor shall provide, or shall cause a Subcontractor to provide, adequate insurance coverage for the protection of any employee(s) not otherwise protected before any of those employee(s) commence work.

13.1.5 Builder's Risk Insurance: Builder's Risk "All Risk" Insurance

Contractor shall procure and maintain, during the life of this Contract, Builder's Risk (Course of Construction), or similar first party property coverage acceptable to the District, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work of the Project included within the Contract Documents. Coverage is to insure against all risks of accidental physical

loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, rain, dust, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the Architect's and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

13.1.6 Pollution Liability Insurance

13.1.6.1 Contractor shall procure and maintain Pollution Liability Insurance that shall protect Contractor, District, State, Construction Manager(s), Project Inspector(s), and Architect(s) from all claims for bodily injury, property damage, including natural resource damage, cleanup costs, removal, storage, disposal, and/or use of the pollutant arising from operations under this Contract, and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. Coverage shall apply to sudden and/or gradual pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants, including asbestos. This coverage shall be provided in a form at least as broad as Insurance Services Offices, Inc. (ISO) Form CG 2415, or Contractor shall procure and maintain these coverages separately.

13.1.6.2 Contractor shall warrant that any retroactive date applicable to coverage under the policy predates the effective date of the Contract and that continuous coverage will be maintained or an extended reporting or discovery period will be exercised for a period of three (3) years, beginning from the time that the Work under the Contract is completed.

13.1.6.3 If Contractor is responsible for removing any pollutants from a site, then Contractor shall ensure that Any Auto, including owned, non-owned, and hired, is included within the above policies and at the required limits, to cover its automobile exposure from transporting the pollutants from the site to an approved disposal site. This coverage shall include the Motor Carrier Act Endorsement, MCS 90.

13.1.7 Proof of Insurance and Other Requirements: Endorsements and Certificates

13.1.7.1 Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract, until Contractor and its Subcontractor(s) have procured all required insurance and Contractor has delivered in duplicate to the District complete endorsements (or entire insurance policies) and certificates indicating the required coverages have been obtained, and the District has approved these documents.

13.1.7.2 Endorsements, certificates, and insurance policies shall include the following:

13.1.7.2.1 A clause stating:

"This policy shall not be canceled and the coverage amounts shall not be reduced until written notice to District, Architect, and Construction Manager stating date of the cancellation by the insurance carrier. Date of cancellation may not be less than thirty (30) days after date of mailing notice."

13.1.7.2.2 Language stating in particular those insured, extent of insurance, location and operation to which insurance applies, expiration date, to whom cancellation and reduction notice will be sent, and length of notice period.

13.1.7.2.3 All endorsements, certificates and insurance policies shall state that District, its trustees, employees and agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s) and Architect(s) are named additional insureds under all policies except Workers' Compensation Insurance and Employers' Liability Insurance.

13.1.7.3 No policy shall be amended, canceled or modified, and the coverage amounts shall not be reduced, until Contractor or Contractor's broker has provided written notice to District, Architect, and Construction Manager stating date of the amendment, modification, cancellation or reduction, and a description of the change. Date of amendment, modification, cancellation or reduction may not be less than thirty (30) days after date of mailing notice.

13.1.7.4 Insurance written on a "claims made" basis shall be retroactive to a date that coincides with or precedes Contractor's commencement of Work, including subsequent policies purchased as renewals or replacements. Said policy is to be renewed by the Contractor and all Subcontractors for a period of five (5) years following completion of the Work or termination of this Agreement. Such insurance must have the same coverage and limits as the policy that was in effect during the term of this Agreement, and will cover the Contractor and all Subcontractors for all claims made.

13.1.7.5 Contractor's and Subcontractors' insurance policy(s) shall be primary and non-contributory to any insurance or self-insurance maintained by District, its trustees, employees and/or agents, the State of California, Construction Manager(s), Project Manager(s), Inspector(s), and/or Architect(s).

13.1.7.6 All endorsements shall waive any right to subrogation against any of the named additional insureds.

13.1.7.7 Unless otherwise stated in the Special Conditions, all of Contractor's insurance shall be with insurance companies with an A.M. Best rating of no less than **A: VII**.

13.1.7.8 The insurance requirements set forth herein shall in no way limit the Contractor's liability arising out of or relating to the performance of the Work or related activities.

13.1.7.9 Failure of Contractor and/or its Subcontractor(s) to comply with the insurance requirements herein shall be deemed a material breach of the Agreement.

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13.1.8 Insurance Policy Limits

Unless different limits are indicated in the Special Conditions, the limits of insurance shall not be less than the following amounts:

Commercial General Liability	Product Liability and Completed Operations, Fire Damage Liability – Split Limit	\$2,000,000 per occurrence; \$4,000,000 aggregate
Automobile Liability – Any Auto	Combined Single Limit	\$1,000,000
Workers’ Compensation		Statutory limits pursuant to State law
Employers’ Liability		\$1,000,000
Builder’s Risk (Course of Construction)		Issued for the value and scope of Work indicated herein.
Pollution Liability		\$1,000,000 per claim; \$2,000,000 aggregate

13.2 Contract Security - Bonds

13.2.1 Contractor shall furnish two surety bonds issued by a California admitted surety insurer as follows:

13.2.1.1 Performance Bond: A bond in an amount at least equal to one hundred percent (100%) of Contract Price as security for faithful performance of this Contract.

13.2.1.2 Payment Bond: A bond in an amount at least equal to one hundred percent (100%) of the Contract Price as security for payment of persons performing labor and/or furnishing materials in connection with this Contract.

13.2.2 Cost of bonds shall be included in the Bid and Contract Price.

13.2.3 All bonds related to this Project shall be in the forms set forth in these Contract Documents and shall comply with all requirements of the Contract Documents, including, without limitation, the bond forms.

14. WARRANTY/GUARANTEE/INDEMNITY

14.1 Warranty/Guarantee

14.1.1 The Contractor shall obtain and preserve for the benefit of the District, manufacturer's warranties on materials, fixtures, and equipment incorporated into the Work.

14.1.2 In addition to guarantees required elsewhere, Contractor shall, and hereby does guarantee and warrant all Work furnished on the job against all defects for a period of **ONE (1)** year after the later of the following dates, unless a longer period is provided for in the Contract Documents:

14.1.2.1 The acceptance by the District, or its agent, of the Work, subject to these General Conditions, or

14.1.2.2 The date that commissioning for the Project, if any, was completed.

At the District's sole option, Contractor shall repair or replace any and all of that Work, together with any other Work that may be displaced in so doing, that may prove defective in workmanship and/or materials within a **TWO (2)** year period from date of completion as defined above, unless a longer period is provided for in the Contract Documents, without expense whatsoever to District. In the event of failure of Contractor and/or Surety to commence and pursue with diligence said replacements or repairs within ten (10) days after being notified in writing, Contractor and Surety hereby acknowledge and agree that District is authorized to proceed to have defects repaired and made good at expense of Contractor and/or Surety who hereby agree to pay costs and charges therefore immediately on demand.

14.1.3 If, in the opinion of District, defective work creates a dangerous condition or requires immediate correction or attention to prevent further loss to District or to prevent interruption of operations of District, District will attempt to give the notice required above. If Contractor or Surety cannot be contacted or neither complies with District's request for correction within a reasonable time as determined by District, District may, notwithstanding the above provision, proceed to make any and all corrections and/or provide attentions the District believes are necessary. The costs of correction or attention shall be charged against Contractor and Surety of the guarantees provided in this Article or elsewhere in this Contract.

14.1.4 The above provisions do not in any way limit the guarantees on any items for which a longer guarantee is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish to District all appropriate guarantee or warranty certificates as indicated in the Specifications or upon request by District.

14.1.5 Nothing herein shall limit any other rights or remedies available to District.

14.2 Indemnity and Defense

14.2.1 To the furthest extent permitted by California law, the Contractor shall indemnify, keep and hold harmless the District, the Architect, and the Construction Manager, their consultants and separate contractors, and their respective board members, officers, representatives, contractors, agents, and employees, in both individual and official capacities ("Indemnitees"), against all suits, claims, damages, losses, and expenses, including but not limited to attorney's fees, caused by, arising out of, resulting from, or incidental to, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers, except to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction, in which case the Contractor's indemnification and hold harmless obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability, and/or to any extent that would render these provisions void or unenforceable. This agreement and obligation of the Contractor shall not be construed to negate, abridge, or otherwise reduce any right or obligation of indemnity that would otherwise exist as to any party or person described herein. This indemnification, and hold harmless obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the California Department of Industrial Relations.

14.2.2 Contractor shall also defend, at its own expense, Indemnitees against all suits, claims, allegations, damages, losses, and expenses, including but not limited to attorneys' fees, caused by, arising out of, resulting from, or incidental to, the performance of the Work under this Contract by the Contractor, its Subcontractors, vendors, or suppliers, except to the extent caused by the sole negligence, active negligence, or willful misconduct of the Indemnitees, and/or defects in design furnished by the Architect, as found by a court or arbitrator of competent jurisdiction, in which case the Contractor's defense obligation shall be reduced by the proportion of the Indemnitees' and/or Architect's liability, and/or to any extent that would render these provisions void or unenforceable. The District shall have the right to accept or reject any legal representation that Contractor proposes to defend the Indemnitees. This obligation of defense is inclusive of fees and costs. If the Indemnitees provide their own defense due to failure to timely respond to tender of defense, rejection of tender of defense, or conflict of interest of proposed counsel, Contractor shall reimburse Indemnitees for any expenditures, including reasonable attorney's fees and costs. This agreement and obligation of the Contractor shall not be construed to negate, abridge, or otherwise reduce any right or obligation of defense that would otherwise exist as to any party or person described herein. This defense obligation includes, but is not limited to, any failure or alleged failure by Contractor to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract Documents in strict accordance with their terms, and without limitation, any failure or alleged failure of Contractor's obligations regarding any stop payment notice actions or liens, including Civil Wage and Penalty Assessments and/or Orders by the California Department of Industrial Relations. The Contractor shall give prompt notice to the District in the event of any injury (including death), loss, or damage included herein.

14.2.3 Without limitation of the provisions herein, if the Contractor's agreement to indemnify and hold harmless the Indemnitees or its agreement to defend Indemnitees as provided herein shall be determined to be void or unenforceable, in whole or in part, it is the intention of the parties that these circumstances shall not otherwise affect the validity or enforceability of the Contractor's agreement to indemnify, defend, and hold harmless the rest of the Indemnitees, as provided herein. Further, the Contractor shall be and remain fully liable on its agreements and obligations herein to the fullest extent permitted by law.

14.2.4 Pursuant to Public Contract Code section 9201, the District shall provide timely notification to Contractor of the receipt of any third-party claim relating to this Contract. The District shall be entitled to recover its reasonable costs incurred in providing said notification.

14.2.5 In any and all claims against any of the Indemnitees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the Contractor's indemnification obligation herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Contractor or any Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

14.2.6 The District may retain so much of the moneys due the Contractor as shall be considered necessary, until disposition of any such suit, claims or actions for damages or until the District, Architect and Construction Manager have received written agreement from the Contractor that they will unconditionally defend the District, Architect and Construction Manager, their officers, agents and employees, and pay any damages due by reason of settlement or judgment.

14.2.7 The defense and indemnification obligations hereunder shall survive the completion of Work, including the warranty/guarantee period, and/or the termination of the Agreement.

15. TIME

15.1 Notice to Proceed

15.1.1 District may issue a Notice to Proceed within ninety (90) days from the date of the Notice of Award. Once Contractor has received the Notice to Proceed, Contractor shall complete the Work within the period of time indicated in the Contract Documents.

15.1.2 In the event that the District desires to postpone issuing the Notice to Proceed beyond ninety (90) days from the date of the Notice of Award, it is expressly understood that with reasonable notice to the Contractor, the District may postpone issuing the Notice to Proceed. It is further expressly understood by Contractor that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the issuance of the Notice to Proceed.

15.1.3 If the Contractor believes that a postponement of issuance of the Notice to Proceed will cause a hardship to Contractor, Contractor may terminate the Contract. Contractor's termination due to a postponement shall be by written notice to District

within ten (10) days after receipt by Contractor of District's notice of postponement. It is further understood by Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement. Should Contractor terminate the Contract as a result of a notice of postponement, District shall have the authority to award the Contract to the next lowest responsive responsible bidder.

15.2 Computation of Time / Adverse Weather

15.2.1 The Contractor will only be allowed a time extension for Adverse Weather conditions if requested by Contractor in compliance with the time extension request procedures and only if all of the following conditions are met:

15.2.1.1 The weather conditions constitute Adverse Weather, as defined herein and further specified in the Special Conditions;

15.2.1.2 Contractor can verify that the Adverse Weather caused delays in excess of five (5) hours of the indicated labor required to complete the scheduled tasks of Work on the day affected by the Adverse Weather;

15.2.1.3 The Contractor's crew is dismissed as a result of the Adverse Weather;

15.2.1.4 Said delay adversely affects the critical path in the Construction Schedule; and

15.2.2 If the aforementioned conditions are met, a non-compensable day-for-day extension will only be allowed for those days in excess of those indicated in the Special Conditions.

15.2.3 The Contractor shall work seven (7) days per week, if necessary, irrespective of inclement weather, to maintain access and the Construction Schedule, and to protect the Work under construction from the effects of Adverse Weather, all at no further cost to the District.

15.2.4 The Contract Time has been determined with consideration given to the average climate weather conditions prevailing in the County in which the Project is located.

15.3 Hours of Work

15.3.1 Sufficient Forces

Contractor and Subcontractors shall continuously furnish sufficient and competent work forces with the required levels of familiarity with the Project and skill, training and experience to ensure the prosecution of the Work in accordance with the Construction Schedule.

15.3.2 Performance During Working Hours

Work shall be performed during regular working hours as permitted by the appropriate governmental agency except that in the event of an emergency, or when

required to complete the Work in accordance with job progress, Work may be performed outside of regular working hours with the advance written consent of the District and approval of any required governmental agencies.

15.3.3 No Work during State Testing

Contractor shall, at no additional cost to the District and at the District's request, coordinate its Work to not disturb District students including, without limitation, not performing any Work when students at the Site are taking State or Federally-required tests. The District or District's Representative will provide Contractor with a schedule of test dates concurrent with the District's issuance of the Notice to Proceed, or as soon as test dates are made available to the District.

15.4 Progress and Completion

15.4.1 Time of the Essence

Time limits stated in the Contract Documents are of the essence to the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

15.4.2 No Commencement Without Insurance or Bonds

The Contractor shall not commence operations on the Project or elsewhere prior to the effective date of insurance and bonds. The date of commencement of the Work shall not be changed by the effective date of such insurance or bonds. If Contractor commences Work without insurance and bonds, all Work is performed at Contractor's peril and shall not be compensable until and unless Contractor secures bonds and insurance pursuant to the terms of the Contract Documents and subject to District claim for damages.

15.5 Schedule

Contractor shall provide to District, Construction Manager, and Architect a schedule in conformance with the Contract Documents and as required in the Notice to Proceed and the Contractor's Submittals and Schedules section of these General Conditions.

15.6 Expeditious Completion

The Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time.

16. EXTENSIONS OF TIME – LIQUIDATED DAMAGES

16.1 Liquidated Damages

Contractor and District hereby agree that the exact amount of damages for failure to complete the Work within the time specified is extremely difficult or impossible to determine. If the Work is not completed within the time specified in the Contract Documents, it is understood that the District will suffer damage. It being impractical and unfeasible to determine the amount of actual damage, it is agreed the Contractor shall pay to District as fixed and liquidated damages, and not as a penalty, the amount

set forth in the Agreement for each calendar day of delay in completion. Contractor and its Surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

16.2 Excusable Delay

16.2.1 Contractor shall not be charged for liquidated damages because of any delays in completion of Work which are not the fault of Contractor or its Subcontractors, including acts of God as defined in Public Contract Code section 7105, acts of enemy, epidemics, and quarantine restrictions. Contractor shall, within five (5) calendar days of beginning of any delay, notify District in writing of causes of delay including documentation and facts explaining the delay and the direct correlation between the cause and effect. District shall review the facts and extent of any delay and shall grant extension(s) of time for completing Work when, in its judgment, the findings of fact justify an extension. Extension(s) of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted if Contractor has timely submitted the Construction Schedule as required herein.

16.2.2 Contractor shall notify the District pursuant to the claims provisions in these General Conditions of any anticipated delay and its cause. Following submission of a claim, the District may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.

16.2.3 In the event the Contractor requests an extension of Contract Time for unavoidable delay, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in Work. When requesting time, requests must be submitted with full justification and documentation. If the Contractor fails to submit justification, it waives its right to a time extension at a later date. Such justification must be based on the official Construction Schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the Scope of Work. Any claim for delay must include the following information as support, without limitation:

16.2.3.1 The duration of the activity relating to the changes in the Work and the resources (manpower, equipment, material, etc.) required to perform the activities within the stated duration.

16.2.3.2 Specific logical ties to the Contract Schedule for the proposed changes and/or delay showing the activity/activities in the Construction Schedule that are affected by the change and/or delay. In particular, Contractor must show an actual impact to the schedule, after making a good faith effort to mitigate the delay by rescheduling the work, by providing an analysis of the schedule ("Schedule Analysis"). Such Schedule Analysis shall describe in detail the cause and effect of the delay and the impact on the critical dates in the Project schedule. (A portion of any delay of seven (7) days or more must be provided.)

16.2.3.3 A recovery schedule must be submitted within twenty (20) calendar days of written notification to the District of causes of delay.

16.3 No Additional Compensation for Delays Within Contractor's Control

16.3.1 Contractor is aware that governmental agencies, including, without limitation, the Division of the State Architect, the Department of General Services, gas companies, electrical utility companies, water districts, and other agencies may have to approve Contractor-prepared drawings or approve a proposed installation. Accordingly, Contractor shall include in its bid, time for possible review of its drawings and for reasonable delays and damages that may be caused by such agencies. Thus, Contractor is not entitled to make a claim for damages or delays arising from the review of Contractor's drawings.

16.3.2 Contractor shall only be entitled to compensation for delay when all of the following conditions are met:

16.3.2.1 The District is responsible for the delay;

16.3.2.2 The delay is unreasonable under the circumstances involved;

16.3.2.3 The delay was not within the contemplation of the District and Contractor; and

16.3.2.4 Contractor timely complies with the claims procedure of the Contract Documents.

16.4 Float or Slack in the Schedule

Float or slack is the amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any of the activities in the schedule. Float or slack is not for the exclusive use of or benefit of either the District or the Contractor, but its use shall be determined solely by the District.

17. CHANGES IN THE WORK

17.1 No Changes Without Authorization

17.1.1 There shall be no change whatsoever in the Drawings, Specifications, or in the Work without an executed Change Order or a written Construction Change Directive authorized by the District as herein provided. District shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the District's governing board has authorized the same and the cost thereof has been approved in writing by Change Order or Construction Change Directive in advance of the changed Work being performed. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted and approved in writing in the Change Order or Construction Change Directive. Contractor shall be responsible for any costs incurred by the District for professional services and DSA fees and/or delay to the Project Schedule, if any, for DSA to review any request for changes to the DSA approved plans and specifications for the convenience of the Contractor and/or to accommodate the Contractor's means and methods. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications.

17.1.2 Contractor shall perform immediately all work that has been authorized by a fully executed Change Order or Construction Change Directive. Contractor shall be fully responsible for any and all delays and/or expenses caused by Contractor's failure to expeditiously perform this Work.

17.1.3 Should any Change Order result in an increase in the Contract Price or extend the Contract Time, the cost of or length of extension in that Change Order shall be agreed to, in writing, by the District in advance of the Work by Contractor, and shall be subject to the monetary limitations set forth in Public Contract Code section 20118.4. In the event that Contractor proceeds with any change in Work without a Change Order executed by the District or Construction Change Directive, Contractor waives any claim of additional compensation or time for that additional work. Under no circumstances shall Contractor be entitled to any claim of additional compensation or time not expressly requested by Contractor in a Proposed Change Order or approved by District in an executed Change Order.

17.1.4 Contractor understands, acknowledges, and agrees that the reason for District authorization is so that District may have an opportunity to analyze the Work and decide whether the District shall proceed with the Change Order or alter the Project so that a change in Work becomes unnecessary.

17.2 Architect Authority

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Price, or an extension of the Contract Time, or a change that is inconsistent with the intent of the Contract Documents. These changes shall be effected by written Change Order, Construction Change Directive, by Architect's response(s) to RFI(s), or by Architect's Supplemental Instructions ("ASI").

17.3 Change Orders

17.3.1 A Change Order is a written instrument prepared and issued by the District and/or the Architect and signed by the District (as authorized by the District's Governing Board), the Contractor, the Architect, and approved by the Project Inspector (if necessary) and DSA (if necessary), stating their agreement regarding all of the following:

17.3.1.1 A description of a change in the Work;

17.3.1.2 The amount of the adjustment in the Contract Price, if any; and

17.3.1.3 The extent of the adjustment in the Contract Time, if any.

17.4 Construction Change Directives

17.4.1 A Construction Change Directive is a written order prepared and issued by the District, the Construction Manager, and/or the Architect and signed by the District and the Architect, directing a change in the Work. The District may, as provided by law, by Construction Change Directive and without invalidating the Contract, order changes in the Work consisting of additions, deletions, or other revisions. The adjustment to the Contract Price or Time, if any, is subject to the provisions of this section regarding Changes in the Work. If all or a portion of the

Project is being funded by funds requiring approval by the State Allocation Board ("SAB"), these revisions may be subject to compensation once approval of same is received and funded by the SAB, and funds are released by the Office of Public School Construction ("OPSC"). Any dispute as to the adjustment in the Contract Price, if any, of the Construction Change Directive or timing of payment shall be resolved pursuant to the Payment and Claims and Disputes provisions herein.

17.4.2 The District may issue a Construction Change Directive in the absence of agreement on the terms of a Change Order.

17.5 Force Account Directives

17.5.1 When work, for which a definite price has not been agreed upon in advance, is to be paid for on a force account basis, all direct costs necessarily incurred and paid by the Contractor for labor, material, and equipment used in the performance of that Work, shall be subject to the approval of the District and compensation will be determined as set forth herein.

17.5.2 The District will issue a Force Account Directive to proceed with the Work on a force account basis, and a not-to-exceed budget will be established by the District.

17.5.3 All requirements regarding direct cost for labor, labor burden, material, equipment, and markups on direct costs for overhead and profit described in this section shall apply to Force Account Directives. However, the District will only pay for actual costs verified in the field by the District or its authorized representative(s) on a daily basis.

17.5.4 The Contractor shall be responsible for all cost related to the administration of Force Account Directive. The markup for overhead and profit for Contractor modifications shall be full compensation to the Contractor to administer Force Account Directive, and Contractor shall not be entitled to separately recover additional amounts for overhead and/or profit.

17.5.5 The Contractor shall notify the District or its authorized representative(s) at least twenty-four (24) hours prior to proceeding with any of the force account work. Furthermore, the Contractor shall notify the District when it has consumed eighty percent (80%) of the budget, and shall not exceed the budget unless specifically authorized in writing by the District. The Contractor will not be compensated for force account work in the event that the Contractor fails to timely notify the District regarding the commencement of force account work, or exceeding the force account budget.

17.5.6 The Contractor shall diligently proceed with the work, and on a daily basis, submit a daily force account report on a form supplied by the District no later than 5:00 p.m. each day. The report shall contain a detailed itemization of the daily labor, material, and equipment used on the force account work only. The names of the individuals performing the force account work shall be included on the daily force account reports. The type and model of equipment shall be identified and listed. The District will review the information contained in the reports, and sign the reports no later than the next work day, and return a copy of the report to the Contractor for their records. The District will not sign, nor will the Contractor receive compensation

for work the District cannot verify. The Contractor will provide a weekly force account summary indicating the status of each Force Account Directive in terms of percent complete of the not-to-exceed budget and the estimated percent complete of the work.

17.5.7 In the event the Contractor and the District reach a written agreement on a set cost for the work while the work is proceeding based on a Force Account Directive, the Contractor's signed daily force account reports shall be discontinued and all previously signed reports shall be invalid.

17.6 Price Request

17.6.1 Definition of Price Request

A Price Request ("PR") is a written request prepared by the Architect requesting the Contractor to submit to the District and the Architect an estimate of the effect of a proposed change in the Work on the Contract Price and the Contract Time.

17.6.2 Scope of Price Request

A Price Request shall contain adequate information, including any necessary Drawings and Specifications, to enable Contractor to provide the cost breakdowns required herein. The Contractor shall not be entitled to any additional compensation for preparing a response to a Price Request, whether ultimately accepted or not.

17.7 Proposed Change Order

17.7.1 Definition of Proposed Change Order

A Proposed Change Order ("PCO") is a written request prepared by the Contractor requesting that the District and the Architect issue a Change Order based upon a proposed change to the Work.

17.7.2 Changes in Contract Price

A PCO shall include breakdowns and backup documentation pursuant to the revisions herein and sufficient, in the District's judgment, to validate any change in Contract Price. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional compensation for Change Order Work.

17.7.3 Changes in Time

A PCO shall also include any changes in time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Construction Schedule as defined in the Contract Documents. If Contractor fails to request a time extension in a PCO, then the Contractor is thereafter precluded from requesting, and waives any right to request, additional time and/or claim a delay. In no case shall Contractor or any of its Subcontractors be permitted to reserve rights for additional time for Change Order Work. A PCO that leaves the amount of time requested blank, or states that such time requested is "to be determined", is not permitted and shall also constitute a waiver of any right to request additional time and/or claim a delay.

17.7.4 Unknown and/or Unforeseen Conditions

If there is an Allowance, then Contractor must submit a Request for Allowance Expenditure Directive, including supporting documentation as described below, to receive authorization for the release of funds from the Allowance. If cost of the unforeseen condition(s) exceed the Allowance, Contractor must submit a PCO requesting an increase in Contract Price and/or Contract Time that is based at least partially on Contractor's assertion that Contractor has encountered unknown and/or unforeseen condition(s) on the Project, then Contractor shall base the PCO on provable information that, beyond a reasonable doubt and to the District's satisfaction, demonstrates that the unknown and/or unforeseen condition(s) were actually unknown and/or unforeseen and that the condition(s) were reasonably unknown and/or unforeseen. If not, the District shall deny the PCO as unsubstantiated, and the Contractor shall complete the Project without any increase in Contract Price and/or Contract Time based on that PCO.

17.7.5 Proposed Change Order Certification

In submitting a PCO, Contractor certifies and affirms that the cost and/or time request is submitted in good faith, that the cost and/or time request is accurate and in accordance with the provisions of the Contract Documents, and the Contractor submits the cost and/or request for extension of time recognizing the significant civil penalties and treble damages which follow from making a false claim or presenting a false claim under Government Code section 12650 et seq.

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17.8 Format for Proposed Change Order

17.8.1 The following format shall be used as applicable by the District and the Contractor (e.g. Change Orders, PCO's) to communicate proposed additions and deductions to the Contract, supported by attached documentation. Any spaces left blank will be deemed no change to cost or time.

	<u>WORK PERFORMED OTHER THAN BY CONTRACTOR</u>	<u>ADD</u>	<u>DEDUCT</u>
(a)	<u>Material</u> (attach suppliers' invoice or itemized quantity and unit cost plus sales tax)		
(b)	<u>Add Labor</u> (attach itemized hours and rates, fully encumbered)		
(c)	<u>Add Equipment</u> (attach suppliers' invoice)		
(d)	<u>Subtotal</u>		
(e)	<u>Add overhead and profit for any and all tiers of Subcontractor</u> , the total not to exceed ten percent (10%) of Item (d)		
(f)	<u>Subtotal</u>		
(g)	<u>Add Overhead and Profit for Contractor</u> , not to exceed five percent (5%) of Item (f)		
(h)	<u>Subtotal</u>		
(i)	<u>Add Bond and Insurance</u> , not to exceed one and a half percent (1.5%) of Item (h)		
(j)	<u>TOTAL</u>		
(k)	<u>Time</u> (zero unless indicated; "TBD" not permitted)	____ Calendar Days	

	<u>WORK PERFORMED BY CONTRACTOR</u>	<u>ADD</u>	<u>DEDUCT</u>
(a)	<u>Material</u> (attach itemized quantity and unit cost plus sales tax)		
(b)	<u>Add Labor</u> (attach itemized hours and rates, fully encumbered)		
(c)	<u>Add Equipment</u> (attach suppliers' invoice)		
(d)	<u>Subtotal</u>		
(e)	<u>Add Overhead and Profit for Contractor</u> , not to exceed fifteen percent (15%) of Item (d)		
(f)	<u>Subtotal</u>		
(g)	<u>Add Bond and Insurance</u> , not to exceed one and a half percent (1.5%) of Item (f)		
(h)	<u>TOTAL</u>		
(i)	<u>Time</u> (zero unless indicated; "TBD" not permitted)	____ Calendar Days	

17.8.2 Labor. Contractor shall be compensated for the costs of labor actually and directly utilized in the performance of the Work. Such labor costs shall be limited to field labor for which there is a prevailing wage rate classification. Wage rates for labor shall not exceed the prevailing wage rates in the locality of the Site and shall be in the labor classification(s) necessary for the performance of the Work.

Labor costs shall exclude costs incurred by the Contractor in preparing estimate(s) of the costs of the change in the Work, in the maintenance of records relating to the costs of the change in the Work, coordination and assembly of materials and information relating to the change in the Work or performance thereof, or the supervision and other overhead and general conditions costs associated with the change in the Work or performance thereof, including but not limited to the cost for the job superintendent.

17.8.3 Materials. Contractor shall be compensated for the costs of materials necessarily and actually used or consumed in connection with the performance of the change in the Work. Costs of materials may include reasonable costs of transportation from a source closest to the Site of the Work and delivery to the Site. If discounts by material suppliers are available for materials necessarily used in the performance of the change in the Work, they shall be credited to the District. If materials necessarily used in the performance of the change in the Work are obtained from a supplier or source owned in whole or in part by the Contractor, compensation therefor shall not exceed the current wholesale price for such materials. If, in the reasonable opinion of the District, the costs asserted by the Contractor for materials in connection with any change in the Work are excessive, or if the Contractor fails to provide satisfactory evidence of the actual costs of such materials from its supplier or vendor of the same, the costs of such materials and the District's obligation to pay for the same shall be limited to the then lowest wholesale price at which similar materials are available in the quantities required to perform the change in the Work. The District may elect to furnish materials for the change in the Work, in which event the Contractor shall not be compensated for the costs of furnishing such materials or any mark-up thereon.

17.8.4 Equipment. As a precondition to the District's duty to pay for Equipment rental or loading and transportation, Contractor shall provide satisfactory evidence of the actual costs of Equipment from the supplier, vendor or rental agency of same. Contractor shall be compensated for the actual cost of the necessary and direct use of Equipment in the performance of the change in the Work. Use of such Equipment in the performance of the change in the Work shall be compensated in increments of fifteen (15) minutes. Rental time for Equipment moved by its own power shall include time required to move such Equipment to the site of the Work from the nearest available rental source of the same. If Equipment is not moved to the Site by its own power, Contractor will be compensated for the loading and transportation costs in lieu of rental time. The foregoing notwithstanding, neither moving time or loading and transportation time shall be allowed if the Equipment is used for performance of any portion of the Work other than the change in the Work. Unless prior approval in writing is obtained by the Contractor from the Architect, the Project Inspector and the District, no costs or compensation shall be allowed for time while Construction Equipment is inoperative, idle or on standby, for any reason. Contractor shall not be entitled to an allowance or any other compensation for Equipment or tools used in the performance of change in the Work where such Equipment or tools have a replacement value of \$500.00 or less. Equipment costs claimed by the Contractor in connection with the performance of any Work shall not exceed rental rates established by distributors or construction equipment rental agencies in the locality of the Site; any costs asserted which exceed such rental rates shall not be allowed or paid. Unless otherwise specifically approved in writing by the Architect, the Project Inspector and the District, the allowable rate for the use of Equipment in connection with the Work shall constitute full compensation to the

Contractor for the cost of rental, fuel, power, oil, lubrication, supplies, necessary attachments, repairs or maintenance of any kind, depreciation, storage, insurance, labor (exclusive of labor costs of the Equipment operator), and any and all other costs incurred by the Contractor incidental to the use of such Equipment.

17.8.5 Overhead and Profit. The phrase "Overhead and Profit" shall include field and office supervisors and assistants, watchperson, use of small tools, consumable, insurance other than construction bonds and insurance required herein, and general field and home office expenses.

17.9 Change Order Certification

17.9.1 All Change Orders and PCOs must include the following certification by the Contractor:

17.9.1.1 The undersigned Contractor approves the foregoing as to the changes, if any, to the Contract Price specified for each item, and as to the extension of time allowed, if any, for completion of the entire Work as stated herein, and agrees to furnish all labor, materials, and service, and perform all work necessary to complete any additional work specified for the consideration stated herein. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq. It is understood that the changes herein to the Contract shall only be effective when approved by the governing board of the District.

17.9.1.2 It is expressly understood that the value of the extra Work or changes expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Contractor is not entitled to separately recover amounts for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

17.10 Determination of Change Order Cost

17.10.1 The amount of the increase or decrease in the Contract Price from a Change Order, if any, shall be determined in one or more of the following ways as applicable to a specific situation and at the District's discretion:

17.10.1.1 District acceptance of a PCO;

17.10.1.2 By unit prices contained in Contractor's original bid;

17.10.1.3 By agreement between District and Contractor.

17.11 Deductive Change Orders

All deductive Change Order(s) must be prepared pursuant to the provisions herein. Where a portion of the Work is deleted from the Contract, the reasonable value of the deducted work less the value of work performed shall be considered the appropriate deduction. The value submitted on the Schedule of Values shall be used to calculate the credit amount unless the bid documentation is being held in escrow as part of the

Contract Documents. Unit Prices, if any, may be used in District's discretion in calculating reasonable value. If Contractor offers a proposed amount for a deductive Change Order(s), Contractor shall include a minimum of five percent (5%) total profit and overhead to be deducted with the amount of the work of the Change Order(s). If Subcontractor work is involved, Subcontractors shall also include a minimum of five percent (5%) profit and overhead to be deducted with the amount of its deducted work. Any deviation from this provision shall not be allowed.

17.12 Addition or Deletion of Alternate Bid Item(s)

If the Bid Form and Proposal includes proposal(s) for Alternate Bid Item(s), during Contractor's performance of the Work, the District may elect to add or delete any such Alternate Bid Item(s) if not included in the Contract at the time of award. If the District elects to add or delete Alternate Bid Item(s) after Contract award, the cost or credit for such Alternate Bid Item(s) shall be as set forth in the Bid Form and Proposal unless the parties agree to a different price and the Contract Time shall be adjusted by the number of days allocated in the Contract Documents. If days are not allocated in the Contract Documents, the Contract Time shall be equitably adjusted.

17.13 Discounts, Rebates, and Refunds

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor's cost in determining the actual cost of construction for purposes of any change, addition, or omission in the Work as provided herein.

17.14 Accounting Records

With respect to portions of the Work performed by Change Orders and Construction Change Directives, the Contractor shall keep and maintain cost-accounting records satisfactory to the District, including, without limitation, Job Cost Reports as provided in these General Conditions, which shall be available to the District on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents. Such records shall include without limitation hourly records for Labor and Equipment and itemized records of materials and Equipment used that day in connection with the performance of any Work. All records maintained hereunder shall be subject to inspection, review and/or reproduction by the District, the Architect or the Project Inspector upon request. In the event that the Contractor fails or refuses, for any reason, to maintain or make available for inspection, review and/or reproduction such records, the District's reasonable good faith determination of the extent of adjustment to the Contract Price shall be final, conclusive, dispositive and binding upon Contractor.

17.15 Notice Required

If the Contractor desires to make a claim for an increase in the Contract Price, or any extension in the Contract Time for completion, it shall notify the District pursuant to the provisions herein, including the Article on Claims and Disputes. No claim shall be considered unless made in accordance with this subparagraph. Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any

change in the Contract Price or extension of the Contract Time resulting from such claim shall be authorized by a Change Order.

17.16 Applicability to Subcontractors

Any requirements under this Article shall be equally applicable to Change Orders or Construction Change Directives issued to Subcontractors by the Contractor to the extent as required by the Contract Documents.

17.17 Alteration to Change Order Language

Contractor shall not alter Change Orders or reserve time in Change Orders. Change Orders altered in violation of this provision, if in conflict with the terms set forth herein, shall be construed in accordance with the terms set forth herein. Contractor shall execute finalized Change Orders and proceed under the provisions herein with proper notice.

17.18 Failure of Contractor to Execute Change Order

Contractor shall be in default of the Contract if Contractor fails to execute a Change Order when the Contractor agrees with the addition and/or deletion of the Work in that Change Order.

18. REQUEST FOR INFORMATION

18.1 Any Request for Information shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. The Contractor shall make suggestions and interpretations of the issue raised by each Request for Information. A Request for Information cannot modify the Contract Price, Contract Time, or the Contract Documents. Upon request by the District, Contractor shall provide an electronic copy of the Request for Information in addition to the hard copy.

18.2 The Contractor shall be responsible for any costs incurred for professional services that District may deduct from any amounts owing to the Contractor, if a Request for Information requests an interpretation or decision of a matter where the information sought is equally available to the party making the request. District, at its sole discretion, shall deduct from and/or invoice Contractor for all the professional services arising herein.

19. PAYMENTS

19.1 Contract Price

The Contract Price is stated in the Agreement and, including authorized adjustments, is the total amount payable by the District to the Contractor for performance of the Work under the Contract Documents.

19.2 Applications for Progress Payments

19.2.1 Procedure for Applications for Progress Payments

19.2.1.1 Application for Progress Payment

19.2.1.1.1 Not before the fifth (5th) day of each calendar month during the progress of the Work, Contractor shall submit to the District and the Architect an itemized Application for Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or each portion thereof unless waived by the District in writing:

19.2.1.1.1.1 The amount paid to the date of the Application to the Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;

19.2.1.1.1.2 The amount being requested under the Application for Payment by the Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;

19.2.1.1.1.3 The balance that will be due to each of such entities after said payment is made;

19.2.1.1.1.4 A certification that the As-Built Drawings and annotated Specifications are current;

19.2.1.1.1.5 Itemized breakdown of work done for the purpose of requesting partial payment;

19.2.1.1.1.6 An updated and acceptable construction schedule in conformance with the provisions herein;

19.2.1.1.1.7 The additions to and subtractions from the Contract Price and Contract Time;

19.2.1.1.1.8 A total of the retentions held;

19.2.1.1.1.9 Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the District may require from time to time;

19.2.1.1.1.10 The percentage of completion of the Contractor's Work by line item;

19.2.1.1.1.11 Schedule of Values updated from the preceding Application for Payment;

19.2.1.1.1.12 A duly completed and executed conditional waiver and release upon progress payment compliant with Civil Code section 8132 from the Contractor and each subcontractor of any tier and supplier to be paid from the current progress payment;

19.2.1.1.1.13 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134

from the Contractor and each subcontractor of any tier and supplier that was paid from the previous progress payment(s); and

19.2.1.1.1.14 A certification by the Contractor of the following:

The Contractor warrants title to all Work performed as of the date of this payment application has been completed in accordance with the Contract Documents for the Project. The Contractor further warrants that all amounts have been paid for work which previous Certificates for Payment were issued and payments received and all Work performed as of the date of this payment application is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, workers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work, except those of which the District has been informed. Submission of sums which have no basis in fact or which Contractor knows are false are at the sole risk of Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et seq.

19.2.1.1.1.15 The Contractor shall be subject to the False Claims Act set forth in Government Code section 12650 et seq. for information provided with any Application for Progress Payment.

19.2.1.1.1.16 All remaining certified payroll records ("CPR(s)") for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work for the period of the Application for Payment. As indicated herein, the District shall not make any payment to Contractor until:

19.2.1.1.1.16.1 Contractor and/or its Subcontractor(s) provide electronic CPRs weekly for all weeks any journeyman, apprentice, worker or other employee was employed in connection with the Work directly to the DIR, or within ten (10) days of any request by the District or the DIR, and

19.2.1.1.1.16.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs in a timely manner may directly delay the Contractor's payment.

19.2.1.1.2 Applications received after June 20th will not be paid until the second week of July and applications received after December 12th will not be paid until the first week of January.

19.2.2 Prerequisites for Progress Payments

19.2.2.1 First Payment Request: The following items, if applicable, must be completed before the District will accept and/or process the Contractor's first payment request:

19.2.2.1.1 Installation of the Project sign;

- 19.2.2.1.2** Installation of field office;
- 19.2.2.1.3** Installation of temporary facilities and fencing;
- 19.2.2.1.4** Schedule of Values;
- 19.2.2.1.5** Contractor's Construction Schedule;
- 19.2.2.1.6** Schedule of unit prices, if applicable;
- 19.2.2.1.7** Submittal Schedule;
- 19.2.2.1.8** Receipt by Architect of all submittals due as of the date of the payment application;
- 19.2.2.1.9** Copies of necessary permits;
- 19.2.2.1.10** Copies of authorizations and licenses from governing authorities;
- 19.2.2.1.11** Initial progress report;
- 19.2.2.1.12** Surveyor qualifications;
- 19.2.2.1.13** Written acceptance of District's survey of rough grading, if applicable;
- 19.2.2.1.14** List of all Subcontractors, with names, license numbers, telephone numbers, and Scope of Work;
- 19.2.2.1.15** All bonds and insurance endorsements; and
- 19.2.2.1.16** Resumes of Contractor's project manager, and if applicable, job site secretary, record documents recorder, and job site superintendent.

19.2.2.2 Second Payment Request: The District will not process the second payment request until and unless all submittals and Shop Drawings have been accepted for review by the Architect.

19.2.2.3 No Waiver of Criteria: Any payments made to Contractor where criteria set forth herein have not been met shall not constitute a waiver of said criteria by District. Instead, such payment shall be construed as a good faith effort by District to resolve differences so Contractor may pay its Subcontractors and suppliers. Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.

19.3 Progress Payments

19.3.1 District's Approval of Application for Payment

19.3.1.1 Upon receipt of an Application for Payment, The District shall act in accordance with both of the following:

19.3.1.1.1 Each Application for Payment shall be reviewed by the District as soon as practicable after receipt for the purpose of determining that the Application for Payment is a proper Application for Payment.

19.3.1.1.2 Any Application for Payment determined not to be a proper Application for Payment suitable for payment shall be returned to the Contractor as soon as practicable, but not later than seven (7) days, after receipt. An Application for Payment returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the Application for Payment is not proper. The number of days available to the District to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which the District exceeds this seven-day return requirement.

19.3.1.1.3 An Application for Payment shall be considered properly executed if funds are available for payment of the Application for Payment, and payment is not delayed due to an audit inquiry by the financial officer of the District.

19.3.1.2 The District's review of the Contractor's Application for Payment will be based on the District's and the Architect's observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the District's and the Architect's knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to:

19.3.1.2.1 Observation of the Work for general conformance with the Contract Documents,

19.3.1.2.2 Results of subsequent tests and inspections,

19.3.1.2.3 Minor deviations from the Contract Documents correctable prior to completion, and

19.3.1.2.4 Specific qualifications expressed by the Architect.

19.3.1.3 District's approval of the certified Application for Payment shall be based on Contractor complying with all requirements for a fully complete and valid certified Application for Payment.

19.3.2 Payments to Contractor

19.3.2.1 Within thirty (30) days after approval of the Application for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as verified by Architect and Inspector and certified by Contractor) up to the last day of the previous month, less the aggregate of previous payments and amount to be withheld. The value of the Work completed shall be Contractor's best estimate. No inaccuracy or error in said estimate shall operate to release the Contractor, or any Surety upon any bond, from damages arising from such Work, or from the District's right to enforce each and every provision of this Contract, and the District shall have the right subsequently to correct any error made in any estimate for payment.

19.3.2.2 The Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for Work performed, so long as any lawful or proper direction given by the District concerning the Work, or any portion thereof, remains incomplete.

19.3.2.3 If the District fails to make any progress payment within thirty (30) days after receipt of an undisputed and properly submitted Application for Payment from the Contractor, the District shall pay interest to the Contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

19.3.3 No Waiver

No payment by District hereunder shall be interpreted so as to imply that District has inspected, approved, or accepted any part of the Work. Notwithstanding any payment, the District may enforce each and every provision of this Contract. The District may correct or require correction of any error subsequent to any payment.

19.4 Decisions to Withhold Payment

19.4.1 Reasons to Withhold Payment

The District may withhold payment in whole, or in part, to the extent reasonably necessary to protect the District if, in the District's opinion, the representations to the District required herein cannot be made. The District may withhold payment, in whole, or in part, to such extent as may be necessary to protect the District from loss because of, but not limited to any of the following:

19.4.1.1 Defective Work not remedied within **FORTY-EIGHT (48)** hours of written notice to Contractor.

19.4.1.2 Stop Payment Notices or other liens served upon the District as a result of the Contract. Contractor agrees that the District may withhold up to 125% of the amount claimed in the Stop Payment Notice to answer the claim and to provide for the District's reasonable cost of any litigation pursuant to the stop payment notice.

19.4.1.3 Liquidated damages assessed against the Contractor.

19.4.1.4 The cost of completion of the Contract if there exists a reasonable doubt that the Work can be completed for the unpaid balance of the Contract Price or by the completion date.

19.4.1.5 Damage to the District or other contractor(s).

19.4.1.6 Unsatisfactory prosecution of the Work by the Contractor.

19.4.1.7 Failure to store and properly secure materials.

19.4.1.8 Failure of the Contractor to submit, on a timely basis, proper, sufficient, and acceptable documentation required by the Contract Documents, including, without limitation, a Construction Schedule, Schedule of Submittals,

Schedule of Values, Monthly Progress Schedules, Shop Drawings, Product Data and samples, Proposed product lists, executed Change Orders, and/or verified reports.

19.4.1.9 Failure of the Contractor to maintain As-Built Drawings.

19.4.1.10 Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment.

19.4.1.11 Unauthorized deviations from the Contract Documents.

19.4.1.12 Failure of the Contractor to prosecute the Work in a timely manner in compliance with the Construction Schedule, established progress schedules, and/or completion dates.

19.4.1.13 Failure to provide acceptable electronic certified payroll records, as required by the Labor Code, by these Contract Documents, or by written request; for each journeyman, apprentice, worker, or other employee employed by the Contractor and/or by each Subcontractor in connection with the Work for the period of the Application for Payment or if payroll records are delinquent or inadequate.

19.4.1.14 Failure to properly pay prevailing wages as required in Labor Code section 1720 et seq., failure to comply with any other Labor Code requirements, and/or failure to comply with labor compliance monitoring and enforcement by the DIR.

19.4.1.15 Allowing an unregistered subcontractor, as described in Labor Code section 1725.5, to engage in the performance of any work under this Contract.

19.4.1.16 Failure to comply with any applicable federal statutes and regulations regarding minimum wages, withholding, payrolls and basic records, apprentice and trainee employment requirements, equal employment opportunity requirements, Copeland Act requirements, Davis-Bacon Act and related requirements, Contract Work Hours and Safety Standards Act requirements, if applicable.

19.4.1.17 Failure to properly maintain or clean up the Site.

19.4.1.18 Failure to timely indemnify, defend, or hold harmless the District.

19.4.1.19 Any payments due to the District, including but not limited to payments for failed tests, utilities changes, or permits.

19.4.1.20 Failure to pay Subcontractor(s) or supplier(s) as required by law and by the Contract Documents.

19.4.1.21 Failure to pay any royalty, license or similar fees.

19.4.1.22 Contractor is otherwise in breach, default, or in substantial violation of any provision of this Contract.

19.4.1.23 Failure to perform any implementation and/or monitoring required by any SWPPP for the Project and/or the imposition of any penalties or fines therefore whether imposed on the District or Contractor.

19.4.2 Reallocation of Withheld Amounts

19.4.2.1 District may, in its discretion, apply any withheld amount to pay outstanding claims or obligations as defined herein. In so doing, District shall make such payments on behalf of Contractor. If any payment is so made by District, then that amount shall be considered a payment made under Contract by District to Contractor and District shall not be liable to Contractor for any payment made in good faith. These payments may be made without prior judicial determination of claim or obligation. District will render Contractor an accounting of funds disbursed on behalf of Contractor.

19.4.2.2 If Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents or fails to perform any provision thereof, District may, after **FORTY-EIGHT (48)** hours' written notice to the Contractor and, without prejudice to any other remedy, make good such deficiencies. The District shall adjust the total Contract Price by reducing the amount thereof by the cost of making good such deficiencies. If District deems it inexpedient to correct Work that is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract Price (of at least one hundred fifty percent (150%) of the estimated reasonable value of the nonconforming Work) shall be made therefor.

19.4.3 Payment After Cure

When Contractor removes the grounds for declining approval, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

19.5 Subcontractor Payments

19.5.1 Payments to Subcontractors

No later than seven (7) days after receipt, or pursuant to Business and Professions Code section 7108.5 and Public Contract Code section 7107, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to its Sub-subcontractors in a similar manner.

19.5.2 No Obligation of District for Subcontractor Payment

The District shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

19.5.3 Joint Checks

District shall have the right in its sole discretion, if necessary for the protection of the District, to issue joint checks made payable to the Contractor and Subcontractors and/or material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the District and a Subcontractor of any tier, or a material or equipment supplier, any obligation from the District to such Subcontractor or a material or equipment supplier, or rights in such Subcontractor or a material or equipment supplier against the District.

20. COMPLETION OF THE WORK

20.1 Completion

20.1.1 District will accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District.

20.1.2 The Work may only be accepted as complete by action of the governing board of the District.

20.1.3 District, at its sole option, may accept completion of Contract and have the Notice of Completion recorded when the entire Work shall have been completed to the satisfaction of District, except for minor corrective items, as distinguished from incomplete items. If Contractor fails to complete all minor corrective items within fifteen (15) days after the date of the District's acceptance of completion, District shall withhold from the final payment one hundred fifty percent (150%) of an estimate of the amount sufficient to complete the corrective items, as determined by District, until the item(s) are completed.

20.1.4 At the end of the 15-day period, if there are any items remaining to be corrected, District may elect to proceed as provided herein related to adjustments to Contract Price, and/or District's right to perform the Work of the Contractor.

20.2 Close-Out/Certification Procedures

20.2.1 Punch List

The Contractor shall notify the Architect when Contractor considers the Work complete. Upon notification, Architect will prepare a list of minor items to be completed or corrected ("Punch List"). The Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

20.2.2 Close-Out/Certification Requirements

20.2.2.1 Utility Connections

Buildings shall be connected to water, gas, sewer, and electric services, complete and ready for use. Service connections shall be made and existing services reconnected.

20.2.2.2 Record Drawings and Record Specifications

20.2.2.2.1 Contractor shall provide exact Record Drawings of the Work ("As-Built") and Record Specifications upon completion of the Project and as a condition precedent to approval of final payment.

20.2.2.2.2 Contractor shall obtain the Inspector's approval of the corrected prints and employ a competent draftsman to transfer the Record Drawings information to the most current version of AutoCAD that is, at that time, currently utilized for plan check submission by either the District, the Architect, OPSC, and/or DSA, and print a complete set of transparent sepias. When completed, Contractor shall deliver corrected sepias and diskette/CD/other data storage device acceptable to District with AutoCAD file to the District.

20.2.2.2.3 Contractor is liable and responsible for any and all inaccuracies in the Record Drawings and Record Specifications, even if inaccuracies become evident at a future date.

20.2.2.3 Maintenance Manuals: Contractor shall prepare all operation and maintenance manuals and date as indicated in the Specifications.

20.2.2.4 Source Programming: Contractor shall provide all source programming for all items in the Project.

20.2.2.5 Verified Reports: Contractor shall completely and accurately fill out and file forms DSA 6-C or DSA 152 (or current form), as appropriate. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

20.3 Final Inspection

20.3.1 Contractor shall comply with Punch List procedures as provided herein, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Contractor demobilize its forces prior to completion of the Punch List without District's prior written approval. Upon receipt of Contractor's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and acceptance, Architect and Project Inspector will inspect the Work and shall submit to Contractor and District a final inspection report noting the Work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Punch List items not yet satisfactorily completed.

20.3.2 Upon Contractor's completion of all items on the Punch List and any other uncompleted portions of the Work, the Contractor shall notify the District and Architect, who shall again inspect such Work. If the Architect finds the Work complete and acceptable under the Contract Documents, the Architect will notify Contractor, who shall then jointly submit to the Architect and the District its final Application for Payment.

20.3.3 Final Inspection Requirements

20.3.3.1 Before calling for final inspection, Contractor shall determine that the following have been performed:

20.3.3.1.1 The Work has been completed.

20.3.3.1.2 All life safety items are completed and in working order.

20.3.3.1.3 Mechanical and electrical Work are complete and tested, fixtures are in place, connected, and ready for tryout.

20.3.3.1.4 Electrical circuits scheduled in panels and disconnect switches labeled.

20.3.3.1.5 Painting and special finishes complete.

20.3.3.1.6 Doors complete with hardware, cleaned of protective film, relieved of sticking or binding, and in working order.

20.3.3.1.7 Tops and bottoms of doors sealed.

20.3.3.1.8 Floors waxed and polished as specified.

20.3.3.1.9 Broken glass replaced and glass cleaned.

20.3.3.1.10 Grounds cleared of Contractor's equipment, raked clean of debris, and trash removed from Site.

20.3.3.1.11 Work cleaned, free of stains, scratches, and other foreign matter, and damaged and broken material replaced.

20.3.3.1.12 Finished and decorative work shall have marks, dirt, and superfluous labels removed.

20.3.3.1.13 Final cleanup, as provided herein.

20.4 Costs of Multiple Inspections

More than two (2) requests of the District to make a final inspection shall be considered an additional service of District, Architect, Construction Manager, and/or Project Inspector, and all subsequent costs will be invoiced to Contractor and if funds are available, withheld from remaining payments.

20.5 Partial Occupancy or Use Prior to Completion

20.5.1 District's Rights to Occupancy

The District may occupy or use any completed or partially completed portion of the Work at any stage, and such occupancy shall not constitute the District's Final Acceptance of any part of the Work. Neither the District's Final Acceptance, the making of Final Payment, any provision in Contract Documents, nor the use or occupancy of the Work, in whole or in part, by District shall constitute acceptance of Work not in accordance with the Contract Documents nor relieve the Contractor or

the Contractor's Performance Bond Surety from liability with respect to any warranties or responsibility for faulty or defective Work or materials, equipment and workmanship incorporated therein. In the event that the District occupies or uses any completed or partially completed portion of the Work, the Contractor shall remain responsible for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents unless the Contractor requests in writing, and the District agrees, to otherwise divide those responsibilities. Any dispute as to responsibilities shall be resolved pursuant to the Claims and Disputes provisions herein, with the added provision that during the dispute process, the District shall have the right to occupy or use any portion of the Work that it needs or desires to use.

20.5.2 Inspection Prior to Occupancy or Use

Immediately prior to partial occupancy or use, the District, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

20.5.3 No Waiver

Unless otherwise agreed upon, partial or entire occupancy or use of a portion or portions of the Work shall not constitute beneficial occupancy or acceptance of the Work not complying with the requirements of the Contract Documents.

21. FINAL PAYMENT AND RETENTION

21.1 Final Payment

Upon receipt and approval of a valid and final Application for Payment, the Architect will issue a final Certificate of Payment. The District shall thereupon jointly inspect the Work and either accept the Work as complete or notify the Architect and the Contractor in writing of reasons why the Work is not complete. Upon acceptance of the Work of the Contractor as fully complete by the Governing Board of the District (that, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder, and the Contractor shall, upon receipt of final payment from the District, pay the amount due Subcontractors.

21.2 Prerequisites for Final Payment

The following conditions must be fulfilled prior to Final Payment:

21.2.1 A full release of all Stop Payment Notices served in connection with the Work shall be submitted by Contractor.

21.2.2 A duly completed and executed conditional waiver and release upon final payment compliant with Civil Code section 8136, from the Contractor and each subcontractor of any tier and supplier to be paid from the final payment.

21.2.3 A duly completed and executed unconditional waiver and release upon progress payment compliant with Civil Code section 8134, from the Contractor and

each subcontractor of any tier and supplier that was paid from the previous progress payments.

21.2.4 A duly completed and executed Document 00 65 19.26, "AGREEMENT AND RELEASE OF ANY AND ALL CLAIMS" from the Contractor.

21.2.5 The Contractor shall have made all corrections to the Work that are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of District required under the Contract Documents.

21.2.6 Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.

21.2.7 Contractor must have completed all requirements set forth under "Close-Out/Certification Procedures," including, without limitation, submission of an approved set of complete Record Drawings.

21.2.8 Architect shall have issued its written approval that final payment can be made.

21.2.9 The Contractor shall have delivered to the District all manuals and materials required by the Contract Documents, which must be approved by the District.

21.2.10 The Contractor shall have completed final clean-up as provided herein.

21.3 Retention

21.3.1 The retention, less any amounts disputed by the District or that the District has the right to withhold pursuant to provisions herein, shall be paid:

21.3.1.1 After approval by the Architect of the Application and Certificate of Payment,

21.3.1.2 After the satisfaction of the conditions set forth herein, and

21.3.1.3 After forty-five (45) days after the recording of the Notice of Completion by District.

21.3.2 No interest shall be paid on any retention, or on any amounts withheld due to a failure of the Contractor to perform, in accordance with the terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the District and the Contractor pursuant to Public Contract Code section 22300.

21.4 Substitution of Securities

The District will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300.

22. UNCOVERING OF WORK

If a portion of the Work is covered without Inspector or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the District, the Project Inspector, or the Architect, be uncovered for the Project Inspector's or the Architect's observation and be corrected, replaced, and/or recovered at the Contractor's expense without change in the Contract Price or Contract Time.

23. NONCONFORMING WORK AND CORRECTION OF WORK

23.1 Nonconforming Work

23.1.1 Contractor shall promptly remove from Premises all Work identified by District as failing to conform to the Contract Documents whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract Documents without additional expense to the District and shall bear the expense of making good all work of other contractors destroyed or damaged by any removal or replacement pursuant hereto and/or any delays to the District or other Contractors caused thereby.

23.1.2 If Contractor does not remove Work that District has identified as failing to conform to the Contract Documents within a reasonable time, not to exceed **FORTY-EIGHT (48)** hours, District may remove it and may store any material at Contractor's expense. If Contractor does not pay expense(s) of that removal within ten (10) days' time thereafter, District may, upon ten (10) days' written notice, sell any material at auction or at private sale and shall deduct all costs and expenses incurred by the District and/or District may withhold those amounts from payment(s) to Contractor.

23.2 Correction of Work

23.2.1 Correction of Rejected Work

Pursuant to the notice provisions herein, the Contractor shall immediately correct the Work rejected by the District, the Architect, or the Project Inspector as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector's or the Architect's services and expenses made necessary thereby.

23.2.2 Two-Year Warranty Corrections

If, within two (2) years after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties established hereunder, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the District to do so. This period of two (2) years shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation hereunder shall survive acceptance of the Work under the

Contract and termination of the Contract. The District shall give such notice promptly after discovery of the condition.

23.3 District's Right to Perform Work

23.3.1 If the Contractor should neglect to prosecute the Work properly or fail to perform any provisions of this contract, the District, after **FORTY-EIGHT (48)** hours written notice to the Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

23.3.2 If it is found at any time, before or after completion of the Work, that Contractor has varied from the Drawings and/or Specifications, including, but not limited to, variation in material, quality, form, or finish, or in the amount or value of the materials and labor used, District may require at its option:

23.3.2.1 That all such improper Work be removed, remade or replaced, and all work disturbed by these changes be made good by Contractor at no additional cost to the District;

23.3.2.2 That the District deduct from any amount due Contractor the sum of money equivalent to the difference in value between the work performed and that called for by the Drawings and Specifications; or

23.3.2.3 That the District exercise any other remedy it may have at law or under the Contract Documents, including but not limited to the District hiring its own forces or another contractor to replace the Contractor's nonconforming Work, in which case the District shall either issue a deductive Change Order, a Construction Change Directive, or invoice the Contractor for the cost of that work. Contractor shall pay any invoices within thirty (30) days of receipt of same or District may withhold those amounts from payment(s) to Contractor.

24. TERMINATION AND SUSPENSION

24.1 District's Right to Terminate Contractor for Cause

24.1.1 Grounds for Termination: The District, in its sole discretion, may terminate the Contract and/or terminate the Contractor's right to perform the work of the Contract based upon any of the following:

24.1.1.1 Contractor refuses or fails to execute the Work or any separable part thereof with sufficient diligence as will ensure its completion within the time specified or any extension thereof, or

24.1.1.2 Contractor fails to complete said Work within the time specified or any extension thereof, or

24.1.1.3 Contractor persistently fails or refused to perform Work or provide material of sufficient quality as to be in compliance with Contract Documents; or

24.1.1.4 Contractor persistently or repeatedly refuses fails, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials to complete the Work in the time specified; or

24.1.1.5 Contractor fails to make prompt payment to Subcontractors, or for material, or for labor; or

24.1.1.6 Contractor persistently disregards laws, or ordinances, or instructions of District; or

24.1.1.7 Contractor fails to supply labor, including that of Subcontractors, that is sufficient to prosecute the Work or that can work in harmony with all other elements of labor employed or to be employed on the Work; or

24.1.1.8 Contractor or its Subcontractor(s) is/are otherwise in breach, default, or in substantial violation of any provision of this Contract, including but not limited to a lapse in licensing or registration.

24.1.2 Notification of Termination

24.1.2.1 Upon the occurrence at District's sole determination of any of the above conditions, District may, without prejudice to any other right or remedy, serve written notice upon Contractor and its Surety of District's termination of this Contract and/or the Contractor's right to perform the work of the Contract. This notice will contain the reasons for termination. Unless, within three (3) days after the service of the notice, any and all condition(s) shall cease, and any and all violation(s) shall cease, or arrangement satisfactory to District for the correction of the condition(s) and/or violation(s) be made, this Contract shall cease and terminate. Upon Termination, Contractor shall not be entitled to receive any further payment until the entire Work is finished.

24.1.2.2 Upon Termination, District may immediately serve written notice of tender upon Surety whereby Surety shall have the right to take over and perform this Contract only if Surety:

24.1.2.2.1 Within three (3) days after service upon it of the notice of tender, gives District written notice of Surety's intention to take over and perform this Contract; and

24.1.2.2.2 Commences performance of this Contract within three (3) days from date of serving of its notice to District.

24.1.2.3 Surety shall not utilize Contractor in completing the Project if the District notifies Surety of the District's objection to Contractor's further participation in the completion of the Project. Surety expressly agrees that any contractor which Surety proposes to fulfill Surety's obligations is subject to District's approval. District's approval shall not be unreasonably withheld, conditioned or delayed.

24.1.2.4 If Surety fails to notify District or begin performance as indicated herein, District may take over the Work and execute the Work to completion by any method it may deem advisable at the expense of Contractor and/or its

Surety. Contractor and/or its Surety shall be liable to District for any excess cost or other damages the District incurs thereby. Time is of the essence in this Contract. If the District takes over the Work as herein provided, District may, without liability for so doing, take possession of and utilize in completing the Work such materials, appliances, plan, and other property belonging to Contractor as may be on the Site of the Work, in bonded storage, or previously paid for.

24.1.3 Effect of Termination

24.1.3.1 Contractor shall, only if ordered to do so by the District, immediately remove from the Site all or any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The District retains the right, but not the obligation, to keep and use any materials and personal property belonging to Contractor that have not been incorporated in the construction of the Work, or which are not in place in the Work. The Contractor and its Surety shall be liable upon the performance bond for all damages caused to the District by reason of the Contractor's failure to complete the Contract.

24.1.3.2 In the event that the District shall perform any portion of, or the whole of the Work, pursuant to the provisions of the General Conditions, the District shall not be liable nor account to the Contractor in any way for the time within which, or the manner in which, the Work is performed by the District or for any changes the District may make in the Work or for the money expended by the District in satisfying claims and/or suits and/or other obligations in connection with the Work.

24.1.3.3 In the event that the Contract is terminated for any reason, no allowances or compensation will be granted for the loss of any anticipated profit by the Contractor or any impact or impairment of Contractor's bonding capacity.

24.1.3.4 If the expense to the District to finish the Work exceeds the unpaid Contract Price, Contractor and Surety shall pay difference to District within twenty-one (21) days of District's request.

24.1.3.5 The District shall have the right (but shall have no obligation) to assume and/or assign to a general contractor or construction manager or other third party who is qualified and has sufficient resources to complete the Work, the rights of the Contractor under its subcontracts with any or all Subcontractors. In the event of an assumption or assignment by the District, no Subcontractor shall have any claim against the District or third party for Work performed by Subcontractor or other matters arising prior to termination of the Contract. The District or any third party, as the case may be, shall be liable only for obligations to the Subcontractor arising after assumption or assignment. Should the District so elect, the Contractor shall execute and deliver all documents and take all steps, including the legal assignment of its contractual rights, as the District may require, for the purpose of fully vesting in the District the rights and benefits of its Subcontractor under Subcontracts or other obligations or commitments. All payments due the Contractor hereunder shall be subject to a right of offset by the District for expenses and damages suffered by the District as a result of any

default, acts, or omissions of the Contractor. Contractor must include this assignment provision in all of its contracts with its Subcontractors.

24.1.3.6 The foregoing provisions are in addition to and not in limitation of any other rights or remedies available to District.

24.1.4 Emergency Termination of Public Contracts Act of 1949

24.1.4.1 This Contract is subject to termination as provided by sections 4410 and 4411 of the Government Code of the State of California, being a portion of the Emergency Termination of Public Contracts Act of 1949.

24.1.4.1.1 Section 4410 of the Government Code states:

In the event a national emergency occurs, and public work, being performed by contract, is stopped, directly or indirectly, because of the freezing or diversion of materials, equipment or labor, as the result of an order or a proclamation of the President of the United States, or of an order of any federal authority, and the circumstances or conditions are such that it is impracticable within a reasonable time to proceed with a substantial portion of the work, then the public agency and the contractor may, by written agreement, terminate said contract.

24.1.4.1.2 Section 4411 of the Government Code states:

Such an agreement shall include the terms and conditions of the termination of the contract and provision for the payment of compensation or money, if any, which either party shall pay to the other or any other person, under the facts and circumstances in the case.

24.1.4.2 Compensation to the Contractor shall be determined at the sole discretion of District on the basis of the reasonable value of the Work done, including preparatory work. As an exception to the foregoing and at the District's discretion, in the case of any fully completed separate item or portion of the Work for which there is a separate previously submitted unit price or item on the accepted schedule of values, that price shall control. The District, at its sole discretion, may adopt the Contract Price as the reasonable value of the work done or any portion thereof.

24.2 Termination of Contractor for Convenience

24.2.1 District in its sole discretion may terminate the Contract upon three (3) days' written notice to the Contractor. Under a termination for convenience, the District retains the right to all the options available to the District if there is a termination for cause. In case of a termination for convenience, the Contractor shall have no claims against the District except:

24.2.1.1 The actual cost for labor, materials, and services performed that is unpaid and adequately documented through timesheets, invoices, receipts, or otherwise, and

24.2.1.2 Five percent (5%) of the total cost of work performed as of the date of termination, or five percent (5%) of the value of the Work yet to be performed, whichever is less. This five percent (5%) amount shall be full compensation for all Contractor's and Subcontractor(s)' mobilization and/or demobilization costs and any anticipated loss profits resulting from termination of the Contractor for convenience.

24.3 Suspension of Work

24.3.1 District in its sole discretion may suspend, delay or interrupt the Work in whole or in part for such period of time as the District may determine upon three (3) days written notice to the Contractor.

24.3.1.1 An adjustment may be made for changes in the cost of performance of the Work caused by any such suspension, delay or interruption. No adjustment shall be made to the extent:

24.3.1.1.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which Contractor is responsible; or

24.3.1.1.2 That an equitable adjustment is made or denied under another provision of the Contract; or

24.3.1.1.3 That the suspension of Work was the direct or indirect result of Contractor's failure to perform any of its obligations hereunder.

24.3.1.2 Any adjustments in cost of performance may have a fixed or percentage fee as provided in the section on Format for Proposed Change Order herein. This amount shall be full compensation for all Contractor's and it's Subcontractor(s)' changes in the cost of performance of the Contract caused by any such suspension, delay or interruption.

25. CLAIMS PROCESS

25.1 Performance during Claim Process

Contractor and its subcontractors shall continue to perform its Work under the Contract and shall not cause a delay of the Work during any dispute, claim, negotiation, mediation, or arbitration proceeding, except by written agreement by the District.

25.2 Definition of Claim

25.2.1 Pursuant to Public Contract Code section 9204, the term "Claim" means a separate demand by the Contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

25.2.1.1 A time extension, including without limitation, for relief of damages or penalties for delay assessed by the District under the Contract;

25.2.1.2 Payment by the District of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract and payment of

which is not otherwise expressly provided for or to which Contractor is not otherwise entitled to; or

25.2.1.3 An amount of payment disputed by the District.

25.3 Claims Presentation

25.3.1 If Contractor intends to apply for an increase in the Contract Price or Contract Time for any reason including, without limitation, the acts of District or its agents, Contractor shall, within thirty (30) days after the event giving rise to the Claim, give notice of the Claim in writing, including an itemized statement of the details and amounts of its Claim for any increase in the Contract Price of Contract Time, including a Schedule Analysis and any and all other documentation substantiating Contractor's claimed damages. Otherwise, Contractor shall have waived and relinquished its dispute against the District and Contractor's claims for compensation or an extension of time shall be forfeited and invalidated. Likewise, failure to timely submit a claim and the requisite supporting documentation shall constitute a waiver of such claim.

25.3.2 The Claim shall identify:

25.3.2.1 The issues, events, conditions, circumstances and/or causes giving rise to the dispute, and shall show, in detail, the cause and effect of same;

25.3.2.2 The pertinent dates and/or durations and actual and/or anticipated effects on the Contract Price, Contract Schedule milestones and/or Contract Time adjustments;

25.3.2.3 The line-item costs for labor, material, and/or equipment, if applicable; or

25.3.2.4 A request by Contractor, if any, to waive the claims procedure under Public Contract Code section 9204 and proceed directly to the commencement of a civil action or binding arbitration.

25.3.3 The Claim shall include the following certification by the Contractor:

25.3.3.1 The undersigned Contractor certifies under penalty of perjury that the attached dispute is made in good faith; that the supporting data is accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the adjustment for which Contractor believes the District is liable; and that I am duly authorized to certify the dispute on behalf of the Contractor.

25.3.3.2 Furthermore, Contractor understands that the value of the attached dispute expressly includes any and all of the Contractor's costs and expenses, direct and indirect, resulting from the Work performed on the Project, additional time required on the Project and/or resulting from delay to the Project. Contractor may not separately recover for overhead or other indirect costs. Any costs, expenses, damages, or time extensions not included are deemed waived.

25.4 Claim Resolution pursuant to Public Contract Code section 9204

25.4.1 STEP 1:

25.4.1.1 Upon receipt of a Claim by registered or certified mail, return receipt requested, including the documents necessary to substantiate it, the District shall conduct a reasonable review of the Claim and, within a period **not to exceed 45 days**, shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of a Claim, the District and Contractor may, **by mutual agreement, extend the time period** to provide a written statement. If the District needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the Claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of Claim sent by registered mail or certified mail, return receipt requested, the District shall have **up to three (3) days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension**, expires to provide Contractor a written statement identifying the disputed portion and the undisputed portion.

25.4.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.4.1.2 Upon receipt of a Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable. In this instance, District and Contractor must comply with the sections below regarding Public Contract Code section 20104 et seq. and Government Code Claim Act Claims.

25.4.1.3 If the District fails to issue a written statement, or to otherwise meet the time requirements of this section, this shall result in the Claim being deemed rejected in its entirety. A Claim that is denied by reason of the District's failure to have responded to a Claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the Claim or the responsibility or qualifications of Contractor.

25.4.2 STEP 2:

25.4.2.1 If Contractor disputes the District's written response, or if the District fails to respond to a Claim within the time prescribed, Contractor may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the District shall schedule a meet and confer conference within 30 days for settlement of the dispute. Within 10 business days following the conclusion of the meet and confer conference, if the Claim or any portion of the Claim remains in dispute, the District shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed.

25.4.2.1.1.1 Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the District issues its written statement. Amounts not paid in a timely manner as required by this section, section 25.4, shall bear interest at seven percent (7%) per annum.

25.4.3 STEP 3:

25.4.3.1 Any disputed portion of the Claim, as identified by Contractor in writing, shall be submitted to nonbinding mediation, with the District and Contractor sharing the associated costs equally. The District and Contractor shall mutually agree to a mediator within 10 business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be subject to applicable procedures outside this section.

25.4.3.1.1 For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

25.4.3.2 Unless otherwise agreed to by the District and Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Public Contract Code section 20104.4 to mediate after litigation has been commenced.

25.4.4 STEP 4:

25.4.4.1 If mediation under this section does not resolve the parties' dispute, the District may, but does not require arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program.

25.5 Subcontractor Pass-Through Claims

25.5.1 If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a District because privity of contract does not exist, the contractor may present to the District a Claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that Contractor present a Claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the Claim be presented to the District shall furnish reasonable documentation to support the Claim.

25.5.2 Within 45 days of receipt of this written request from a subcontractor, Contractor shall notify the subcontractor in writing as to whether the Contractor

presented the Claim to the District and, if Contractor did not present the Claim, provide the subcontractor with a statement of the reasons for not having done so.

25.5.3 The Contractor shall bind all its Subcontractors to the provisions of this section and will hold the District harmless against Claims by Subcontractors.

25.6 Government Code Claim Act Claim

25.6.1 If a claim, or any portion thereof, remains in dispute upon satisfaction of all applicable Claim Resolution requirements, including those pursuant to Public Contract Code section 9204, the Contractor shall comply with all claims presentation requirements as provided in Chapter 1 (commencing with section 900) and Chapter 2 (commencing with section 910) of Part 3 of Division 3.6 of Title 1 of Government Code as a condition precedent to the Contractor's right to bring a civil action against the District. For purposes of those provisions, the running of the time within which a claim must be presented to the District shall be tolled from the time Contractor submits its written Claim until the time the Claim is denied, including any time utilized by any applicable meet and confer process.

25.7 Claim Resolution pursuant to Public Contract Code section 20104 et seq.

25.7.1 In the event of a disagreement between the parties as to performance of the Work, the interpretation of this Contract, or payment or nonpayment for Work performed or not performed, the parties shall attempt to resolve all claims of three hundred seventy-five thousand dollars (\$375,000) or less which arise between Contractor and District by those procedures set forth in Public Contract Code section 20104, et seq., to the extent applicable.

25.7.1.1 Contractor shall file with the District any written Claim, including the documents necessary to substantiate it, upon the application for final payment.

25.7.1.2 For claims of less than fifty thousand dollars (\$50,000), the District shall respond in writing within forty-five (45) days of receipt of the Claim or may request in writing within thirty (30) days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.7.1.2.1 If additional information is required, it shall be requested and provided by mutual agreement of the parties.

25.7.1.2.2 District's written response to the documented Claim shall be submitted to the Contractor within fifteen (15) days after receipt of the further documentation or within a period of time no greater than that taken by the Contractor to produce the additional information, whichever is greater.

25.7.1.3 For claims of over fifty thousand dollars (\$50,000) and less than or equal to three hundred seventy-five thousand dollars (\$375,000), the District shall respond in writing to all written Claims within sixty (60) days of receipt of the claim, or may request, in writing, within thirty (30) days of receipt of the Claim any additional documentation supporting the Claim or relating to defenses or claims the District may have against the Contractor.

25.7.1.3.1 If additional information is required, it shall be requested and provided upon mutual agreement of the District and the Contractor.

25.7.1.3.2 The District's written response to the Claim, as further documented, shall be submitted to the Contractor within thirty (30) days after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor to produce the additional information or requested documentation, whichever is greater.

25.7.1.4 If Contractor disputes the District's written response, or the District fails to respond within the time prescribed, Contractor may so notify the District, in writing, either within fifteen (15) days of receipt of the District's response or within fifteen (15) days of the District's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the District shall schedule a meet and confer conference within thirty (30) days for settlement of the dispute.

25.7.1.5 Following the meet and confer conference, if the Claim or any portion of it remains in dispute, the Contractor may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions the running of the time within which a claim must be filed shall be tolled from the time the Contractor submits its written Claim until the time the Claim is denied, including any period of time utilized by the meet and confer process.

25.7.1.6 For any civil action filed to resolve claims filed pursuant to this section, within sixty (60) days, but no earlier than thirty (30) days, following the filing of responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within fifteen (15) days by both parties of a disinterested third person as mediator, shall be commenced within thirty (30) days of the submittal, and shall be concluded within fifteen (15) days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

25.7.1.7 If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of the Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of 1986, (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

25.7.1.8 The District shall not fail to pay money as to any portion of a Claim which is undisputed except as otherwise provided in the Contract Documents. In any suit filed pursuant to this section, the District shall pay interest due at the legal rate on any arbitration award or judgment. Interest shall begin to accrue on the date the suit is filed in a court of law.

25.7.2 Contractor shall bind its Subcontractors to the provisions of this Section and will hold the District harmless against disputes by Subcontractors.

25.8 Claim Resolution Non-Applicability

25.8.1 The procedures for dispute and claim resolutions set forth in this Article shall not apply to the following:

25.8.1.1 Personal injury, wrongful death or property damage claims;

25.8.1.2 Latent defect or breach of warranty or guarantee to repair;

25.8.1.3 Stop payment notices;

25.8.1.4 District's rights set forth in the Article on Suspension and Termination;

25.8.1.5 Disputes arising out of labor compliance enforcement by the Department of Industrial Relations; or

25.8.1.6 District rights and obligations as a public entity set forth in applicable statutes; provided, however, that penalties imposed against a public entity by statutes, including, but not limited to, Public Contract Code sections 20104.50 and 7107, shall be subject to the Claim Resolution requirements provided in this Article.

25.9 Attorney's Fees

25.9.1 Should litigation be necessary to enforce any terms or provisions of this Agreement, then each party shall bear its own litigation and collection expenses, witness fees, court costs and attorney's fees.

26. STATE LABOR, WAGE & HOUR, APPRENTICE, AND RELATED PROVISIONS

26.1 Labor Compliance and Enforcement

Since this Project is subject to labor compliance and enforcement by the Department of Industrial Relations ("DIR"), Contractor specifically acknowledges and understands that it shall perform the Work of this Agreement while complying with all the applicable provisions of Division 2, Part 7, Chapter 1, of the Labor Code and Title 8 of the California Code of Regulations, including, without limitation, the requirement that the Contractor and all Subcontractors shall timely furnish complete and accurate electronic certified payroll records directly to the DIR. The District may not issue payment if this requirement is not met.

26.2 Wage Rates, Travel, and Subsistence

26.2.1 Pursuant to the provisions of Article 2 (commencing at section 1770), Chapter 1, Part 7, Division 2, of the Labor Code, the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public work is to be performed for each craft, classification, or type of worker needed to execute this Contract are on file at the District's principal

office and copies will be made available to any interested party on request. Contractor shall obtain and post a copy of these wage rates at the job site.

26.2.2 Holiday and overtime work, when permitted by law, shall be paid for at the general prevailing rate of per diem wages for holiday and overtime work on file with the Director of the Department of Industrial Relations, unless otherwise specified. The holidays upon which those rates shall be paid need not be specified by the District, but shall be all holidays recognized in the applicable collective bargaining agreement. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code.

26.2.3 Contractor shall pay and shall cause to be paid each worker engaged in Work on the Project the general prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations, regardless of any contractual relationship which may be alleged to exist between Contractor or any Subcontractor and such workers.

26.2.4 If during the period this bid is required to remain open, the Director of the Department of Industrial Relations determines that there has been a change in any prevailing rate of per diem wages in the locality in which the Work under the Contract is to be performed, such change shall not alter the wage rates in the Notice to Bidders or the Contract subsequently awarded.

26.2.5 Pursuant to Labor Code section 1775, Contractor shall, as a penalty to District, forfeit the statutory amount (believed by the District to be currently up to two hundred dollars (\$200) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates, determined by the District and/or the Director, for the work or craft in which that worker is employed for any public work done under Contract by Contractor or by any Subcontractor under it. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by Contractor.

26.2.6 Any worker employed to perform Work on the Project, which Work is not covered by any classification listed in the general prevailing wage rate of per diem wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to Work to be performed by him, and such minimum wage rate shall be retroactive to time of initial employment of such person in such classification.

26.2.7 Pursuant to Labor Code section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, subsistence pay, and apprenticeship or other training programs authorized by Labor Code section 3093, and similar purposes.

26.2.8 Contractor shall post at appropriate conspicuous points on the Site of Project, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. In addition, Contractor shall post a sign-in log for all workers and visitors to the Site, a list of all subcontractors of any tier on the Site, and the required Equal Employment Opportunity poster(s).

26.3 Hours of Work

26.3.1 As provided in article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by Contractor or by any Subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract shall be limited and restricted by Contractor to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, Work performed by employees of Contractor in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.

26.3.2 Contractor shall keep and shall cause each Subcontractor to keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by Contractor in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of District and to the Division of Labor Standards Enforcement of the DIR.

26.3.3 Pursuant to Labor Code section 1813, Contractor shall as a penalty to the District forfeit the statutory amount (believed by the District to be currently twenty-five dollars (\$25)) for each worker employed in the execution of this Contract by Contractor or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code.

26.3.4 Any Work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to the District.

26.4 Payroll Records

26.4.1 Contractor shall upload, and shall cause each Subcontractor performing any portion of the Work under this Contract to upload, an accurate and complete certified payroll record ("CPR") electronically using DIR's eCPR System by uploading the CPRs by electronic XML file or entering each record manually using the DIR's iform (or current form) online on a weekly basis and within ten (10) days of any request by the District or Labor Commissioner at <http://www.dir.ca.gov/Public-Works/Certified-Payroll-Reporting.html> or current application and URL, showing the name, address, social security number, work classification, straight-time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Contractor and/or each Subcontractor in connection with the Work.

26.4.1.1 The CPRs enumerated hereunder shall be filed directly with the DIR on a weekly basis or to the requesting party, whether the District or DIR, within ten (10) days after receipt of each written request. The CPRs from the Contractor and each Subcontractor for each week shall be provided on or before Wednesday

of the week following the week covered by the CPRs. District may not make any payment to Contractor until:

26.4.1.1.1 Contractor and/or its Subcontractor(s) provide CPRs acceptable to the DIR; and

26.4.1.1.2 Any delay in Contractor and/or its Subcontractor(s) providing CPRs to the DIR in a timely manner may directly delay Contractor's payment.

26.4.2 All CPRs shall be available for inspection at all reasonable hours at the principal office of Contractor on the following basis:

26.4.2.1 A certified copy of an employee's CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

26.4.2.2 CPRs shall be made available for inspection or furnished upon request to a representative of District, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the DIR.

26.4.2.3 CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through the District, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records, reimburse the costs of preparation by Contractor, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of Contractor.

26.4.3 Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by District, Division of Apprenticeship Standards, or Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of Contractor awarded Contract or performing Contract shall not be marked or obliterated.

26.4.4 Contractor shall inform District of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) working days, provide a notice of change of location and address.

26.4.5 In the event of noncompliance with the requirements of this section, Contractor shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects Contractor must comply with this section. Should noncompliance still be evident after the ten (10) day period, Contractor shall, as a penalty to District, forfeit up to one hundred dollars (\$100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Labor Commissioner, these penalties shall be withheld from progress payments then due.

26.4.6 **[RESERVED]**

26.5 [RESERVED]

26.6 Apprentices

26.6.1 Contractor acknowledges and agrees that, if this Contract involves a dollar amount greater than or a number of working days greater than that specified in Labor Code section 1777.5, then this Contract is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of Contractor to ensure compliance with this Article and with Labor Code section 1777.5 for all apprenticeship occupations.

26.6.2 Apprentices of any crafts or trades may be employed and, when required by Labor Code section 1777.5, shall be employed provided they are properly registered in full compliance with the provisions of the Labor Code.

26.6.3 Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which she/he is registered.

26.6.4 Only apprentices, as defined in section 3077 of the Labor Code, who are in training under apprenticeship standards and written apprentice agreements under chapter 4 (commencing at section 3070), division 3, of the Labor Code, are eligible to be employed. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he/she is training.

26.6.5 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractors employing workers in any apprenticeable craft or trade in performing any Work under this Contract shall apply to the applicable joint apprenticeship committee for a certificate approving the Contractor or Subcontractor under the applicable apprenticeship standards and fixing the ratio of apprentices to journeymen employed in performing the Work.

26.6.6 Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, Contractor and any Subcontractor may be required to make contributions to the apprenticeship program.

26.6.7 If Contractor or Subcontractor willfully fails to comply with Labor Code section 1777.5, then, upon a determination of noncompliance by the Administrator of Apprenticeship, it shall:

26.6.7.1 Be denied the right to bid on any subsequent project for one (1) year from the date of such determination;

26.6.7.2 Forfeit as a penalty to District the full amount as stated in Labor Code section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California Apprenticeship Council and under the authority of the Chief of the Division of Apprenticeship Standards.

26.6.8 Contractor and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.

26.6.9 Contractor shall become fully acquainted with the law regarding apprentices prior to commencement of the Work. Special attention is directed to sections 1777.5, 1777.6, and 1777.7 of the Labor Code, and title 8, California Code of Regulations, section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, 9th floor, San Francisco, California 94102.

26.7 Non-Discrimination

26.7.1 Contractor herein agrees not to discriminate in its recruiting, hiring, promotion, demotion, or termination practices on the basis of race, religious creed, national origin, ancestry, sex, age, or physical handicap in the performance of this Contract and to comply with the provisions of the California Fair Employment and Housing Act as set forth in part 2.8 of division 3 of the California Government Code, commencing at section 12900; the Federal Civil Rights Act of 1964, as set forth in Public Law 88-352, and all amendments thereto; Executive Order 11246; and all administrative rules and regulations found to be applicable to Contractor and Subcontractor.

26.7.2 Special requirements for Federally Assisted Construction Contracts: During the performance of this Contract, Contractor agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Volume 33 No. 104 of the Federal Register dated May 28, 1968.

26.8 Labor First Aid

Contractor shall maintain emergency first aid treatment for Contractor's workers on the Project which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.) and the California Occupational Safety and Health Act of 1973 (Lab. Code, § 6300 et seq.; 8 Cal. Code of Regs., § 330 et seq.).

27. [RESERVED]

28. MISCELLANEOUS

28.1 Assignment of Antitrust Actions

28.1.1 Section 7103.5(b) of the Public Contract Code states:

In entering into a public works contract or subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, which assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

28.1.2 Section 4552 of the Government Code states:

In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the purchasing body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment shall be made and become effective at the time the purchasing body tenders final payment to the bidder.

28.1.3 Section 4553 of the Government Code states:

If an awarding body or public purchasing body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

28.1.4 Section 4554 of the Government Code states:

Upon demand in writing by the assignor, the assignee shall, within one year from such demand, reassign the cause of action assigned under this part if the assignor has been or may have been injured by the violation of law for which the cause of action arose and (a) the assignee has not been injured thereby, or (b) the assignee declines to file a court action for the cause of action.

28.1.5 Under this Article, "public purchasing body" is District and "bidder" is Contractor.

28.2 **Excise Taxes**

If, under Federal Excise Tax Law, any transaction hereunder constitutes a sale on which a Federal Excise Tax is imposed and the sale is exempt from such Federal Excise Tax because it is a sale to a State or Local Government for its exclusive use, District, upon request, will execute documents necessary to show (1) that District is a political subdivision of the State for the purposes of such exemption, and (2) that the sale is for the exclusive use of District. No Federal Excise Tax for such materials shall be included in any Contract Price.

28.3 **Taxes**

Contract Price is to include any and all applicable sales taxes or other taxes that may be due in accordance with section 7051 et seq. of the Revenue and Taxation Code, Regulation 1521 of the State Board of Equalization or any other tax code that may be applicable.

28.4 **Shipments**

All shipments must be F.O.B. destination to Site or sites, as indicated in the Contract Documents. There must be no charge for containers, packing, unpacking, drayage, or

insurance. The total Contract Price shall be all inclusive (including sales tax) and no additional costs of any type will be considered.

28.5 Compliance with Government Reporting Requirements

If this Contract is subject to federal or other governmental reporting requirements because of federal or other governmental financing in whole or in part for the Project of which it is part, or for any other reason, Contactor shall comply with those reporting requirements at the request of the District at no additional cost.

END OF DOCUMENT

PUSD - PREQUALIFIED CONTRACTORS - 2024

Vendor Name	Vendor Type	Type of Work Performed with own forces	Email	ADDRESS	PHONE	License Type	CSLB LICENCE	DIR NUMBER	Bond Capacity
Alta Fence	Specialty Contractor	Fencing	altafence@att.net	P.O. Box 1523, Martinez, CA 94523	925-777-9877 p 925-788-0178 c	C-13	448540	1000012426	\$500K Single/Agg
Alten Construction	General Engineering & Building Contractor	Earthwork, Demolition, Concrete, Framing, Rough Carpentry, Masonry	bids@altenconstruction.com	1141 Marina Way South, Richmond, CA 94804	510-234-4200 p	A, B	705713	1000000530	\$ 250 M Single \$ 500 M Aggregate
Ams.Net, Inc.	Specialty Contractor	Sound and Communications	ordertracking@ams.net	502 Commerce Way, Livermore, CA 94551	925-245-6100 p	C-7	763508	1000001046	\$3 M Single \$65 M Aggregate
Arntz Builders, Inc.	General Engineering & Building Contractor	Demolition, Concrete, Rough & Finish Carpentry	bid@arntzbuilders.com kelsey@arntzbuilders.com	431 Payran St., Petaluma, CA 94952	707-835-2900	A, B	856393	1000003147	\$65 M Single \$120 M Aggregate
Avidex Industries LLC	Specialty Contractor	Low Voltage/ Audio Visual/ Electrical	biddesk@avidex.com	20382 Hermana Circle, Lake Forest, CA 92630-8701	949-428-6333 p	C-7, C-10	981651	1000004292	\$20 M Single \$45 M Aggregate
Balfour Beatty Construction LLC	General Engineering & Building Contractor	Construction Management & Safety	alert@balfourbeattyus.com	400 Capitol Mall, Ste. 900, Sacramento, CA 95814	916-760-0805 p 858-831-8379 c	A, B	979126	1000000529	\$300 M Single \$5.5 B Aggregate
Bay Cities Fire Protection, Inc.	Specialty Contractor	Fire Protection	bcbp@sbcglobal.net	51 Foley St., Santa Rosa, CA 95401	707-579-8694 p 707-495-5869 m	B, C16	731222	1000045613	\$1 M Single \$2 M Aggregate
Bay City Mechanical Inc	Specialty Contractor	Mechanical, HVAC, Sheet Metal, Plumbing	sarahi@baycitymech.com	870 Harbor Way South, Richmond, CA. 94804	510-233-7000 p 510-374-0525 m	B, C-4, C-20, C-36, C-43	645126	1000007529	\$30 M Single \$100 M Aggregate
Beals Martin, Inc.	General Engineering & Building Contractor	General Construction & Site Work	bids@bealsmartin.com	2596 Bay Road, Redwood City, CA 945063	650-364-8141 p 650-367-7645 f	A, B	396189	1000000570	\$20 M Single \$40 M Aggregate
Bel Air Mechanical, Inc.	General Building & Specialty Contractor	HVAC, Sheet Metal	bruce@belairmechanical.com	4100 Alhambra Ave., #2680 Martinez, CA 94553	925-609-9655 p 925-719-0444 m	B, C4, C10, C20, C36, C38, C43	844161	1000005475	\$3 M Single \$6 M Aggregate
Bell Products, Inc.	General Engineering, Building & Specialty Contractor	Mechanical, HVAC, Sheet Metal, Plumbing	gmasolo@bellproducts.com	722 Soscol (Mailing P.O. Box 396), Napa, CA 94559	707-255-1811 p 707-732-0205 m	A, B, C-4, C20, C36, C43	171534	1000000656	\$4 M Single \$18 M Aggregate
Best Contracting Services, Inc.	General Engineering, Building & Specialty Contractor	Roofing, Waterproofing, Sheet Metal, Glazing, Wall Panels	estimating@bestcontracting.com	19027 S. Hamilton Avenue, Gardena, CA 90248	310-328-6969 p	A, B, C17, C39, C43	456263	1000000563	\$50 M Single \$200 M Aggregate
BHM Construction Inc.	General Engineering & Building Contractor	General Building	bids@bhmconstruction.com	221 Gateway Road W, Ste. 405, Napa, CA 94558	707-643-4580 p 707-643-4580 m	A, B	900404	1000000064	\$150 M Single \$300 M Aggregate
Bockmon & Woody Electric Co. Inc.	Specialty Contractor	General Electrical, High Voltage, Solar	arlene@bockmonwoody.com	1528 El Pinal Drive Stockton, CA. 95205	209-464-4878 p	A & C10	588308	1000002789	\$5 M Single \$45 M Aggregate
BuildCorp, Inc.	General Building Contractor	General Construction	buildcorpinc@gmail.com	236 West Portal Ave., #787, San Francisco, CA 94127	415-349-1676	B	1066717	1000652541	\$2 M Single \$3 M Aggregate
Chapman Coast Roof Co., Inc.	Specialty Contractor	Roofing	emily@chapmancoastroof.com	2030 East Walnut Ave., Fullerton, CA 92831	714-738-6611 p/m	C39	927546	1000002150	\$4 M Single \$8 M Aggregate
Con J Franke Electric, Inc.	Specialty Contractor	Electrical	lori.smith@cfranke.com	317 N. Grant St., Stockton, CA 95202	209-462-0717 p	C10	288366	1000000355	\$35 M Single \$70 M Aggregate
CWS Construction Group, Inc.	General Engineering & Building Contractor	General Building and General Engineering	bidsaws@gmail.com	1301 Grant Ave B, Novato, CA 94945	415-209-0229 p	A, B	811153	1000020287	\$30 M Single \$75 M Aggregate
DDK Mechanical, Inc.	General Building & Specialty Contractor	HVAC, Sheet Metal, Plumbing	office3ddk@sbcglobal.net	5761 Florin Perkins Rd., #9, Sacramento, CA 95828	916-383-5190	B, C20, C36, C43	855723	1000002411	\$12 M Single \$20 M Aggregate
Del Monte Electric	Specialty Contractor	General Electrical	smullins@delmonteelectric.com	6998 Sierra Court Dublin, CA 94568	925-829-6000 925-577-3552m	C10	161955	1000000268	\$20 M Single \$40 M Aggregate
Dinelli Plumbing Incorporated	Specialty Contractor	General Plumbing	ginadinelli@dinelliplumbing.com	1160 Chess Drive, Suite 5, Foster City, CA 94404	650-372-9456	C36	801472	1000000999	\$7.5 M Single \$15 M Aggregate
Dowdle & Sons Mechanical Inc.	General Engineering, Building & Specialty	Mechanical, HVAC, Plumbing	lisa@dowdleandsonsmech.com	100 Tower Road, American Canyon, CA 94503	707-224-6968	A, B, C-4, C-20, C36	542743	1000000606	\$15 M Single \$25 M Aggregate
Dryco Construction, Inc.	Asphalt, Concrete, Seal Coat, Striping, Tennis	General Engineering and Specialty Contractor	tomasinaf@dryco.com	42745 Boscell Rd., Fremont, CA 94538	510-438-6500 p 510-719-6573 m	A, & C-13	540379	1000003241	\$4 M Single \$25 M Aggregate
Du-Mor Fire Systems Inc.	Specialty Contractor	Design, Install, Inspections, Repairs of Fire Sprinkler Systems	monya@jumorfiresystems.com	17119 Placer Hills Rd., Meadow Vista CA 95722	530-878-9055 p	C-16	722228	1000000203	\$1.5 M Single \$4 M Aggregate
E. F. Brett & Company, Inc.	General Engineering & Building Contractor	Sewer, Carpentry, General Labor, Concrete, Misc. Specialities	estimator@efbrett.com	1435 Technology Lane, Suite B1, Petaluma, CA	415-524-8351 p	A, B	924636	1000000490	\$25 M Single \$40 M Aggregate
Fertado Heating & Air, Inc.	Specialty Contractor	HVAC, Architectural Sheet Metal	courtney@fertadoheatandair.com	2504 Verne Roberts Circle #101, Antioch CA	925-754-2730 p 925-584-4682 m	C-20, C-43	792474	1000016505	\$4 M Single \$8 M Aggregate

PUSD - PREQUALIFIED CONTRACTORS - 2024

Vendor Name	Vendor Type	Type of Work Performed with own forces	Email	ADDRESS	PHONE	License Type	CSLB LICENCE	DIR NUMBER	Bond Capacity
F&H Construction	General Contractor	Concrete, Rough & Finish Carpentry	mhorton@f-hconstr.com	1115 E. Lockeford St., Lodi, CA 95240	209-931-3738 p	A, B	293306	1000002431	\$75 M Single \$140 M Aggregate
Flint Builders Inc.	General Engineering & Building Contractor	General Carpentry, Doors, Frames & Hardware	rtognetti@flintbuilders.com	52 S. First St., Unit 320, San Jose, CA 95113	916-757-1000 p 916-825-4682 m	A, B, C-17	1085096	1000991526	\$250 M Single \$400 M Aggregate
Hydra Ventures, Inc. dba Cal Pacific Systems	General Engineering, Building & Specialty Contractor	Site Utilities, HVAC, Hydronic Systems, Plumbing	christina.gee@calpacificsystems.com	50 Cypress Lane, Brisbane, CA 94005	415-252-8600	A, B, C20, C36	924244	1000004768	\$3 M Single \$12 M Aggregate
JL Construction, Inc.	General Contractor	Modular Buildings, Concrete, Rough & Finish Carpentry	barbaral@jlcbuild.com	70 Stony Point Road, Suite D, Santa Rosa, CA 95401	707-527-5788 p 707-327-7799 m	B	761270	1000005631	\$100 M Single \$200M Aggregate
JLM Modular, Inc.	Modular Bldgs.	Modular Buildings, Concrete, Rough & Finish Carpentry	barbaral@jlcbuild.com	70 Stony Point Road, Suite D, Santa Rosa, CA 95401	707-527-5788 p 707-542-7718 m	B	835496	1000005628	\$100M Single \$200M Aggregate
Joe's Landscaping & Concrete, Inc.	General Building & Specialty Contractor	Commercial/Residential Landscape	joe@joesic.com janet@joesic.com	802 Inyo Ave., Newman, CA 95360	209-862-2004 p	C27, C8, C61, D49, C13, B, C21	853867	1000047632	\$3.5 M Single \$5 M Aggregate
Kerex Engineering	General Engineering Contractor	Construction	hector@kerexengineering.com	PO Box 23831, Pleasant Hill, CA 94523	925-387-8913 p 925-457-7165 m	A	1002913	1000033698	\$3 M Single \$8 M Aggregate
Landmark Constructors, Inc.	General Contractor	General Building	frontdesk@landmarkconst.net	4312 Anthony Ct., Suite B, Rocklin, CA 95677	916-663-1953 p	B	1040270	1000731602	\$60 M Single \$100 M Aggregate
Lathrop Construction Associates Inc.	General Engineering & Building Contractor	Carpentry, Concrete Foundations, Specialties	aed@lathropconstruction.com	4001 Park Rd. Benicia, CA 94510	707-746-8000	A, B	415981	1000000043	\$250 M Single \$500 M Aggregate
MBC Enterprises, Inc.	General Building Contractor	General Construction	admin@mbcenterprises.net	8631 Universe Avenue, Westminster, CA 92683	714-709-6565 m	A, B	1050671	1000064318	\$2.5 M Single \$5 M Aggregate
MBS Engineering, Inc.	General Engineering & Specialty Contractor	General Building and Asphalt, Trenching, Seismic shut-off	dan@mbsengineering.net	12855 Alcosta Blvd., San Ramon, CA 94583	925-334-7200 p 925-989-9936 m	A, C36	990872	1000003509	\$2.5 M Single \$5 M Aggregate
McGuire & Hester	General Engineering, Building & Specialty Contractor	Grading, Paving, Concrete, Underground & Landscaping	estimating@mcguireandhester.com	2810 Harbor Bay Parkway, Alameda CA 94502	510-632-7676	A, B, C21, C27, C31, HAZ	95879	1000000033	\$150 M Single \$300 M Aggregate
NetXperts, Inc.	Specialty Contractor	Cisco Systems Hardware/Software, Low Voltage	sales@netxperts.com	1777 Botelho Drive, Suite 102, Walnut Creek, CA 94596	925-806-0800	C-7, C10	1099498	1000003207	\$ 3 M Single \$5 M Aggregate
Pacific Coast General Engineering	General Engineering & Specialty Contractor	Grading, Paving, Underground Concrete, Hazardous Materials Removal	derrick@pcge.biz	12 Industry Road Pittsburg CA,94565	925-252-0214 p	A, HAZ	894723	1000003642	\$5 M Single \$15 M Aggregate
Pacific Metro Electric	General Building & Specialty Contractor	General Electrical	nina@pacificmetroelectric.com	3150 E. Fremont Street Stockton, CA 95205	209-939-3222	B, C10	701614	1000000586	\$5 M Single \$9 M Aggregate
Pacific Power & Systems, Inc.	Specialty Contractor	Electrical, Low Voltage	bethp@norleegroup.com	4970 Peabody Rd., Fairfield, CA 94533	904-345-4529 p	C10	458315	1000000158	\$5 M Single \$50 M Aggregate
Peterson Mechanical, Inc.	General Building & Specialty Contractor	Plumbing, HVAC	zachb@petersonmechanical.com	21819 8th St. E, Sonoma, CA 95476	707-938-8481 p	B, C4, C16, C20, C34, C36, C38, C42, C43	171486	1000000667	\$38 M Single \$50 M Aggregate
Pinguelo Const., Inc.	General Building & Specialty Contractor	General Construction & Glazing	pingueloconstruction@yahoo.com	2288 Rockville Road, STE B Fairfield, CA 94534	OFC 707-864-3003 CELL 707-580-6644	B, C-17	610938	1000002874	\$4 M Single \$6 M Aggregate
Presidential Fire Protection, Inc.	Specialty Contractor	Fire Protection	fabian@presidentialfireprotection.com	4517 Harlin Dr. Sacramento, CA 95826	916-379-9199	C-16	847133	1000003447	\$4 M Single \$6 M Aggregate
Rodan Builders, Inc.	Carpentry, Demolition, Underground Utilities, Drywal	Carpentry, Demolition, Underground Utilities, Drywal	lpuckett@rodanbuilders.com	3486 Investment Blvd., Suite B, Hayward, CA 94545	650-508-1700 650-863-9240	A, B, C-13, C-21	858119	1000003240	\$200 M Single \$300 M Aggregate
Russell Sigler, Inc.	Specialty Contractor	HVAC	jmyers@siglers.com	205 South Puente Street, Brea, CA 92821	714-421-2455 m	C-20	960159	1000005440	\$5 M Single \$7 M Aggregate
Saboo Inc.	General Building & Specialty Contractor	Underground, Electrical, Plumbing, HVAC, Glazing & Concrete	toheed@sabooinc.com	415 Beatrice Court, Ste. H, Brentwood, CA 94513	925-588-6352 t 626-260-2849 m	A, B, C-10, C-20, C-17, C-36	896479	1000020822	\$8 M Single \$15 M Aggregate
Sausal Corporation	General Contractor	General Construction	tsingley@sausal.net	3550 Willow Pass Road, Concord, CA 94519	925-568-2200 p	B	281425	1000001877	\$80 M Single \$120 M Aggregate
Smith & Sons Electric Inc.	Specialty Contractor	General Electrical	charleen@smithandsonselectric.com	44255 Old Warm Springs Blvd., Fremont CA 94538	510-651-4994 p	C10	437138	1000000480	\$8 M Single \$20 M Aggregate
Southern Bleacher Co., Inc.	General Engineering Contractor	General Engineering, Bleachers	herndon@southernbleacher.com	801 5th St., Graham, TX 76450	940-549-0733 p	A	564497	1000001223	\$2.5 M Single \$80 M Aggregate

PUSD - PREQUALIFIED CONTRACTORS - 2024

Vendor Name	Vendor Type	Type of Work Performed with own forces	Email	ADDRESS	PHONE	License Type	CSLB LICENCE	DIR NUMBER	Bond Capacity
Stronger Building Services	General Building & Specialty Contractor	Roofing & General Contracting	strongerbldg@yahoo.com	580 Harlan St., San Leandro, CA 94577	510-487-8363	B, C-39	955618	1000002136	\$6 M Single \$15 M Aggregate
Thompson Builders Corporation	General Engineering, Building and Specialty Contractor	Rough Carpentry, Concrete	taylorh@tbcorp.com	5400 Hanna Ranch Road, Novato CA 94945	415-456-8972 p	A, B, C17	626859	1000000633	\$85 M Single \$250 M Aggregate
Veregy Pacific, LLC	General Building & Specialty Contractor	HVAC, General Construction	cscamihorn@veregy.com	3090 Bristol St., Suite 400, Costa Mesa, CA 92614	626-210-9990 p	B, C20	1023083	1000053722	\$125 M Single \$300 M Aggregate
Wickman Development & Construction	General Engineering and Building Contractor	Rough Carpentry, Concrete	estimating@wickmandev.com	550 W Grand Ave., Oakland, CA 94612	415-239-4500 p	A & B	970768	1000002945	\$100 M Single \$150 M Aggregate

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Access Conditions and Requirements;
- B. Special Conditions.

1.02 SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of this Contract consists of the following:

Complete replacement of the existing Stadium Parking Lot paving, including furnishing & installing lighting, chain link fencing, and landscaping.

1.03 CONTRACTS

- A. Perform the Work under a single, fixed-price Contract.

1.04 WORK BY OTHERS

NOT USED

1.05 CODES, REGULATIONS, AND STANDARDS

- A. The codes, regulations, and standards adopted by the state and federal agencies having jurisdiction shall govern minimum requirements for this Project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the District and the Architect.
- B. Codes, regulations, and standards shall be as published effective as of date of bid opening, unless otherwise specified or indicated.

1.06 PROJECT RECORD DOCUMENTS

- A. Contractor shall maintain on Site one set of the following record documents; Contractor shall record actual revisions to the Work:
 - (1) Contract Drawings.
 - (2) Specifications.

- (3) Addenda.
 - (4) Change Orders and other modifications to the Contract.
 - (5) Reviewed shop drawings, product data, and samples.
 - (6) Field test records.
 - (7) Inspection certificates.
 - (8) Manufacturer's certificates.
- B. Contractor shall store Record Documents separate from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.
 - C. Contractor shall record information concurrent with construction progress.
 - D. Specifications: Contractor shall legibly mark and record at each product section of the Specifications the description of the actual product(s) installed, including the following:
 - (1) Manufacturer's name and product model and number.
 - (2) Product substitutions or alternates utilized.
 - (3) Changes made by Addenda and Change Orders and written directives.

1.07 EXAMINATION OF EXISTING CONDITIONS

- A. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets or roads approaching the Site.
- B. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.
- C. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the District and the Architect.

1.08 CONTRACTOR'S USE OF PREMISES

- A. If unoccupied and only with District's prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the District chooses to beneficially occupy any building(s), Contractor must obtain the District's written approval for Contractor's use of spaces and types of

operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.

- B. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor.
- C. Contractor shall not interfere with use of or access to occupied portions of the building(s) or adjacent property.
- D. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.
- E. No one other than those directly involved in the demolition and construction, or specifically designated by the District or the Architect shall be permitted in the areas of work during demolition and construction activities.
- F. The Contractor shall install the construction fence and maintain that it will be locked when not in use. Keys to this fencing will be provided to the District.

1.09 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing installations, the costs of repair shall be at the Contractor's expense and made to the District's satisfaction.
- B. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the District for disposition of same as indicated in the General Conditions.

1.10 UTILITY SHUTDOWNS AND INTERRUPTIONS

- A. Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. The District will set exact time and duration for shutdown, and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.
- B. Contractor shall obtain District's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with District's use of the building(s) or adjacent facilities.

1.11 STRUCTURAL INTEGRITY

- A. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.
- B. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

ALTERNATES AND UNIT PRICING

PART 1 – ALTERNATES

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions;
- C. Bid Form and Proposal;
- D. Instruction to Bidders.

1.02 DESCRIPTION

The items of work indicated below propose modifications to, substitutions for, additions to and/or deletions from the various parts of the Work specified in other Sections of the Specifications. The acceptance or rejection of any of the alternates is strictly at the option of the District subject to District's acceptance of Contractor's stated prices contained in this Proposal.

1.03 GENERAL

Where an item is omitted, or scope of Work is decreased, all Work pertaining to the item whether specifically stated or not, shall be omitted and where an item is added or modified or where scope of Work is increased, all Work pertaining to that required to render same ready for use on the Project in accordance with intention of Drawings and Specifications shall be included in an agreed upon price amount.

1.04 BASE BID

The Base Bid includes all work required to construct the Project completely and in accordance with the Contract Documents.

1.05 ALTERNATES

NOT USED

PART 2 - UNIT PRICING

NOT USED

END OF DOCUMENT

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. Instructions to Bidders;
- B. General Conditions, including, without limitation, Substitutions For Specified Items; and
- C. Special Conditions.

1.02 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

- A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.
- B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the District and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.
- C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions. The District's Board has found and determined that certain item(s) shall be used on this Project based on the purpose(s) indicated pursuant to Public Contract Code section 3400(c). These findings, as well as the products and brand or trade names, have been identified in the Notice to Bidders.
- D. The Contractor will not be allowed to substitute specified items unless the request for substitution is submitted as follows:
 - (1) District must receive any notice of request for substitution of a specified item a minimum of ten (10) calendar days prior to bid opening.

- (2) Within thirty five (35) days after the date of the Notice of Award, the Contractor shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the technical Specifications. Insufficient information shall be grounds for rejection of substitution.
- E. If the District and/or Architect, in reviewing proposed substitute materials and equipment, require revisions or corrections to be made to previously accepted Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the District and/or Architect to be unacceptable, the specified material or equipment shall be provided.
- F. Samples may be required. Tests required by the District and/or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the District.
- G. In reviewing the supporting data submitted for substitutions, the District and/or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the District will deduct the costs from the Contract Price. The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute.
- H. The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.
- I. In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

DOCUMENT 01 26 00

CHANGES IN THE WORK

CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS IN THE AGREEMENT, GENERAL CONDITIONS, AND SPECIAL CONDITIONS, IF USED, RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES.

END OF DOCUMENT

DOCUMENT 01 29 00

**APPLICATION FOR PAYMENT AND
CONDITIONAL AND UNCONDITIONAL WAIVER AND RELEASE FORMS**

**CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS IN THE GENERAL
CONDITIONS RELATED TO APPLICATIONS FOR PAYMENT AND/OR PAYMENTS.**

**CONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8132)**

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: \$_____

Check Payable to: _____

Exceptions

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release: _____

Amount(s) of unpaid progress payment(s): \$_____

PITTSBURG UNIFIED SCHOOL DISTRICT
Pittsburg HS – Stadium Parking Lot
Replacement Project

**APPLICATION FOR PAYMENT AND
CONDITIONAL AND UNCONDITIONAL
WAIVER AND RELEASE FORMS
DOCUMENT 01 29 00-2**

- (4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

**UNCONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8134)**

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: \$_____

Exceptions

This document does not affect any of the following:

- (1) Retentions.
- (2) Extras for which the claimant has not received payment.
- (3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

**CONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT**
(CIVIL CODE SECTION 8136)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:

Amount of Check: \$_____

Check Payable to: _____

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: \$_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

**UNCONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT**
(CIVIL CODE SECTION 8138)

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: \$_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

PROJECT MEETINGS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions; and
- B. Special Conditions.

1.02 PROGRESS MEETINGS:

- A. Contractor shall schedule and hold regular weekly progress meetings after a minimum of one week's prior written notice of the meeting date and time to all Invitees as indicated below.
- B. Location: Contractor's field office.
- C. The Contractor shall notify and invite the following entities ("Invitees"):
 - (1) District Representative.
 - (2) Contractor.
 - (3) Contractor's Project Manager.
 - (4) Contractor's Superintendent.
 - (5) Subcontractors, as appropriate to the agenda of the meeting.
 - (6) Suppliers, as appropriate to the agenda of the meeting.
 - (7) Architect
 - (8) Engineer(s), if any and as appropriate to the agenda of the meeting.
 - (9) Others, as appropriate to the agenda of the meeting.
- D. The District's and/or the Architect's Consultants will attend at their discretion, in response to the agenda.
- E. The District representative, the Construction Manager, and/or another District Agent shall take and distribute meeting notes to attendees and other concerned parties. If exceptions are taken to anything in the meeting notes, those exceptions shall be stated in writing to the District within five (5) working days following District's distribution of the meeting notes.

1.03 PRE-INSTALLATION/PERFORMANCE MEETING:

- A. Contractor shall schedule a meeting prior to the start of each of the following portions of the Work:

- 1. New Handrails & Guardrails

Contractor shall invite all parties to these meetings, and others whose work may affect, or be affected by, the quality of any one of these work items.

- B. Contractor shall review in detail prior to this meeting, the manufacturer's requirements and specifications, applicable portions of the Contract Documents, Shop Drawings, and other submittals, and other related work. At this meeting, invitees shall review and resolve conflicts, incompatibilities, or inadequacies discovered or anticipated.
- C. Contractor shall review in detail Project conditions, schedule, requirements for performance, application, installation, and quality of completed Work, and protection of adjacent Work and property.
- D. Contractor shall review in detail means of protecting the completed Work during the remainder of the construction period.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

SCHEDULING OF WORK

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions;
- C. Summary of Work; and
- D. Submittals.

1.02 SECTION INCLUDES

- A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section.
 - (1) Development of schedule, cost and resource loading of the schedule, monthly payment requests, and project status reporting requirements of the Contract shall employ computerized Critical Path Method ("CPM") scheduling ("CPM Schedule").
 - (2) CPM Schedule shall be cost loaded based on Schedule of Values as approved by District.
 - (3) Submit schedules and reports as specified in the General Conditions.
- B. Upon Award of Contract, Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM Schedule submittal requirements.

1.03 CONSTRUCTION SCHEDULE

- A. Within ten (10) days of being awarded the Contract and before request for first progress payment, the Contractor shall prepare and submit to the Project Manager a construction progress schedule conforming to the Milestone Schedule below.
- B. The Construction Schedule shall be continuously updated, and an updated schedule shall be submitted with each application for progress payment. Each revised schedule shall indicate the work actually accomplished during the previous period and the schedule for completion of the remaining work.

C. Milestone Schedule:

ACTIVITY DESCRIPTION

REQUIRED DATES

ON-SITE CONSTRUCTION STARTS:

May 13, 2024

ON-SITE CONSTRUCTION COMPLETION:

July 12, 2024

FINAL PROJECT COMPLETION:

August 16, 2024

1.04 QUALIFICATIONS

- A. Contractor shall employ experienced scheduling personnel qualified to use the latest version of [i.e., Primavera Project Planner]. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose.
- (1) The written statement shall identify the individual who will perform CPM scheduling.
 - (2) Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.
 - (3) Required level of experience shall include at least two (2) projects of similar nature and scope with value not less than three fourths ($\frac{3}{4}$) of the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.
- B. District reserves the right to approve or reject Contractor's scheduler or consultant at any time. District reserves the right to refuse replacing of Contractor's scheduler or consultant, if District believes replacement will negatively affect the scheduling of Work under this Contract.

1.05 GENERAL

- A. Progress Schedule shall be based on and incorporate milestone and completion dates specified in Contract Documents.
- B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in the Contract, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by District. Any such agreement shall be formalized by a Change Order.
- (1) District is not required to accept an early completion schedule, i.e., one that shows an earlier completion date than the Contract Time.
 - (2) Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier completion schedule and Contractor completes its Work, for whatever reason, beyond completion date shown in its early completion schedule but within the Contract Time.

- (3) A schedule showing the work completed in less than the Contract Time, and that has been accepted by District, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the work and the Completion Date. Project Float is a resource available to both District and the Contractor.
- C. Ownership Project Float: Neither the District nor Contractor owns Project Float. The Project owns the Project Float. As such, liability for delay of the Completion Date rests with the party whose actions, last in time, actually cause delay to the Completion Date.
 - (1) For example, if Party A uses some, but not all of the Project Float and Party B later uses remainder of the Project Float as well as additional time beyond the Project Float, Party B shall be liable for the time that represents a delay to the Completion Date.
 - (2) Party A would not be responsible for the time since it did not consume the entire Project Float and additional Project Float remained; therefore, the Completion Date was unaffected by Party A.
- D. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract CPM Schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor.
- E. Failure of Progress Schedule to include any element of the Work, or any inaccuracy in Progress Schedule, will not relieve Contractor from responsibility for accomplishing the Work in accordance with the Contract. District's acceptance of schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests and shall not, in any manner, impose a duty of care upon District, or act to relieve Contractor of its responsibility for means and methods of construction.
- F. Software: Use **Primavera P6 Scheduling** software. Such software shall be compatible with Windows operating system. Contractor shall transmit contract file to District on compact disk at times requested by District.
- G. Transmit each item under the form approved by District.
 - (1) Identify Project with District Contract number and name of Contractor.
 - (2) Provide space for Contractor's approval stamp and District's review stamps.
 - (3) Submittals received from sources other than Contractor will be returned to the Contractor without District's review.

1.06 INITIAL CPM SCHEDULE

- A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to ninety (90) calendar days after the Notice to Proceed.

- B. Indicate detailed plan for the Work to be completed in first ninety (90) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; procurement of materials and equipment. Show Work beyond ninety (90) calendar days in summary form.
- C. Initial CPM Schedule shall be time scaled.
- D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed ninety (90) calendar days.
- E. District and Contractor shall meet to review and discuss the Initial CPM Schedule within seven (7) calendar days after it has been submitted to District.
 - (1) District's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).
 - (2) Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by District. Contractor shall resubmit Initial CPM Schedule if requested by District.
- F. If, during the first ninety (90) days after Notice to Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall submit to District a written Time Impact Evaluation ("TIE") in accordance with Article 1.12 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

1.07 ORIGINAL CPM SCHEDULE

- A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work in conformance with requirements as specified herein.
- B. Progress Schedule shall include or comply with following requirements:
 - (1) Time scaled, cost and resource (labor and major equipment) loaded CPM schedule.
 - (2) No activity on schedule shall have duration longer than fifteen (15) work days, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by District.
 - (a) Activity durations shall be total number of actual work days required to perform that activity.
 - (3) The start and completion dates of all items of Work, their major components, and milestone completion dates, if any.

- (4) District furnished materials and equipment, if any, identified as separate activities.
- (5) Activities for maintaining Project Record Documents.
- (6) Dependencies (or relationships) between activities.
- (7) Processing/approval of submittals and shop drawings for all material and equipment required per the Contract. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.
 - (a) Include time for submittals, re-submittals and reviews by District. Coordinate with accepted schedule for submission of Shop Drawings, samples, and other submittals.
 - (b) Contractor shall be responsible for all impacts resulting from re-submittal of Shop Drawings and submittals.
- (8) Procurement of major equipment, through receipt and inspection at jobsite, identified as separate activity.
 - (a) Include time for fabrication and delivery of manufactured products for the Work.
 - (b) Show dependencies between procurement and construction.
- (9) Activity description; what Work is to be accomplished and where.
- (10) The total cost of performing each activity shall be total of labor, material, and equipment, excluding overhead and profit of Contractor. Overhead and profit of the General Contractor shall be shown as a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.
- (11) Resources required (labor and major equipment) to perform each activity.
- (12) Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.
- (13) Identify the activities which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to (10) days.
- (14) Twenty (20) workdays for developing punch list(s), completion of punch-list items, and final cleanup for the Work or any designated portion thereof. No other activities shall be scheduled during this period.

- (15) Interface with the work of other contractors, District, and agencies such as, but not limited to, utility companies.
- (16) Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.
 - (a) Also furnish for each Subcontractor, as determined by District, submitted on Subcontractor letterhead, a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.
 - (b) Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.
 - (c) In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical, and plumbing Subcontractors, and other Subcontractors as required by District, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.
 - (d) Furnish schedule for Contractor/Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to District. District shall be permitted to attend scheduled meetings as an observer.
- (17) Activity durations shall be in Work days.
- (18) Submit with the schedule a list of anticipated non-Work days, such as weekends and holidays. The Progress Schedule shall exclude in its Work day calendar all non-Work days on which Contractor anticipates critical Work will not be performed.
- C. Original CPM Schedule Review Meeting: Contractor shall, within sixty (60) days from the Notice to Proceed date, meet with District to review the Original CPM Schedule submittal.
 - (1) Contractor shall have its Project Manager, Project Superintendent, Project Scheduler, and key Subcontractor representatives, as required by District, in attendance. The meeting will take place over a continuous one (1) day period.
 - (2) District's review will be limited to submittal's conformance to Contract requirements including, but not limited to, coordination requirements. However, review may also include:
 - (a) Clarifications of Contract Requirements.
 - (b) Directions to include activities and information missing from submittal.

- (c) Requests to Contractor to clarify its schedule.
- (3) Within five (5) days of the Schedule Review Meeting, Contractor shall respond in writing to all questions and comments expressed by District at the Meeting.

1.08 ADJUSTMENTS TO CPM SCHEDULE

- A. Adjustments to Original CPM Schedule: Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for District's review.
 - (1) District, within ten (10) days from date that Contractor submitted the revised schedule, will either:
 - (a) Accept schedule and cost and resource loaded activities as submitted, or
 - (b) Advise Contractor in writing to review any part or parts of schedule which either do not meet Contract requirements or are unsatisfactory for District to monitor Project's progress, resources, and status or evaluate monthly payment request by Contractor.
 - (2) District may accept schedule with conditions that the first monthly CPM Schedule update be revised to correct deficiencies identified.
 - (3) When schedule is accepted, it shall be considered the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.
 - (4) District reserves right to require Contractor to adjust, add to, or clarify any portion of schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.
- B. Acceptance of Contractor's schedule by District will be based solely upon schedule's compliance with Contract requirements.
 - (1) By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.
 - (2) Upon submittal of schedule update, updated schedule shall be considered "current" CPM Schedule.
 - (3) Submission of Contractor's schedule to District shall not relieve Contractor of total responsibility for scheduling, sequencing, and

pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed Work.

- C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.
- D. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to Contractor and transmitted to District for the record.

1.09 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

- A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.
 - (1) Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.
 - (2) Each update shall continue to show all Work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.
- B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.
 - (1) At this meeting, at a minimum, the following items will be reviewed: Percent (%) complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.
 - (2) These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.
 - (3) Contractor shall plan on the meeting taking no less than four (4) hours.
- C. Within five (5) working days after monthly schedule update meeting, Contractor shall submit the updated CPM Schedule update.
- D. Within five (5) work days of receipt of above noted revised submittals, District will either accept or reject monthly schedule update submittal.
 - (1) If accepted, percent (%) complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule

update shall be submitted as part of the Contractor's Application for Payment.

- (2) If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.
- E. Neither updating, changing or revising of any report, curve, schedule, or narrative submitted to District by Contractor under this Contract, nor District's review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending or modifying in any way the Completion Date or milestone dates or of modifying or limiting in any way Contractor's obligations under this Contract.

1.10 SCHEDULE REVISIONS

- A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.
- B. To reflect revisions to the Schedule, the Contractor shall provide District with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.
- C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District. District may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide District with a complete written narrative response to District's request.
- D. If the Contractor's revision is still not accepted by District, and the Contractor disagrees with District's position, the Contractor has seven (7) calendar days from receipt of District's letter rejecting the revision to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of District's written rejection of a schedule revision shall be contractually interpreted as acceptance of District's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding District's position.
- E. At District's discretion, the Contractor can be required to provide Subcontractor certifications of performance regarding proposed schedule revisions affecting said Subcontractors.

1.11 RECOVERY SCHEDULE

- A. If the Schedule Update shows a completion date twenty-one (21) calendar days beyond the Contract Completion Date, or individual milestone completion dates, the Contractor shall submit to District the proposed revisions to recover the lost time within seven (7) calendar days. As part of

this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.

- B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District.
- C. If the Contractor's revisions are not accepted by District, District and the Contractor shall follow the procedures in paragraph 1.09.C, 1.09.D and 1.09.E above.
- D. At District's discretion, the Contractor can be required to provide Subcontractor certifications for revisions affecting said Subcontractors.

1.12 TIME IMPACT EVALUATION ("TIE") FOR CHANGE ORDERS, AND OTHER DELAYS

- A. When Contractor is directed to proceed with changed Work, the Contractor shall prepare and submit within fourteen (14) calendar days from the Notice to Proceed a TIE which includes both a written narrative and a schedule diagram depicting how the changed Work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed Work in the schedule and how it impacts the current schedule-update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable District to evaluate the impact of changed Work to the scheduled critical path.
- B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.
- C. Contractor shall be responsible for all costs associated with the preparation of TIEs, and the process of incorporating them into the current schedule update. The Contractor shall provide District with four (4) copies of each TIE.
- D. Once agreement has been reached on a TIE, the Contract Time will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Time may be extended in an amount District allows, and the Contractor may submit a claim for additional time claimed by contractor.

1.13 TIME EXTENSIONS

- A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with the General Conditions.
- B. Where an event for which District is responsible impacts the projected Completion Date, the Contractor shall provide a written mitigation plan,

including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment, and material the Contractor would expend to mitigate District-caused time impact. The Contractor shall submit its mitigation plan to District within fourteen (14) calendar days from the date of discovery of the impact. The Contractor is responsible for the cost to prepare the mitigation plan.

- C. Failure to request time, provide TIE, or provide the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.
- D. No time will be granted under this Contract for cumulative effect of changes.
- E. District will not be obligated to consider any time extension request unless the Contractor complies with the requirements of Contract Documents.
- F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.
- G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

1.14 SCHEDULE REPORTS

- A. Submit four (4) copies of the following reports with the Initial CPM Schedule, the Original CPM Schedule, and each monthly update.
- B. Required Reports:
 - (1) Two activity listing reports: one sorted by activity number and one by total Project Float. These reports shall also include each activity's early/late and actual start and finish dates, original and remaining duration, Project Float, responsibility code, and the logic relationship of activities.
 - (2) Cost report sorted by activity number including each activity's associated cost, percentage of Work accomplished, earned value- to date, previous payments, and amount earned for current update period.
 - (3) Schedule plots presenting time-scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.
 - (4) Cash flow report calculated by early start, late start, and indicating actual progress. Provide an exhibit depicting this information in graphic form.
 - (5) Planned versus actual resource (i.e., labor) histogram calculated by early start and late start.

C. Other Reports:

In addition to above reports, District may request, from month to month, any two of the following reports. Submit four (4) copies of all reports.

- (1) Activities by early start.
- (2) Activities by late start.
- (3) Activities grouped by Subcontractors or selected trades.
- (4) Activities with scheduled early start dates in a given time frame, such as fifteen (15) or thirty (30) day outlook.

D. Furnish District with report files on compact disks containing all schedule files for each report generated.

1.15 PROJECT STATUS REPORTING

- A. In addition to submittal requirements for CPM scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.
- B. Contractor shall prepare monthly written narrative reports of status of Project for submission to District. Written status reports shall include:
- (1) Status of major Project components (percent (%) complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.
 - (2) Progress made on critical activities indicated on CPM Schedule.
 - (3) Explanations for any lack of work on critical path activities planned to be performed during last month.
 - (4) Explanations for any schedule changes, including changes to logic or to activity durations.
 - (5) List of critical activities scheduled to be performed next month.
 - (6) Status of major material and equipment procurement.
 - (7) Any delays encountered during reporting period.
 - (8) Contractor shall provide printed report indicating actual versus planned resource loading for each trade and each activity. This report shall be provided on weekly and monthly basis.
 - (a) Actual resource shall be accumulated in field by Contractor, and shall be as noted on Contractor's daily reports. These reports

will be basis for information provided in computer-generated monthly and weekly printed reports.

- (b) Contractor shall explain all variances and mitigation measures.
- (9) Contractor may include any other information pertinent to status of Project. Contractor shall include additional status information requested by District at no additional cost.
- (10) Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.

1.16 WEEKLY SCHEDULE REPORT

At the Weekly Progress Meeting, the Contractor shall provide and present a time-scaled three (3) week look-ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

1.17 DAILY CONSTRUCTION REPORTS

On a daily basis, Contractor shall submit a daily activity report to District for each workday, including weekends and holidays when worked. Contractor shall develop the daily construction reports on a computer-generated database capable of sorting daily Work, manpower, and man-hours by Contractor, Subcontractor, area, sub-area, and Change Order Work. Upon request of District, furnish computer disk of this data base. Obtain District's written approval of daily construction report data base format prior to implementation. Include in report:

- A. Project name and Project number.
- B. Contractor's name and address.
- C. Weather, temperature, and any unusual site conditions.
- D. Brief description and location of the day's scheduled activities and any special problems and accidents, including Work of Subcontractors. Descriptions shall be referenced to CPM scheduled activities.
- E. Worker quantities for its own Work force and for Subcontractors of any tier.
- F. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

1.18 PERIODIC VERIFIED REPORTS

Contractor shall complete and verify construction reports on a form prescribed by the Division of the State Architect and file reports on the first day of February, May, August, and November during the preceding quarter year; at the completion of the Contract; at the completion of the Work; at the suspension of Work for a period of more than one (1) month; whenever the services of Contractor or any of Contractor's Subcontractors are terminated for any reason; and at any time a special verified report is required by the Division of the State Architect. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Contractor's Submittals and Schedules, Drawings and Specifications;
- B. Special Conditions.

1.02 SECTION INCLUDES:

- A. Definitions:
 - (1) Shop Drawings and Product Data are as indicated in the General Conditions and include, but are not limited to, fabrication, erection, layout and setting drawings, formwork and falsework drawings, manufacturers' standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams. In addition, there are other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment or systems and all positions conform to the requirement of the Contract Documents, including, without limitation, the Drawings.
 - (2) "Manufactured" applies to standard units usually mass-produced; "fabricated" means specifically assembled or made out of selected materials to meet design requirements. Shop Drawings shall establish the actual detail of manufactured or fabricated items, indicated proper relation to adjoining work and amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure.
 - (3) Manufacturer's Instructions: Where any item of Work is required by the Contract Documents to be furnished, installed, or performed, at a minimum, in accordance with a specified product manufacturer's instructions, the Contractor shall procure and distribute copies of these to the District, the Architect, and all other concerned parties and shall furnish, install, or perform the work, at a minimum, in accordance with those instructions.

- B. Samples, Shop Drawings, Product Data, and other items as specified, in accordance with the following requirements:
- (1) Contractor shall submit all Shop Drawings, Product Data, and Samples to the District, the Architect, the Project Inspector, and the Construction Manager.
 - (2) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall submit required information in sufficient time to permit proper consideration and action before ordering any materials or items represented by such Shop Drawings, Product Data, and/or Samples.
 - (3) Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall allow sufficient time so that no delay occurs due to required lead time in ordering or delivery of any item to the Site. Contractor shall be responsible for any delay in progress of Work due to its failure to observe these requirements.
 - (4) Time for completion of Work shall not be extended on account of Contractor's failure to promptly submit Shop Drawings, Product Data, and/or Samples.
 - (5) Reference numbers on Shop Drawings shall have Architectural and/or Engineering Contract Drawings reference numbers for details, sections, and "cuts" shown on Shop Drawings. These reference numbers shall be in addition to any numbering system that Contractor chooses to use or has adopted as standard.
 - (6) When the magnitude or complexity of submittal material prevents a complete review within the stated time frame, Contractor shall make this submittal in increments to avoid extended delays.
 - (7) Contractor shall certify on submittals for review that submittals conform to Contract requirements. In event of any variance, Contractor shall specifically state in transmittal and on Shop Drawings, portions vary and require approval of a substitute. Also certify that Contractor-furnished equipment can be installed in allocated space.
 - (8) Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standard of the American Society for Testing and Materials.
 - (9) Upon demand by Architect or District, Contractor shall submit samples of materials and/or articles for tests or examinations and consideration before Contractor incorporates same in Work. Contractor shall be solely responsible for delays due to sample(s) not being submitted in time to allow for tests. Acceptance or rejection will be expressed in writing. Work shall be equal to approved samples in every respect. Samples that are of value after testing will remain the property of Contractor.

C. Submittal Schedule:

- (1) Contractor shall prepare its proposed submittal schedule that is coordinated with the proposed construction schedule and submit both to the District within ten (10) days after the date of the Notice to Proceed. Contractor's proposed schedules shall become the Project Construction Schedule and the Project Submittal Schedule after each is approved by the District.
- (2) Contractor is responsible for all lost time should the initial submittal be rejected, marked "revise and resubmit", etc.
- (3) All Submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those Submittals shall be forwarded to the District so as not to delay the Construction Schedule.

1.03 SHOP DRAWINGS:

- A. Contractor shall submit one reproducible transparency and six (6) opaque reproductions. The District will review and return the reproducible copy and one (1) opaque reproduction to Contractor.
- B. Before commencing installation of any Work, the Contractor shall submit and receive approval of all drawings, descriptive data, and material list(s) as required to accomplish Work.
- C. Review of Shop Drawings is regarded as a service to assist Contractor and in all cases original Contract Documents shall take precedence as outlined under General Conditions.
- D. No claim for extra time or payment shall be based on work shown on Shop Drawings unless the claim is (1) noted on Contractor's transmittal letter accompanying Shop Drawings and (2) Contractor has complied with all applicable provisions of the General Conditions, including, without limitation, provisions regarding changes and payment, and all required written approvals.
- E. District shall not review Shop Drawings for quantities of materials or number of items supplied.
- F. District's and/or Architect's review of Shop Drawing will be general. District and/or Architect review does not relieve Contractor of responsibility for dimensions, accuracy, proper fitting, construction of Work, furnishing of materials, or Work required by Contract Documents and not indicated on Shop Drawings. The District's and/or Architect's review of Shop Drawings is not to be construed as approving departures from Contract Documents.
- G. Review of Shop Drawings and Schedules does not relieve Contractor from responsibility for any aspect of those Drawings or Schedules that is a violation of local, County, State, or Federal laws, rules, ordinances, or rules and

regulations of commissions, boards, or other authorities or utilities having jurisdiction.

- H. Before submitting Shop Drawings for review, Contractor shall check Shop Drawings of its subcontractors for accuracy, and confirm that all Work contiguous with and having bearing on other work shown on Shop Drawings is accurately drawn and in conformance with Contract Documents.
- I. Submitted drawings and details must bear stamp of approval of Contractor:
 - (1) Stamp and signature shall clearly certify that Contractor has checked Shop Drawings for compliance with Drawings.
 - (2) If Contractor submits a Shop Drawing without an executed stamp of approval, or whenever it is evident (despite stamp) that Drawings have not been checked, the District and/or Architect will not consider them and will return them to the Contractor for revision and resubmission. In that event, it will be deemed that Contractor has not complied with this provision and Contractor shall bear risk of all delays to same extent as if it had not submitted any Shop Drawings or details.
- J. Submission of Shop Drawings (in either original submission or when resubmitted with correction) constitutes evidence that Contractor has checked all information thereon and that it accepts and is willing to perform Work as shown.
- K. Contractor shall pay for cost of any changes in construction due to improper checking and coordination. Contractor shall be responsible for all additional costs, including coordination. Contractor shall be responsible for costs incurred by itself, the District, the Architect, the Project Inspector, the Construction Manager, any other Subcontractor or contractor, etc., due to improperly checked and/or coordination of submittals.
- L. Shop Drawings must clearly delineate the following information:
 - (1) Project name and address.
 - (2) Specification number and description.
 - (3) Architect's name and project number.
 - (4) Shop Drawing title, number, date, and scale.
 - (5) Names of Contractor, Subcontractor(s) and fabricator.
 - (6) Working and erection dimensions.
 - (7) Arrangements and sectional views.
 - (8) Necessary details, including complete information for making connections with other Work.

- (9) Kinds of materials and finishes.
 - (10) Descriptive names of materials and equipment, classified item numbers, and locations at which materials or equipment are to be installed in the Work. Contractor shall use same reference identification(s) as shown on Contract Drawings.
- M. Contractor shall prepare composite drawings and installation layouts when required to solve tight field conditions.
- (1) Shop Drawings shall consist of dimensioned plans and elevations and must give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc.
 - (2) Contractor shall coordinate these composite Shop Drawings and installation layouts in the field between itself and its Subcontractor(s) for proper relationship to the Work, the work of other trades, and the field conditions. The Contractor shall check and approve all submittal(s) before submitting them for final review.

1.04 PRODUCT DATA OR NON REPRODUCIBLE SUBMITTALS:

- A. Contractor shall submit manufacturer's printed literature in original form. Any fading type of reproduction will not be accepted. Contractor must submit a minimum of six (6) each, to the District. District shall return one (1) to the Contractor, who shall reproduce whatever additional copies it requires for distribution.
- B. Contractor shall submit six (6) copies of a complete list of all major items of mechanical, plumbing, and electrical equipment and materials in accordance with the approved Submittal Schedule, except as required earlier to comply with the approved Construction Schedule. Other items specified are to be submitted prior to commencing Work. Contractor shall submit items of like kind at one time in a neat and orderly manner. Partial lists will not be acceptable.
- C. Submittals shall include manufacturer's specifications, physical dimensions, and ratings of all equipment. Contractor shall furnish performance curves for all pumps and fans. Where printed literature describes items in addition to that item being submitted, submitted item shall be clearly marked on sheet and superfluous information shall be crossed out. If highlighting is used, Contractor shall mark all copies.
- D. Equipment submittals shall be complete and include space requirements, weight, electrical and mechanical requirements, performance data, and supplemental information that may be requested.
- E. Imported Materials Certification must be submitted at least ten (10) days before material is delivered.

1.05 SAMPLES:

- A. Contractor shall submit for approval Samples as required and within the time frame in the Contract Documents. Materials such as concrete, mortar, etc., which require on-site testing will be obtained from Project Site.
- B. Contractor shall submit four (4) samples except where greater or lesser number is specifically required by Contract Documents including, without limitation, the Specifications.
 - (1) Samples must be of sufficient size and quality to clearly illustrate functional characteristics, with integrally related parts and attachment devices.
 - (2) Samples must show full range of texture, color, and pattern.
- C. Contractor shall make all Submittals, unless it has authorized Subcontractor(s) to submit and Contractor has notified the District in writing to this effect.
- D. Samples to be shipped prepaid or hand-delivered to the District.
- E. Contractor shall mark samples to show name of Project, name of Contractor submitting, Contract number and segment of Work where representative Sample will be used, all applicable Specifications Sections and documents, Contract Drawing Number and detail, and ASTM or FS reference, if applicable.
- F. Contractor shall not deliver any material to Site prior to receipt of District's and/or Architect's completed written review and approval. Contractor shall furnish materials equal in every respect to approved Samples and execute Work in conformance therewith.
- G. District's and/or Architect's review, acceptance, and/or approval of Sample(s) will not preclude rejections of any material upon discovery of defects in same prior to final acceptance of completed Work.
- H. After a material has been approved, no change in brand or make will be permitted.
- I. Contractor shall prepare its Submittal Schedule and submit Samples of materials requiring laboratory tests to specified laboratory for testing not less than ninety (90) days before such materials are required to be used in Work.
- J. Samples which are rejected must be resubmitted promptly after notification of rejection and be marked "Resubmitted Sample" in addition to other information required.
- K. Field Samples and Mock-Ups are to be removed by Contractor at District's direction:
 - (1) Size: As Specified.
 - (2) Furnish catalog numbers and similar data, as requested.

1.06 REVIEW AND RESUBMISSION REQUIREMENTS:

- A. The District will arrange for review of Sample(s), Shop Drawing(s), Product Data, and other submittal(s) by appropriate reviewer and return to Contractor as provided below within twenty-one (21) days after receipt or within twenty-one (21) days after receipt of all related information necessary for such review, whichever is later.
- B. One (1) copy of product or materials data will be returned to Contractor with the review status.
- C. Samples to be incorporated into the Work will be returned to Contractor, together with a written notice designating the Sample with the appropriate review status and indicating errors discovered on review, if any. Other Samples will not be returned, but the same notice will be given with respect thereto, and that notice shall be considered a return of the Sample.
- D. Contractor shall revise and resubmit any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) as required by the reviewer. Such resubmittals will be reviewed and returned in the same manner as original Sample(s), Shop Drawing(s), Product Data, and other submittal(s), within fourteen (14) days after receipt thereof or within fourteen (14) days after receipt of all related information necessary for such review. Such resubmittal shall not delay the Work.
- E. Contractor may proceed with any of the Work covered by Sample(s), Shop Drawing(s), Product Data, and other submittal(s) upon its return if designated as no exception taken, or revise as noted, provided the Contractor proceeds in accordance with the District and/or the Architect's notes and comments.
- F. Contractor shall not begin any of the work covered by a Sample(s), Shop Drawing(s), Product Data, and other submittal(s), designated as revise and resubmit or rejected, until a revision or correction thereof has been reviewed and returned to Contractor.
- G. Sample(s), Shop Drawing(s), Product Data, and other submittal(s) designated as revise and resubmit or rejected and requiring resubmittal, shall be revised or corrected and resubmitted to the District no later than fourteen (14) days or a shorter period as required to comply with the approved Construction Schedule, after its return to Contractor.
- H. Neither the review nor the lack of review of any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) shall waive any of the requirements of the Contract Documents, or relieve Contractor of any obligation thereunder.
- I. District's and/or Architect's review of Shop Drawings does not relieve the Contractor of responsibility for any errors that may exist. Contractor is responsible for the dimensions and design of adequate connections and details and for satisfactory construction of all the Work.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

SITE STANDARDS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including without limitation, Site Access, Conditions, and Regulations;
- B. Special Conditions;
- C. Drug-Free Workplace Certification;
- D. Tobacco-Free Environment Certification;
- E. Criminal Background Investigation/Fingerprinting Certification;
- F. Temporary Facilities and Controls.

1.02 REQUIREMENTS OF THE DISTRICT:

- A. Drug-Free Schools and Safety Requirements:
 - (1) All school sites and other District Facilities have been declared "Drug-Free Zones." No drugs, alcohol and/or smoking are allowed at any time in any buildings and/or grounds on District property. No students, staff, visitors, or contractors are to use drugs on these sites.
 - (2) Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. Contractor shall post: "Non-Smoking Area" in a highly visible location in each work area, staging area, and parking area. Contractor may designate a smoking area outside of District property within the public right-of-way, provided that this area remains quiet and unobtrusive to adjacent neighbors. This smoking area is to be kept clean at all times.
 - (3) Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances enter or are used at the Site. Contractor shall immediately remove from the Site and terminate the employment of any employee(s) found in violation of this provision.
- B. Language: Profanity or other unacceptable and/or loud language will not be tolerated, "Cat calls" or other derogatory language toward students, staff, volunteers, parents or public will not be allowed.

C. Disturbing the Peace (Noise and Lighting):

- (1) Contractor shall observe the noise ordinance of the Site at all times including, without limitation, all applicable local, city, and/or state laws, ordinances, and/or regulations regarding noise and allowable noise levels.
- (2) The use of radios, etc., shall be controlled to keep all sound at a level that cannot be heard beyond the immediate area of use. District reserves the right to prohibit the use of radios at the Site, except for mobile phones or other handheld communication radios.
- (3) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

D. Traffic:

- (1) Driving on the Premises shall be limited to periods when students and public are not present. If driving or deliveries must be made during the school hours, two (2) or more ground guides shall lead the vehicle across the area of travel. In no case shall driving take place across playgrounds or other pedestrian paths during recess, lunch, and/or class period changes. The speed limit on-the Premises shall be five (5) miles per hour (maximum) or less if conditions require.
- (2) All paths of travel for deliveries, including without limitation, material, equipment, and supply deliveries, shall be reviewed and approved by District in advance. Any damage will be repaired to the pre-damaged condition by the Contractor.
- (3) District shall designate a construction entry to the Site. If Contractor requests, District determines it is required, and to the extent possible, District shall designate a staging area so as not to interfere with the normal functioning of school facilities. Location of gates and fencing shall be approved in advance with District and at Contractor's expense.
- (4) Parking areas shall be reviewed and approved by District in advance. No parking is to occur under the drip line of trees or in softscape areas that could otherwise be damaged.

- E. All of the above shall be observed and complied with by the Contractor and all workers on the Site. Failure to follow these directives could result in individual(s) being suspended or removed from the work force at the discretion of the District. The same rules and regulations shall apply equally to delivery personnel, inspectors, consultants, and other visitors to the Site.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Obtaining of Permits, Licenses and Registrations and Work to Comply with All Applicable Laws and Regulations;
- B. Special Conditions; and
- C. Quality Control.

1.02 DESCRIPTION:

This section covers the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

1.03 REQUIREMENTS OF REGULATORY AGENCIES:

- A. All statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction over the Work, are hereby incorporated into these Contract Documents as if repeated in full herein and are intended to be included in any reference to Code or Building Code, unless otherwise specified, including, without limitation, the references in the list below. Contractor shall make available at the Site copies of all the listed documents applicable to the Work as the District and/or Architect may request, including, without limitation, applicable portions of the most current adopted versions of the California Code of Regulations ("CCR").
 - (1) California Building Standards Administrative Code, Part 1, Title 24, CCR.
 - (2) California Building Code (CBC), Part 2, Title 24, CCR; (International Building Code volumes 1-2 and California Amendments).
 - (3) California Electrical Code (CEC), Part 3, Title 24, CCR; (National Electrical Code and California Amendments).
 - (4) California Mechanical Code (CMC), Part 4, Title 24, CCR; (Uniform Mechanical Code and California Amendments).
 - (5) California Plumbing Code (CPC), Part 5, Title 24, CCR; (Uniform Plumbing Code and California Amendments).

- (6) California Fire Code (CFC), Part 9, Title 24, CCR; (International Fire Code and California Amendments).
- (7) California Referenced Standards Code, Part 12, Title 24, CCR.
- (8) State Fire Marshal Regulations, Public Safety, Title 19, CCR.
- (9) Partial List of Applicable National Fire Protection Association (NFPA) Standards:
 - (a) NFPA 13 - Automatic Sprinkler System.
 - (b) NFPA 14 - Standpipes Systems.
 - (c) NFPA 17A - Wet Chemical System
 - (d) NFPA 24 - Private Fire Mains.
 - (e) (California Amended) NFPA 72 - National Fire Alarm Codes.
 - (f) NFPA 253 - Critical Radiant Flux of Floor Covering System.
 - (g) NFPA 2001 - Clean Agent Fire Extinguishing Systems.
- (10) California Division of the State Architect interpretation of Regulations ("DSA IR"), including, without limitation:
 - (a) DSA IR A-6 — Construction Change Document Submittal and Approval Processes.
 - (b) DSA IR A-7 — Project Inspector Certification and Approval.
 - (c) DSA IR A-8 — Project Inspector and Assistant Inspector Duties and Performance.
 - (d) DSA IR A-12 — Assistant Inspector Approval.
- (11) DSA Procedures ("DSA PR")
 - (a) DSA PR 13-01 – Construction Oversight Process
 - (b) DSA PR 13-02 – Project Certification Process

B. This Project shall be governed by applicable regulations, including, without limitation, the State of California's Administrative Regulations for the Division of the State Architect-Structural Safety (DSA/SS), Chapter 4, Part 1, Title 24, CCR, and the most current version on the date the bids are opened and as it pertains to school construction including, without limitation:

- (1) Test and testing laboratory per Section 4-335. District shall pay for the testing laboratory.

- (2) Special inspections per Section 4-333(c).
- (3) Deferred Approvals per section 4-317(g).
- (4) Verified reports per Sections 4-336 & 4-343(c).
- (5) Duties of the Architect & Engineers shall be per Sections 4-333(a) and 4-341.
- (6) Duties of the Contractor shall be per Section 4-343.
- (7) Duties of Project Inspector shall be per Section 4-334.
- (8) Addenda and Construction Change Documents per Section 4-338.

Contractor shall keep and make available all applicable parts of the most current version of Title 24 referred to in the plans and specifications at the Site during construction.

- C. Items of deferred approval shall be clearly marked on the first sheet of the Architect's and/or Engineer's approved Drawings. All items later submitted for approval shall be per Title 24 requirements to the DSA.
- (1) Contractor shall submit the following to Architect for review and endorsement:
 - (a) Product information on proposed material/system supplier.
 - (b) Drawings, specifications, and calculations prepared, signed, and stamped by an architect or engineer licensed in the State of California for that portion of the Work.
 - (c) All other requirements as may be required by DSA.
 - (2) Cost of preparing and submitting documentation per DSA Deferred Approval requirements including required modifications to Drawings and Specifications, whether or not indicated in the Contract Documents, shall be borne by Contractor.
 - (3) Contractor shall not begin fabrication and installation of deferred approval items without first obtaining DSA approval of Drawings and Specifications.
 - (4) Schedule of Work Subject to DSA Deferred Approval: Window wall systems exceeding 10 feet in span.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

ABBREVIATIONS AND ACRONYMS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions including without limitation, Definitions;
- B. Special Conditions.

1.02 DOCUMENT INCLUDES:

- A. Abbreviations used throughout the Contract Documents.
- B. Reference to a technical society, organization, or body is by abbreviation, as follows:

1.	AA	The Aluminum Association
2.	AAMA	American Architectural Manufacturers Association
3.	AASHTO	American Association of State Highway and Transportation Officials
4.	ABPA	Acoustical and Board Products Association
5.	ACI	American Concrete Institute
6.	AGA	American Gas Association
7.	AGC	Associated General Contractors of America
8.	AHC	Architectural Hardware Consultant
9.	AI	Asphalt Institute
10.	AIA	American Institute of Architects
11.	AIEE	American Institute of Electrical Engineers
12.	AISC	American Institute of Steel Construction
13.	AISI	American Iron and Steel Institute
14.	AMCA	Air Moving and Conditioning Association
15.	ANSI	American National Standards Institute
16.	APA	American Plywood Association
17.	ARI	Air Conditioning and Refrigeration Institute
18.	ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
19.	ASME	American Society of Mechanical Engineers
20.	ASSE	American Society of Structural Engineers
21.	ASTM	American Society of Testing and Materials
22.	AWPB	American Wood Preservers Bureau
23.	AWPI	American Wood preservers Institute
24.	AWS	American Welding Society
25.	AWSC	American Welding Society Code
26.	AWI	Architectural Woodwork Institute
27.	AWWA	American Water Works Association

28.	BIA	Brick Institute of America
29.	CCR	California Code of Regulations
30.	CLFMI	Chain Link Fence Manufacturers Institute
31.	CMG	California Masonry Guild
32.	CRA	California Redwood Association
33.	CRSI	Concrete Reinforcing Steel Institute
34.	CS	Commercial Standards
35.	CSI	Construction Specifications Institute
36.	CTI	Cooling Tower Institute
37.	FGMA	Flat Glass Manufacturer's Association
38.	FIA	Factory Insurance Association
39.	FM	Factory Mutual
40.	FS	Federal Specification
41.	FTI	Facing Title Institute
42.	GA	Gypsum Association
43.	ICC	International Code Council
44.	IEEE	Institute of Electrical and Electronic Engineers
45.	IES	Illumination Engineering Society
46.	LIA	Lead Industries Association
47.	MIA	Marble Institute of America
48.	MLMA	Metal Lath Manufacturers Association
49.	MS	Military Specifications
50.	NAAMM	National Association of Architectural Metal Manufacturers
51.	NBHA	National Builders Hardware Association
52.	NBFU	National Board of Fire Underwriters
53.	NBS	National Bureau of Standards
54.	NCMA	National Concrete Masonry Association
55.	NEC	National Electrical Code
56.	NEMA	National Electrical Manufacturers Association
57.	NFPA	National Fire Protection Association/National Forest Products Association
58.	NMWIA	National Mineral Wool Insulation Association
59.	NTMA	National Terrazzo and Mosaic Association
60.	NWMA	National Woodwork Manufacturer's Association
61.	ORS	Office of Regulatory Services (California)
62.	OSHA	Occupational Safety and Health Act
63.	PCI	Precast Concrete Institute
64.	PCA	Portland Cement Association
65.	PDCA	Painting and Decorating Contractors of America
66.	PDI	Plumbing Drainage Institute
67.	PEI	Porcelain Enamel Institute
68.	PG&E	Pacific Gas & Electric Company
69.	PS	Product Standards
70.	SDI	Steel Door Institute; Steel Deck Institute
71.	SJI	Steel Joist Institute
72.	SSPC	Steel Structures Painting Council
73.	TCA	Tile Council of America
74.	TPI	Truss Plate Institute
75.	UBC	Uniform Building Code
76.	UL	Underwriters Laboratories Code
77.	UMC	Uniform Mechanical Code

78.	USDA	United States Department of Agriculture
79.	VI	Vermiculite Institute
80.	WCLA	West Coast Lumberman's Association
81.	WCLB	West Coast Lumber Bureau
82.	WEUSER	Western Electric Utilities Service Engineering Requirements
83.	WIC	Woodwork Institute of California
84.	WPOA	Western Plumbing Officials Association

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

DEFINITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions including without limitation, Definitions;
- B. Special Conditions.

1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or Federal Standards, Contractor shall comply with requirements of the standard, except when more rigid requirements are specified in the Contract Documents, or are required by applicable codes.
- B. Contractor shall conform to current reference standard publication date in effect on the date of bid opening.
- C. Contractor shall obtain copies of standards unless specifically required not to by the Contract Documents.
- D. Contractor shall maintain a copy of all standards at jobsite during submittals, planning, and progress of the specific Work, until final completion, unless specifically required not to by the Contract Documents.
- E. Should specified reference standards conflict with Contract Documents, Contractor shall request clarification from the District and/or the Architect before proceeding.
- F. The contractual relationship of the parties to the Contract shall not be altered from the contractual relationship as indicated in the Contract Documents by mention or inference otherwise in any referenced document.
- G. Governing Codes shall be as shown in the Contract Documents including, without limitation, the Specifications.

END OF DOCUMENT

REFERENCES**PART 1 - GENERAL****1.01 SCHEDULE OF REFERENCES:**

The following information is intended only for the general assistance of the Contractor, and the District does not represent that all of the information is current. It is the Contractor's responsibility to verify the correct information for each of the entities listed.

AA	The Aluminum Association 1400 Crystal Drive, Suite 430 Arlington, VA 22202 www.aluminum.org	703/358-2960
AABC	Associated Air Balance Council 1518 K Street, NW, Suite 503 Washington, DC 20005 www.aabc.com	202/737-0202
AAMA	American Architectural Manufacturers Association 1827 Walden Office Sq., Suite 550 Schaumburg, IL 60173-4268 www.aamanet.org	847/303-5664
AASHTO	American Association of State Highway and Transportation Officials 444 N Capitol St. NW - Suite 249 Washington, DC 20001 www.transportation.org	202/624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 One Davis Drive Research Triangle Park, NC 27709 2215 www.aatcc.org	919/549-8141
ACA	American Coatings Association 1500 Rhode Island Ave., NW Washington DC, 20005 www.paint.org	202/462-6272

ACI	American Concrete Institute 38800 Country Club Dr. Farmington Hills, MI 48331-3439 www.concrete.org	248/848-3700
ACPA	American Concrete Pipe Association 8445 Freeport Parkway, Suite 350 Irving, TX 75063-2595 www.concrete-pipe.org	972/506-7216
ADC	Air Duct Council 1901 N. Roselle Road, Suite 800 Schaumburg, Illinois 60195 www.flexibleduct.org	847/706-6750
AF&PA	American Forest and Paper Association 1101 K Street, NW, Suite 700 Washington, DC 20005 www.afandpa.org	202/463-2700
AGA	American Gas Association 400 North Capitol Street, NW Washington, DC 20001 www.aga.org	202/824-7000
AGC	Associate General Contractors of America 2300 Wilson Blvd., Suite 300 Arlington, VA 22201 www.agc.org	703/548-3118
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067 domensino.com/AHA/default.htm	847/934-8800
AI	Asphalt Institute 2696 Research Park Drive Lexington, KY 40511-8480 www.asphaltinstitute.org	859/288-4960
AIA	The American Institute of Architects 1735 New York Ave., NW Washington, DC 20006-5292 www.aia.org	202/626-7300
AISC	American Institute of Steel Construction 130 East Randolph Street Suite 2000 Chicago, IL 60601 www.aisc.org	312.670.2400

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**REFERENCES
DOCUMENT 01 42 19-2**

AIA	American Insurance Association (formerly the National Board of Fire Underwriters) 555 12th St, NW, Suite 550 Washington DC 20004 www.aiadc.org	202/828-7100
AISI	American Iron and Steel Institute 25 Massachusetts Ave., NW, Suite 800 Washington, DC 20001 www.steel.org	202/452.7100
AITC	American Institute of Timber Construction 7012 S. Revere Parkway Suite 140 Centennial, CO 80112 www.aitc-glulam.org	503/639.0651
ALI	Associated Laboratories, Inc. P.O. Box 152837 Dallas, TX 75315 www.assoc-labs.com	214/565-0593
ALSC	American Lumber Standards Committee, Inc. 7470 New Technology Way, Suite F Frederick, MD 21703 www.alsc.org	301/972-1700
AMCA	Air Movement and Control Association International, Inc. 30 W. University Drive Arlington Heights, IL 60004 www.amca.org	847/394-0150
ANLA	American Nursery & Landscape Association (now AmericanHort) 525 9 th St NW, Suite 80 Washington, DC 20004 www.americanhort.org	202/789-2900
ANSI	American National Standards Institute 1899 L Street, NW, 11th Floor Washington, DC, 20036 www.ansi.org	202/293.8020
APA	APA-The Engineered Wood Association 7011 S. 19th Street Tacoma, WA 98466-5333 www.apawood.org	253/565-6600

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**REFERENCES
DOCUMENT 01 42 19-3**

APA	Architectural Precast Association 325 John Know Rd, Ste L103 Tallahassee, FL 32303 www.archprecast.org	850/205.5637
ARI	Air Conditioning and Refrigeration Institute (now Air-Conditioning, Heating, & Refrigeration Institute) 2111 Wilson Blvd, Suite 500 Arlington, VA 22201 www.ahrinet.org	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association Public Information Department 750 National Press Building 529 14th Street, NW Washington, DC 20045 www.asphaltroofing.org	202/591-2450
ASA	The Acoustical Society of America ASA Office Manager Suite 1N01 2 Huntington Quadrangle Melville, NY 11747-4502 http://asa.aip.org	516/576-2360
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191 www.asce.org	800/548-2723 703/295-6300
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329-2305 www.ashrae.org	800/527-4723 404/636-8400
ASLA	American Society of Landscape Architects 636 Eye Street, NW Washington, DC 20001-3736 www.asla.org	202/898-2444
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016-5990 www.asme.org	800/434-2763
ASPE	American Society of Plumbing Engineers 2980 S River Rd. Des Plaines, IL 60018 http://aspe.org	847/296-0002

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**REFERENCES
DOCUMENT 01 42 19-4**

ASQ	American Society for Quality P.O. Box 3005 Milwaukee, WI 53201-3005 or 600 North Plankinton Avenue Milwaukee, WI 53203 http://asq.org	800/248-1946 414/272-8575
ASSE	American Society of Sanitary Engineering 901 Canterbury, Suite A Westlake, Ohio 44145 www.asse-plumbing.org	440/835-3040
ASTM	ASTM International 100 Barr Harbor Drive PO Box C700 West Conshohocken, PA, 19428-2959 www.astm.org	610/832-9500
AWCI	Association of the Wall and Ceiling Industry 513 West Broad Street, Suite 210 Falls Church, VA 22046 www.awci.org	703/538-1600
AWPA	American Wood Protection Association P.O. Box 361784 Birmingham, AL 35236-1784 www.awpa.com	205/733-4077
AWPI	American Wood Preservers Institute 2750 Prosperity Ave. Suite 550 Fairfax, VA 22031-4312 www.arcat.com	800/356-AWPI 703/204-0500
AWS	American Welding Society 8669 Doral Boulevard, Suite 130 Doral, Florida 33166 www.aws.org	800/443-9353 305/443-9353
AWI	Architectural Woodwork Institute 46179 Westlake Drive, Suite 120 Potomac Falls, VA 20165-5874 www.awinet.org	571/323-3636
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235 www.awwa.org	800/926-7337 303/794 7711

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**REFERENCES
DOCUMENT 01 42 19-5**

BHMA	Builders Hardware Manufacturers Association 355 Lexington Avenue, 15th floor New York, NY 10017 www.buildershardware.com	212/297-2122
BIA	The Brick Industry Association 1850 Centennial Park Drive, Suite 301 Reston, VA 20191 www.gobrick.com	703/620-0010
CGA	Compressed Gas Association 14501 George Carter Way, Suite 103 Chantilly VA 20151-2923 www.cganet.com	703/788-2700
CISCA	Ceilings & Interior Systems Construction Association 1010 Jorie Blvd, Suite 30 Oak Brook, IL 60523 www.cisca.org	630/584-1919
CISPI	Cast Iron Soil Pipe Institute 1064 Delaware Avenue SE Atlanta, GA 30316 www.cispi.org	404/622-0073
CLFMI	Chain Link Fence Manufacturers Institute 10015 Old Columbia Road, Suite B-215 Columbia, MD 21046 www.associationsites.com/main-pub.cfm?usr=clfma	410/290-6267
CPA	Composite Panel Association 19465 Deerfield Avenue, Suite 306 Leesburg, VA 20176 www.compositepanel.org	703/724-1128
CPSC	Consumer Product Safety Commission 4330 East West Highway Bethesda, MD 20814 www.cpsc.gov	301/504-7923 800/638-2772
CRA	California Redwood Association 405 Enfrente Drive, Suite 200 Novato, CA 94949 www.calredwood.org	415/382-0662

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**REFERENCES
DOCUMENT 01 42 19-6**

CRI	Carpet and Rug Institute P.O. Box 2048 Dalton, Georgia 30722-2048 www.carpet-rug.org	706/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road Schaumburg, IL 60173 4758 www.crsi.org	847/517-1200
CSI	The Construction Specifications Institute 110 South Union Street, Suite 100 Alexandria VA 22314 www.csinet.org	800/689-2900
CTIOA	Ceramic Tile Institute of America 12061 Jefferson Blvd. Culver City, CA 90230-6219 www.ctioa.org	310/574-7800
DHI	Door and Hardware Institute (formerly National Builders Hardware Association) 14150 Newbrook Dr. Chantilly, VA 20151 www.dhi.org	703/222-2010
DIPRA	Ductile Iron Pipe Research Association 2000 2nd Avenue, South Suite 429 Birmingham, AL 35233 www.dipra.org	205/402-8700
DOC	U.S. Department of Commerce 1401 Constitution Ave., NW Washington, D.C. 20230 www.commerce.gov	202/482-2000
DOT	U.S. Department of Transportation 1200 New Jersey Avenue, SE Washington, DC 20590 www.dot.gov	855/368-4200
EJMA	Expansion Joint Manufacturers Association, Inc. 25 North Broadway Tarrytown, NY 10591 www.ejma.org	914/332-0040

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**REFERENCES
DOCUMENT 01 42 19-7**

EPA	Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 www.epa.gov	202/272-0167
FCICA	Floor Covering Installation Contractors Association 7439 Millwood Drive West Bloomfield, MI 48322 www.fcica.com	248/661-5015 877/TO-FCICA
FM Global	Factory Mutual Insurance Company Amy Daley Global Practice Leader – Education, Public Entities, Health Care FM Global 270 Central Avenue Johnston, RI 02919-4949 www.fmglobal.com	401/275-3000 401/275-3029
FS	General Services Administration (GSA) Index of Federal Specifications, Standards and Commercial Item Descriptions 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407 www.gsa.gov	202/619-8925
GA	The Gypsum Association 6525 Belcrest Road, Suite 480 Hyattsville, MD 20782 www.gypsum.org	301/277-8686
GANA	Glass Association of North America 800 SW Jackson St., Suite 1500 Topeka, KS 66612-1200 www.glasswebsite.com	785/271-0208
HMA	Hardwood Manufacturers Association 665 Rodi Road, Suite 305 Pittsburgh, PA 15235 http://hmamembers.org	412/244-0440
HPVA	Hardwood Plywood & Veneer Association 1825 Michael Faraday Drive Reston, Virginia 20190 www.hpva.org	703/435-2900

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**REFERENCES
DOCUMENT 01 42 19-8**

IAPMO	International Association of Plumbing and Mechanical Officials (formerly the Western Plumbing Officials Association) 4755 E. Philadelphia St. Ontario, CA 91761 www.iapmo.org	909/472-4100
ICC	International Code Council 500 New Jersey Avenue, NW, 6th Floor Washington, DC 20001 www.iccsafe.org	888/422-7233
IEEE	Institute of Electrical and Electronics Engineers 3 Park Avenue, 17th Floor New York, NY 10016-5997 www.ieee.org	212/419-7900
IES	Illuminating Engineering Society 120 Wall Street, Floor 17 New York, NY 10005-4001 www.ies.org	212/248-5000
ITRK	Intertek Testing Services 3933 US Route 11 Cortland, NY 13045 www.intertek.com	607/753-6711
MCAA	Mechanical Contractors Association of America 1385 Piccard Drive Rockville, MD 20850 www.mcaa.org	301/869-5800
MIA	Marble Institute of America 28901 Clemens Rd, Ste 100 Cleveland, OH 44145 www.marble-institute.com	440/250-9222
MMPA (formerly WMMPA)	Moulding & Millwork Producers Association (formerly Wood Moulding & Millwork Producers Association) 507 First Street Woodland, CA 95695 www.wmmpa.com	530/661-9591 800/550-7889

MSS	Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry 127 Park Street, NE Vienna, VA 22180-4602 http://mss-hq.org	703/281-6613
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Rd. Bldg. C, Suite 312 Glen Ellyn, IL 60137 www.naamm.org	630/942-6591
NAIMA	North American Insulation Manufacturers Association 44 Canal Center Plaza, Suite 310 Alexandria, VA 22314 www.naima.org	703/684-0084
NAPA	National Asphalt Pavement Association 5100 Forbes Blvd. Lanham, MD USA 20706-4407 www.asphaltpavement.org	888/468-6499 301/731-4748
NCSPA	National Corrugated Steel Pipe Association 14070 Proton Road, Suite 100 LB9 Dallas, TX 75244 www.ncspa.org	972/850-1907
NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive Herndon, VA 20171-4662 www.ncma.org	703/713-1900
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877 www.nebb.org	301/977-3698
NECA	National Electrical Contractors Association 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814 www.necanet.org	301/657-3110
NEMA	National Electrical Manufacturers Association 1300 North 17th Street, Suite 1752 Rosslyn, Virginia 22209 www.nema.org	703/841-3200

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**REFERENCES
DOCUMENT 01 42 19-10**

NEII	National Elevator Industry, Inc. 1677 County Route 64 P.O. Box 838 Salem, New York 12865-0838 www.neii.org	518/854-3100
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, Massachusetts USA 02169-7471 www.nfpa.org	617/770-3000
NHLA	National Hardwood Lumber Association PO Box 34518 Memphis, TN 38184 www.nhla.com	901/377-1818
NIA	National Insulation Association 12100 Sunset Hills Road, Suite 330 Reston, VA 20190 www.insulation.org	703/464-6422
NRCA	National Roofing Contractors Association 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018-5607 www.nrca.net	847/299-9070
NSF	NSF International P.O. Box 130140 789 N. Dixboro Road Ann Arbor, MI 48113-0140, USA www.nsf.org	800/673-6275 734/769-8010
NTMA	National Terrazzo and Mosaic Association PO Box 2605 Fredericksburg, TX 78624 www.ntma.com	800/323-9736
OSHA	Occupational Safety and Health Act U.S. Department of Labor Occupational Safety & Health Administration 200 Constitution Ave., NW Washington, D.C. 20210 www.osha.gov	800/321-OSHA (6742)

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**REFERENCES
DOCUMENT 01 42 19-11**

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077 or 500 New Jersey Ave., N.W. 7 th Floor Washington, D.C. 20001 www.cement.org	847/966-6200 202/408-9494
PCI	Precast/Prestressed Concrete Institute 200 W. Adams St. #2100 Chicago, IL 60606 www.pci.org	312/786-0300
PDCA	Painting and Decorating Contractors of America 2316 Millpark Drive, Ste 220 Maryland Heights, MO 63043 www.pdca.com	800/332-PDCA (7322) 314/514-7322
PDI	Plumbing & Drainage Institute 800 Turnpike Street, Suite 300 North Andover, MA 01845 http://pdionline.org	978/557-0720 800/589-8956
PEI	Porcelain Enamel Institute, Inc. P.O. Box 920220 Norcross, GA 30010 www.porcelainenamel.com	770/676-9366
PG&E	Pacific Gas & Electric Company www.pge.com	800/743-5000
PLANET	Professional Landcare Network 950 Herndon Parkway, Suite 450 Herndon, Virginia 20170 www.landcarenetwork.org	703/736-9666 800/395-2522 703/736-9668
RFCI	Resilient Floor Covering Institute 115 Broad Street, Suite 201 La Grange GA 30240 www.rfci.com	706/882-3833
RIS	Redwood Inspection Service 818 Grayson Road, Suite 201 Pleasant Hill, CA 94523 www.redwoodinspection.com	925/935-1499
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60021 www.sdi.org	847/458-4647

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

**REFERENCES
DOCUMENT 01 42 19-12**

SDI	Steel Door Institute 30200 Detroit Road Westlake, Ohio 44145 www.steeldoor.org	440/899-0010
SJI	Steel Joist Institute 234 W. Cheves Street Florence, SC 29501 http://steeljoist.org	843/407-4091
SMA	Stucco Manufacturers Association 500 East Yale Loop Irvine, CA 92614 www.stuccomfgassoc.com	949/387.7611
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 4201 Lafayette Center Drive Chantilly, Virginia 20151-1219 www.smacna.org	703/803-2980
SPI	SPI: The Plastics Industry Trade Association, Inc. 1667 K St., NW, Suite 1000 Washington, DC 20006 www.plasticsindustry.org	202/974-5200
SSPC	Society for Protective Coatings (formerly the Steel Structures Painting Council) 40 24th St 6th Fl Pittsburgh, PA 15222 www.sspc.org	412/281-2331 877/281-7772
TCA	The Tile Council of North America 100 Clemson Research Blvd. Anderson, SC 29625 www.tcnatile.com	864/646-8453
TPI	Truss Plate Institute 218 North Lee Street, Suite 312 Alexandria, VA 22314 www.tpinst.org	703/683-1010
TPI	Turfgrass Producers International 2 East Main Street East Dundee, IL 60118 www.turfgrasssod.org	800/405-8873 847/649-5555

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

**REFERENCES
DOCUMENT 01 42 19-13**

TCIA	Tree Care Industry Association (formerly the National Arborist Association) 136 Harvey Road, Suite 101 Londonderry, NH 03053 www.tcia.org	800/733-2622
TVI	The Vermiculite Institute c/o The Schundler Company 150 Whitman Avenue Edison, NJ. 08817 www.vermiculiteinstitute.org	732/287-2244
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 www.ul.com	847/272-8800 877/854-3577
UNI	Uni-Bell PVC Pipe Association 2711 LBJ Freeway, Suite 1000 Dallas, TX 75234 www.uni-bell.org	972/243-3902
USDA	U.S. Department of Agriculture 1400 Independence Ave., S.W. Washington, DC 20250 www.usda.gov	202/720-2791
WA	Wallcoverings Association 401 North Michigan Avenue Suite 2200 Chicago, IL 60611 www.wallcoverings.org	312/321-5166

WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97281 or 6980 S.W. Varns Tigard, OR 97223 www.wclib.org	503/639-0651
WCMA	Window Covering Manufacturers Association 355 Lexington Avenue 15th Floor New York, New York 10017 www.wcmanet.org	212/297-2122
WDMA	Window & Door Manufacturers Association 401 N. Michigan Avenue, Suite 2200 Chicago, IL 60611 or 2025 M Street, NW, Ste. 800 Washington, D.C. 20036-3309 www.wdma.com	312/321-6802 202/367-1157
WI	Woodwork Institute P.O. Box 980247 West Sacramento, CA 95798 www.wicnet.org	916/372-9943
WRI	Wire Reinforcement Institute 942 Main Street Hartford, CT 06103 www.wirereinforcementinstitute.org	860/240-9545
WWCA	Western Wall & Ceiling Contractors Association 1910 N. Lime St. Orange, California 92865 www.wwcca.org	714/221-5520
WWPA	Western Wood Products Association 522 SW Fifth Ave., Suite 500 Portland, OR 97204-2122 www2.wwpa.org	503/224-3930

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

PITTSBURG UNIFIED SCHOOL DISTRICT

Pittsburg HS – Stadium Parking Lot
Replacement Project

REFERENCES

DOCUMENT 01 42 19-15

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Purchase of Materials and Equipment;
- B. Special Conditions;
- C. Imported Materials Certification.

1.02 MATERIAL AND EQUIPMENT

- A. Only items approved by the District and/or Design Professional shall be used.
- B. Contractor shall submit lists of products and other product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.03 MATERIAL AND EQUIPMENT COLORS

- A. The District and/or Architect will provide a schedule of colors.
- B. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.
- C. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer.
- B. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.
- C. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

- D. Materials are not acceptable that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled.
- E. Contractor shall store material so as to cause no obstructions of sidewalks, roadways, access to the Site or buildings, and underground services. Contractor shall protect material and equipment furnished under Contract.
- F. Contractor may store materials on Site with prior written approval by the District, all material shall remain under Contractor's control and Contractor shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the Contractor shall provide for off-site storage at a bonded warehouse and with appropriate insurance coverage at no cost to District.
- G. When any room in Project is used as a shop or storeroom, the Contractor shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by District.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers listed in various sections of Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of items specified therein.
- B. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable as meeting the requirements of the Contract Documents.

2.02 FACILITIES AND EQUIPMENT

Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, the execution, disposal, and distribution of material and equipment as required for proper and timely performance of Work connected with Contract.

2.03 MATERIAL REFERENCE STANDARDS

Where material is specified solely by reference to "standard specifications" and if requested by District, Contractor shall submit for review data on actual material proposed to be incorporated into Work of Contract listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- A. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).
- B. Work shall be executed by tradespersons skilled in their respective lines of Work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.02 COORDINATION

- A. Contractor shall coordinate installation of Work so as to not interfere with installation of others. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to District.
- B. Contractor shall examine in-place work for readiness, completeness, fitness to be concealed or to receive other work, and in compliance with Contract Documents. Concealing or covering Work constitutes acceptance of additional cost which will result should in-place Work be found unsuitable for receiving other Work or otherwise deviating from the requirements of the Contract Documents.

3.03 COMPLETENESS

Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in manner to assure well-balanced performance, in accordance with manufacturer's recommendations and by Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain system; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," "to match similar," should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

3.04 APPROVED INSTALLER OR APPLICATOR

Installation by a manufacturer's approved installer or applicator is an understood part of Specifications and only approved installer or applicator is to provide on-site Work where specified manufacturer has on-going program of approving (i.e. certifying, bonding, re-warranting) installers or applicators. Newly established relationships between a manufacturer and an installer or applicator who does not have other approved applicator work in progress or completed is not approved for this Project.

3.05 MANUFACTURER'S RECOMMENDATIONS

All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should Contract Documents differ from recommendations of manufacturer or directions of his representative, Contractor shall analyze differences, make recommendations to the District and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the District and/or the Architect.

END OF DOCUMENT

QUALITY CONTROL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Inspector, Inspections and Tests, Uncovering of Work and Non-conforming of Work and Correction of Work;
- B. Special Conditions.

1.02 RELATED CODES:

- A. The Work is governed by requirements of Title 24, California Code of Regulations ("CCR"), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.
- B. The Division of the State Architect ("DSA") shall be notified at or before the start of construction.

1.03 OBSERVATION AND SUPERVISION:

- A. The District and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Structural Engineer will be in accordance with applicable regulations, including, without limitation, CCR, Part 1, Title 24, Section 4-341.
- B. One or more Project Inspector(s) approved by DSA and employed by or in contract with the District, referred to hereinafter as the "Project Inspector", will observe the work in accordance with CCR, Part 1, Title 24, Sections 4-333(b) and 4-342:
 - (1) The Project Inspector and Special Inspector(s) shall have access to the Work wherever it is in preparation or progress for ascertaining that the Work is in accordance with the Contract Documents and all applicable code sections. The Contractor shall provide facilities and operation of equipment as needed, and access as required and shall provide assistance for sampling or measuring materials.
 - (2) The Project Inspector will notify the District and Architect and call the attention of the Contractor to any observed failure of Work or material to conform to Contract Documents.

- (3) The Project Inspector shall observe and monitor all testing and inspection activities required.

The Contractor shall conform with all applicable laws as indicated in the Contract Documents, including, without limitation, to CCR, Part 1, Title 24, Section 4-343. The Contractor shall supervise and direct the Work and maintain a competent superintendent on the job who is authorized to act in all matters pertaining to the Work. The Contractor's superintendent shall also inspect all materials, as they arrive, for compliance with the Contract Documents. Contractor shall reject defective Work or materials immediately upon delivery or failure of the Work or material to comply with the Contract Documents. The Contractor shall submit verified reports as indicated in the Contract Documents, including, without limitation, the Specifications and as required by Part 1, Title 24, Section 4-336.

1.04 TESTING AGENCIES:

- A. Testing agencies and tests shall be in conformance with the General Documents and the requirements of Part 1, Title 24, Section 4- 335.
- B. Testing and inspection in connection with earthwork shall be under the direction of the District's consulting soils engineer, if any, referred to hereinafter as the "Soils Engineer."
- C. Testing and inspection of construction materials and workmanship shall be performed by a qualified laboratory, referred to hereinafter as the "Testing Laboratory." The Testing Laboratory shall be under direction of an engineer registered in the State of California, shall conform to requirements of ASTM E329, and shall be employed by or in contract with the District.

1.05 TESTS AND INSPECTIONS:

- A. The Contractor shall be responsible for notifying the District and Project Inspector of all required tests and inspections. Contractor shall notify the District and Project Inspector at least seventy-two hours (72) hours in advance of performing any Work requiring testing or inspection.
- B. The Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.
- C. The District will pay for first inspections and tests required by the "CCR", and other inspections or tests that the District and/or the Architect may direct to have made, including the following principal items:
 - (1) Tests and observations for earthwork and paving.
 - (2) Tests for concrete mix designs, including tests of trial batches.
 - (3) Tests and inspections for structural steel work.
 - (4) Field tests for framing lumber moisture content.

- (5) Additional tests directed by the District that establish that materials and installation comply with the Contract Documents.
 - (6) Tests and observations of welding and expansion anchors.
- D. The District may at its discretion, pay and then back charge the Contractor for:
 - (1) Retests or re-inspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.
 - (2) Uncovering of work in accordance with Contract Documents.
 - (3) Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.
 - (4) Testing done off Site.
- E. Testing and inspection reports and certifications:
 - (1) If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification.
 - (a) The District;
 - (b) The Construction Manager, if any;
 - (c) The Architect;
 - (d) The Consulting Engineer, if any;
 - (e) Other engineers on the Project, as appropriate;
 - (f) The Project Inspector; and
 - (g) The Contractor.
 - (2) When the test or inspection is one required by the CCR, a copy of the report shall also be provided to the DSA.

PART 2 - PRODUCTS

2.01 TYPE OF TESTS AND INSPECTIONS

- A. Testing and inspection shall be in accordance with DSA Form 103 (or current version).

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions;
- C. Site Standards; and
- D. Construction Waste Management and Disposal.

1.02 TEMPORARY UTILITIES:

- A. Electric Power and Lighting:
 - (1) Contractor will pay for power during the course of the Work. To the extent power is available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver that power service from its existing location in the building(s) or on the Site to point of intended use.
 - (2) Contractor shall verify characteristics of power available in building(s) or on the Site. Contractor shall take all actions required to make modifications where power of higher voltage or different phases of current are required. Contractor shall be fully responsible for providing that service and shall pay all costs required therefor.
 - (3) Contractor shall furnish, wire for, install, and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/or observation of the Work: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.
 - (4) Contractor shall be responsible for maintaining existing lighting levels in the project vicinity should temporary outages or service interruptions occur.

B. Heat and Ventilation:

- (1) Contractor shall provide temporary heat to maintain environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation and curing of materials, and to protect materials and finishes from damage due to improper temperature and humidity conditions. Portable heaters shall be standard units complete with controls.
- (2) Contractor shall provide forced ventilation and dehumidification, as required, of enclosed areas for proper installation and curing of materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, and gases.
- (3) Contractor shall pay the costs of installation, maintenance, operation, and removal of temporary heat and ventilation, including costs for fuel consumed, required for the performance of the Work.

C. Water:

- (1) Contractor shall pay for water used during the course of the Work. Contractor shall coordinate and pay for installation or use of water meter in compliance with local water agency requirements. To the extent water is then available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver such utility service from its existing location in the building(s), on the Site, or other location approved by the local water agency, to point of intended use.
- (2) Contractor shall use backflow preventers on water lines at point of connection to District's water supply. Backflow preventers shall comply with requirements of Uniform Plumbing Code.
- (3) Contractor shall make potable water available for human consumption.

D. Sanitary Facilities:

- (1) Contractor shall provide sanitary temporary facilities in no fewer numbers than required by law and such additional facilities as may be directed by the Inspector for the use of all workers. The facilities shall be maintained in a sanitary condition at all times and shall be left at the Site until removal is directed by the Inspector or Contractor completes all other work at the Site.
- (2) Use of toilet facilities in the Work under construction shall not be permitted except by consent of the Inspector and the District.

E. Telephone Service:

- (1) Contractor shall arrange with local telephone service company for telephone & high speed internet service as required for the performance of the Work. Contractor shall, at a minimum, provide in its field office one line for telephone and one line for fax machine.
- (2) Contractor shall pay the costs for telephone, high speed internet and fax lines installation, maintenance, service, and removal.

F. Fire Protection:

- (1) Contractor shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshall and/or its designee.
- (2) Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces. Notify Local Fire Authority prior to welding.

G. Trash Removal:

- (1) Contractor shall provide trash removal on a weekly basis. Under no circumstance shall Contractor use District trash service.

H. Field Office:

- (1) If Contractor chooses to provide a field office, it shall be an acceptable construction trailer that is well-lit and ventilated. The construction trailer shall be equipped with shelves, desks, filing cabinet, chairs, and such other items of equipment needed. Trailer and equipment are the property of the Contractor and must be removed from the Site upon completion of the Work.
- (2) Contractor shall provide any additional electric lighting and power required for the trailer. Contractor shall make adequate provisions for heating and cooling as required.

1.03 CONSTRUCTION AIDS:

A. Plant and Equipment:

- (1) Contractor shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workers. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.

- (2) Contractor shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by Contractor at no expense to the District.
- B. None of the District's tools and equipment shall be used by Contractor for the performance of the Work.

1.04 BARRIERS AND ENCLOSURES:

- A. Contractor shall obtain the District's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.
- B. Contractor shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises, the public, and workers. Contractor shall also protect the Work and existing facilities from the elements, and adjacent construction and improvements, persons, and trees and plants from damage and injury from demolition and construction operations.
- C. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.
- D. Tree and Plant Protection:
 - (1) Contractor shall preserve and protect existing trees and plants on the Premises that are not designated or required to be removed, and those adjacent to the Premises.
 - (2) Contractor shall provide barriers to a minimum height of 4'-0" around drip line of each tree and plant, around each group of trees and plants, as applicable, in the proximity of demolition and construction operations, or as denoted on the Plans.
 - (3) Contractor shall not park trucks, store materials, perform Work or cross over landscaped areas. Contractor shall not dispose of paint thinners, water from cleaning, plastering or concrete operations, or other deleterious materials in landscaped areas, storm drain systems, or sewers. Plant materials damaged as a result of the performance of the Work shall, at the option of the District and at Contractor's expense, either be replaced with new plant materials equal in size to those damaged or by payment of an amount representing the value of the damaged materials as determined by the District.
 - (4) Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.

- (5) Excavation around Trees:
- (a) Excavation within drip lines of trees shall be done only where absolutely necessary and with written permission from the District.
 - (b) Where trenching for utilities is required within drip lines, tunneling under and around roots shall be by hand digging and shall be approved by the District. Main lateral roots and taproots shall not be cut. All roots 2 inches in diameter and larger shall be tunneled under and heavily wrapped with wet burlap so as to prevent scarring or excessive drying. Smaller roots that interfere with installation of new work may be cut with prior approval by the District. Roots must first be cut with a Vermeer, or equivalent, root cutter prior to any trenching.
 - (c) Where excavation for new construction is required within drip line of trees, hand excavation shall be employed to minimize damage to root system. Roots shall be relocated in backfill areas wherever possible. If encountered immediately adjacent to location of new construction, roots shall be cut approximately 6 inches back from new construction.
 - (d) Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Do not use mechanical equipment to compact backfill. Tamp carefully using hand tools, refilling and tamping until Final Acceptance as necessary to offset settlement.
 - (e) Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be wrapped with four layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill.
 - (f) Accidentally broken roots should be sawed cleanly 3 inches behind ragged end.

1.05 SECURITY:

The Contractor shall be responsible for project security for materials, tools, equipment, supplies, and completed and partially completed Work.

1.06 TEMPORARY CONTROLS:

A. Noise Control:

- (1) Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work period, and it shall take

all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.

- (2) Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the District a minimum of forty-eight (48) hours in advance of their performance.

B. Noise and Vibration:

- (1) Equipment and impact tools shall have intake and exhaust mufflers.
- (2) Contractor shall cooperate with District to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

C. Dust and Dirt:

- (1) Contractor shall conduct demolition and construction operations to minimize the generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.
- (2) Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.
- (3) Contractor shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.
- (4) Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.

D. Water:

- (1) Contractor shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation develop, Contractor shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

E. Pollution:

- (1) No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.

- (2) Contractor shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

F. Lighting:

- (1) If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

1.07 JOB SIGN(S):

A. General:

- (1) Contractor shall provide and maintain a Project identification sign with the design, text, and colors designated by the District and/or the Design Professional; locate sign as approved by the District.
- (2) Signs other than the specified Project sign and or signs required by law, for safety, or for egress, shall not be permitted, unless otherwise approved in advance by the District.

B. Materials:

- (1) Structure and Framing: Structurally sound, new or used wood or metal; wood shall be nominal 3/4-inch exterior grade plywood.
- (2) Sign Surface: Minimum 3/4-inch exterior grade plywood.
- (3) Rough Hardware: Galvanized.
- (4) Paint: Exterior quality, of type and colors selected by the District and/or the Design Professional.

C. Fabrication:

- (1) Contractor shall fabricate to provide smooth, even surface for painting.
- (2) Size: 4'-0" x 8'-0", unless otherwise indicated.
- (3) Contractor shall paint exposed surfaces of supports, framing, and surface material with exterior grade paint: one coat of primer and one coat of finish paint.
- (4) Text and Graphics: As indicated.

1.08 PUBLICITY RELEASES:

- A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s) without the written permission of the District.

PART 2 – PRODUCTS Not used.

PART 3 – EXECUTION Not used.

END OF DOCUMENT

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions;
- B. Special Conditions; and
- C. Temporary Facilities and Controls.

1.02 SECTION INCLUDES:

- A. Administrative and procedural requirements for the following:
 - (1) Salvaging non-hazardous construction waste.
 - (2) Recycling non-hazardous construction waste.
 - (3) Disposing of non-hazardous construction waste.

1.03 DEFINITIONS:

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.04 PERFORMANCE REQUIREMENTS:

- A. General: Develop waste management plan that results in end-of Project rates for salvage/recycling of fifty percent (50%) by weight (or by volume, but not a combination) of total waste generated by the Work.

1.05 SUBMITTALS:

- A. Waste Management Plan: Submit waste management plan within 30 days of date established for commencement of the Work.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit copies of report. Include the following information:
 - (1) Material category.
 - (2) Generation point of waste.
 - (3) Total quantity of waste in tons or cubic yards.
 - (4) Quantity of waste salvaged, both estimated and actual in tons or cubic yards.
 - (5) Quantity of waste recycled, both estimated and actual in tons or cubic yards.
 - (6) Total quantity of waste recovered (salvaged plus recycled) in tons or cubic yards.
 - (7) Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for final payment, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

- H. Qualification Data: For Waste Management Coordinator.
- I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.
- J. Submittal procedures and quantities are specified in Document 01 33 00.

1.06 QUALITY ASSURANCE:

- A. Waste Management Coordinator Qualifications: LEED Accredited Professional by U.S. Green Building Council.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Waste Management Conference: Conduct conference at Project site to comply with requirements. Review methods and procedures related to waste management including, but not limited to, the following:
 - (1) Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
 - (2) Review requirements for documenting quantities of each type of waste and its disposition.
 - (3) Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - (4) Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - (5) Review waste management requirements for each trade.

1.07 WASTE MANAGEMENT PLAN:

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measurement throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

- (1) Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
- (2) Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
- (3) Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
- (4) Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
- (5) Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
- (6) Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 - PRODUCTS Not Used.

PART 3 - EXECUTION

3.01 PLAN IMPLEMENTATION:

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - (1) Comply with Document 01 50 00 for operation, termination, and removal requirements.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 - (1) Distribute waste management plan to everyone concerned within 3 days of submittal return.

- (2) Distribute waste management plan to entities when they first begin work on site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - (1) Designate and label specific areas of Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - (2) Comply with Document 01 50 00 for controlling dust and dirt, environmental protection, and noise control.

3.02 RECYCLING CONSTRUCTION WASTE:

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to the Contractor.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
 - (1) Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project Site. Include list of acceptable and unacceptable materials at each container and bin.
 - (a) Inspect containers and bins for contamination and remove contaminated materials if found.
 - (2) Stockpile processed materials on site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - (3) Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 - (4) Store components off the ground and protect from the weather.
 - (5) Remove recyclable waste off District property and transport to recycling receiver or processor.

- D. Packaging:
 - (1) Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - (2) Polystyrene Packaging: Separate and bag material.
 - (3) Pallets: As much as possible, require deliveries using pallets to remove pallets from Project Site. For pallets that remain on Site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - (4) Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- E. Site-Clearing Wastes: Chip brush, branches, and trees on site.
- F. Wood Materials:
 - (1) Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - (2) Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- G. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
 - (1) Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.03 DISPOSAL OF WASTE:

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project Site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - (1) Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on site.
 - (2) Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off District property and legally dispose of them.

END OF SECTION

PRODUCT DELIVERY, STORAGE AND HANDLING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Access, Conditions and Requirements;
- B. Special Conditions.

1.02 PRODUCTS

- A. Products are as defined in the General Conditions.
- B. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.
- C. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

1.03 TRANSPORTATION AND HANDLING

- A. Contractor shall transport and handle Products in accordance with manufacturer's instructions.
- B. Contractor shall promptly inspect shipments to confirm that Products comply with requirements, quantities are correct, and products are undamaged.
- C. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.04 STORAGE AND PROTECTION

- A. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated Products, Contractor shall place on sloped supports, above ground.
- C. Contractor shall provide off-site storage and protection when Site does not permit on-site storage or protection.

- D. Contractor shall cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.
- E. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.
- F. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- G. Contractor shall arrange storage of Products to permit access for inspection and periodically inspect to assure Products are undamaged and are maintained under specified conditions.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION Not Used.

END OF DOCUMENT

FIELD ENGINEERING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Investigation, and Soils Investigation Report;
- B. Special Conditions;
- C. Site-Visit Certification.

1.02 REQUIREMENTS INCLUDED:

- A. Contractor shall provide and pay for field engineering services by a California-registered engineer, required for the project, including, without limitations:
 - (1) Survey work required in execution of the Project.
 - (2) Civil or other professional engineering services specified, or required to execute Contractor's construction methods.

1.03 QUALIFICATIONS OF SURVEYOR OR ENGINEERS:

Contractor shall only use a qualified licensed engineer or registered land surveyor, to whom District makes no objection.

1.04 SURVEY REFERENCE POINTS:

- A. Existing basic horizontal and vertical control points for the Project are those designated on the Drawings.
- B. Contractor shall locate and protect control points prior to starting Site Work and preserve all permanent reference points during construction. In addition Contractor shall:
 - (1) Make no changes or relocation without prior written notice to District and Architect.
 - (2) Report to District and Architect when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - (3) Require surveyor to replace Project control points based on original survey control that may be lost or destroyed.

1.05 RECORDS:

Contractor shall maintain a complete, accurate log of all control and survey work as it progresses.

1.06 SUBMITTALS:

- A. Contractor shall submit name and address of Surveyor and Professional Engineer to District and Architect prior to its/their work on the Project.
- B. On request of District and Architect, Contractor shall submit documentation to verify accuracy of field engineering work, at no additional cost to the District.
- C. Contractor shall submit a certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance or nonconformance with Contract Documents.

PART 2 – PRODUCTS Not Used.

PART 3 - EXECUTION

3.01 COMPLIANCE WITH LAWS:

Contractor is responsible for meeting all applicable codes, OSHA, safety and shoring requirements.

3.02 NONCONFORMING WORK:

Contractor is responsible for any re-surveying required by correction of nonconforming work.

END OF DOCUMENT

CUTTING AND PATCHING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Inspector, Inspections, and Tests, Integration of Work, Nonconforming Work, and Correction of Work, and Uncovering Work;
- B. Special Conditions;
- C. Hazardous Materials Procedures and Requirements;
- D. Hazardous Materials Certification;
- E. Lead-Based Paint Certification;
- F. Imported Materials Certification.

1.02 CUTTING AND PATCHING:

- A. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:
 - (1) Make several parts fit together properly.
 - (2) Uncover portions of Work to provide for installation of ill-timed Work.
 - (3) Remove and replace defective Work.
 - (4) Remove and replace Work not conforming to requirements of Contract Documents.
 - (5) Remove Samples of installed Work as specified for testing.
 - (6) Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
 - (7) Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.
- B. In addition to Contract requirements, upon written instructions from the District, Contractor shall uncover Work to provide for observations of covered Work in accordance with the Contract Documents; remove samples of

installed materials for testing as directed by District; and remove Work to provide for alteration of existing Work.

- C. Contractor shall not cut or alter Work, or any part of it, in such a way that endangers or compromises the integrity of the Work, the Project, or work of others.

1.03 SUBMITTALS:

- A. Prior to any cutting or alterations that may affect the structural safety of Project, or work of others, and well in advance of executing such cutting or alterations, Contractor shall submit written notice to District pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration, including the following:
 - (1) The work of the District or other trades.
 - (2) Structural value or integrity of any element of Project.
 - (3) Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.
 - (4) Efficiency, operational life, maintenance or safety of operational elements.
 - (5) Visual qualities of sight-exposed elements.
- B. Contractor's Request shall also include:
 - (1) Identification of Project.
 - (2) Description of affected Work.
 - (3) Necessity for cutting, alteration, or excavations.
 - (4) Effects of Work on District, other trades, or structural or weatherproof integrity of Project.
 - (5) Description of proposed Work:
 - (a) Scope of cutting, patching, alteration, or excavation.
 - (b) Trades that will execute Work.
 - (c) Products proposed to be used.
 - (d) Extent of refinishing to be done.
 - (6) Alternates to cutting and patching.
 - (7) Cost proposal, when applicable.

- (8) The scheduled date the Contractor intends to perform the Work and the duration of time to complete the Work.
- (9) Written permission of District or other District contractor(s) whose work will be affected.

1.04 QUALITY ASSURANCE:

- A. Contractor shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.
- B. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the District's decision shall be final.

1.05 PAYMENT FOR COSTS:

- A. Cost caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the District, its consultants, including but not limited to the Construction Manager, the Architect, the Project Inspector(s), Engineers, and Agents, will be paid by Contractor and/or deducted from the Contract by the District.
- B. District shall only pay for cost of Work if it is part of the original Contract Price or if a change has been made to the contract in compliance with the provisions of the General Conditions. Cost of Work performed upon instructions from the District, other than defective or nonconforming Work, will be paid by District on approval of written Change Order. Contractor shall provide written cost proposals prior to proceeding with cutting and patching.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Contractor shall provide for replacement and restoration of Work removed. Contractor shall comply with the Contract Documents and with the Industry Standard(s), for the type of Work, and the Specification requirements for each specific product involved. If not specified, Contractor shall first recommend a product of a manufacturer or appropriate trade association for approval by the District.
- B. Materials to be cut and patched include those damaged by the performance of the Work.

PART 3 – EXECUTION

3.01 INSPECTION:

- A. Contractor shall inspect existing conditions of the Site and the Work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering Work, Contractor shall inspect conditions affecting installation of new products.
- B. Contractor shall report unsatisfactory or questionable conditions in writing to District as indicated in the General Conditions and shall proceed with Work as indicated in the General Conditions by District.

3.02 PREPARATION:

- A. Contractor shall provide shoring, bracing and supports as required to maintain structural integrity for all portions of the Project, including all requirements of the Project.
- B. Contractor shall provide devices and methods to protect other portions of Project from damage.
- C. Contractor shall, provide all necessary protection from weather and extremes of temperature and humidity for the Project, including without limitation, any work that may be exposed by cutting and patching Work. Contractor shall keep excavations free from water.

3.03 ERECTION, INSTALLATION AND APPLICATION:

- A. With respect to performance, Contractor shall:
 - (1) Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.
 - (2) Execute cutting and demolition by methods that will prevent damage to other Work, and provide proper surfaces to receive installation of repairs and new Work.
 - (3) Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other Work and damage from settlement.
- B. Contractor shall employ original installer or fabricator to perform cutting and patching for:
 - (1) Weather-exposed surfaces and moisture-resistant elements such as roofing, sheet metal, sealants, waterproofing, and other trades.
 - (2) Sight-exposed finished surfaces.
- C. Contractor shall execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances,

and finishes as shown or specified in the Contract Documents including, without limitation, the Drawings and Specifications.

- D. Contractor shall fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Contractor shall conform to all Code requirements for penetrations or the Drawings and Specifications, whichever calls for a higher quality or more thorough requirement. Contractor shall maintain integrity of both rated and non-rated fire walls, ceilings, floors, etc.
- E. Contractor shall restore Work which has been cut or removed. Contractor shall install new products to provide completed Work in accordance with requirements of the Contract Documents and as required to match surrounding areas and surfaces.
- F. Contractor shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF DOCUMENT

CONTRACT CLOSEOUT AND FINAL CLEANING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Completion of Work;
- B. Special Conditions;
- C. Temporary Facilities and Controls.

1.02 CLOSEOUT PROCEDURES

Contractor shall comply with all closeout provisions as indicated in the General Conditions.

1.03 FINAL CLEANING

- A. Contractor shall execute final cleaning prior to final inspection.
- B. Contractor shall clean interior and exterior glass and all surfaces exposed to view; remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, wax and polish new vinyl floor surfaces, vacuum carpeted and soft surfaces.
- C. Contractor shall clean equipment and fixtures to a sanitary condition.
- D. Contractor shall replace filters of operating equipment.
- E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.
- F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.
- G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site and surrounding areas.

1.04 ADJUSTING

Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

1.05 RECORD DOCUMENTS AND SHOP DRAWINGS

- A. Contractor shall legibly mark each item to record actual construction, including:
 - (1) Measured depths of foundation in relation to finish floor datum.
 - (2) Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.
 - (3) Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - (4) Field changes of dimension and detail.
 - (5) Details not on original Contract Drawings
 - (6) Changes made by modification(s).
 - (7) References to related Shop Drawings and modifications.
- B. Contractor will provide two (2) hard copy sets, and one (1) electronic set, of Record Drawings to District.
- C. Contractor shall submit all required documents to District and/or Architect prior to or with its final Application for Payment.

1.06 INSTRUCTION OF DISTRICT PERSONNEL

- A. Before final inspection, at agreed upon times, Contractor shall instruct District's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six months or by the change of season.
- C. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when the need for such data becomes apparent during instruction.
- E. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.07 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Contractor shall provide products, spare parts, maintenance, and extra materials in quantities specified in the Specifications and in Manufacturer's recommendations.
- B. Contractor shall provide District with all required Operation and Maintenance Data at one time. Partial or piecemeal submissions of Operation and Maintenance Data will not be accepted.
- C. Contractor will provide two (2) hard copy sets, and one (1) electronic set, of Record Drawings to District.
- D. Contractor shall submit all required documents to District and/or Architect prior to or with its final Application for Payment.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Site Access Conditions and Requirements;
- B. Special Conditions.

1.02 SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of this Contract consists of the following:

Complete replacement of the existing Stadium Parking Lot paving, including furnishing & installing lighting, chain link fencing, and landscaping.

1.03 CONTRACTS

- A. Perform the Work under a single, fixed-price Contract.

1.04 WORK BY OTHERS

NOT USED

1.05 CODES, REGULATIONS, AND STANDARDS

- A. The codes, regulations, and standards adopted by the state and federal agencies having jurisdiction shall govern minimum requirements for this Project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the District and the Architect.
- B. Codes, regulations, and standards shall be as published effective as of date of bid opening, unless otherwise specified or indicated.

1.06 PROJECT RECORD DOCUMENTS

- A. Contractor shall maintain on Site one set of the following record documents; Contractor shall record actual revisions to the Work:
 - (1) Contract Drawings.
 - (2) Specifications.

- (3) Addenda.
 - (4) Change Orders and other modifications to the Contract.
 - (5) Reviewed shop drawings, product data, and samples.
 - (6) Field test records.
 - (7) Inspection certificates.
 - (8) Manufacturer's certificates.
- B. Contractor shall store Record Documents separate from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.
 - C. Contractor shall record information concurrent with construction progress.
 - D. Specifications: Contractor shall legibly mark and record at each product section of the Specifications the description of the actual product(s) installed, including the following:
 - (1) Manufacturer's name and product model and number.
 - (2) Product substitutions or alternates utilized.
 - (3) Changes made by Addenda and Change Orders and written directives.

1.07 EXAMINATION OF EXISTING CONDITIONS

- A. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets or roads approaching the Site.
- B. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken, missing or damaged glazing, other building elements and Site improvements, and other damage.
- C. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the District and the Architect.

1.08 CONTRACTOR'S USE OF PREMISES

- A. If unoccupied and only with District's prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the District chooses to beneficially occupy any building(s), Contractor must obtain the District's written approval for Contractor's use of spaces and types of

operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.

- B. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor.
- C. Contractor shall not interfere with use of or access to occupied portions of the building(s) or adjacent property.
- D. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.
- E. No one other than those directly involved in the demolition and construction, or specifically designated by the District or the Architect shall be permitted in the areas of work during demolition and construction activities.
- F. The Contractor shall install the construction fence and maintain that it will be locked when not in use. Keys to this fencing will be provided to the District.

1.09 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

- A. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing installations, the costs of repair shall be at the Contractor's expense and made to the District's satisfaction.
- B. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the District for disposition of same as indicated in the General Conditions.

1.10 UTILITY SHUTDOWNS AND INTERRUPTIONS

- A. Contractor shall give the District a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions. The District will set exact time and duration for shutdown, and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.
- B. Contractor shall obtain District's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with District's use of the building(s) or adjacent facilities.

1.11 STRUCTURAL INTEGRITY

- A. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.
- B. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Completion of the Work;
- B. Special Conditions.

1.02 QUALITY ASSURANCE:

Contractor shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.03 FORMAT:

- A. Contractor shall prepare data in the form of an instructional manual entitled "OPERATIONS AND MAINTENANCE MANUAL & INSTRUCTIONS" ("Manual").
- B. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Contractor shall correlate data into related consistent groupings.
- C. Cover: Contractor shall identify each binder with typed or printed title "OPERATION AND MAINTENANCE MANUAL & INSTRUCTIONS"; and shall list title of Project and identify subject matter of contents.
- D. Contractor shall arrange content by systems process flow under section numbers and sequence of Table of Contents of the Contract Documents.
- E. Contractor shall provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- F. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.
- G. Drawings: Contractor shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

1.04 CONTENTS, EACH VOLUME:

- A. Table of Contents: Contractor shall provide title of Project; names, addresses, and telephone numbers of the Architect, any engineers, subconsultants, Subcontractor(s), and Contractor with name of responsible parties; and schedule of products and systems, indexed to content of the volume.
- B. For Each Product or System: Contractor shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.
- C. Product Data: Contractor shall mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- D. Drawings: Contractor shall supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Contractor shall not use Project Record Documents as maintenance drawings.
- E. Text: Contractor shall include any and all information as required to supplement product data. Contractor shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- F. Warranties and Bonds: Contractor shall bind in one copy of each.

1.05 MANUAL FOR MATERIALS AND FINISHES:

- A. Building Products, Applied Materials, and Finishes: Contractor shall include product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured products.
- B. Instructions for Care and Maintenance: Contractor shall include Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- C. Moisture Protection and Weather Exposed Products: Contractor shall include product data listing applicable reference standards, chemical composition, and details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.
- D. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.
- E. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.06 MANUAL FOR EQUIPMENT AND SYSTEMS:

- A. Each Item of Equipment and Each System: Contractor shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. Contractor shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.
- B. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.
- C. Contractor shall include color coded wiring diagrams as installed.
- D. Operating Procedures: Contractor shall include start-up, break-in, and routine normal operating instructions and sequences. Contractor shall include regulation, control, stopping, shut-down, and emergency instructions. Contractor shall include summer, winter, and any special operating instructions.
- E. Maintenance Requirements: Contractor shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- F. Contractor shall provide servicing and lubrication schedule, and list of lubricants required.
- G. Contractor shall include manufacturer's printed operation and maintenance instructions.
- H. Contractor shall include sequence of operation by controls manufacturer.
- I. Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- J. Contractor shall provide control diagrams by controls manufacturer as installed.
- K. Contractor shall provide Contractor's coordination drawings, with color coded piping diagrams as installed.
- L. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- M. Contractor shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- N. Additional Requirements: Contractor shall include all additional requirements as specified in Specification(s).
- O. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.07 SUBMITTAL:

- A. Contractor shall submit to the Architect and District, for review, two (2) hard copies of preliminary draft or proposed formats and outlines of the contents of the Manual within thirty (30) days of Contractor's start of Work.
- B. For equipment, or component parts of equipment put into service during construction and to be operated by District, Contractor shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.
- C. Contractor shall submit two (2) hard copies of a complete Manual in final form prior to final Application for Payment. Copies will be returned with Architect/Engineer comments. Contractor must revise the content of the Manual as required by District prior to District's approval of Contractor's final Application for Payment.
- D. Contractor must submit two (2) hard copies, and one (1) electronic copy, of revised Manual in final form within ten (10) days after final inspection.

PART 2 – PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

WARRANTIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Warranty/Guarantee Information;
- B. Special Conditions.

1.02 FORMAT

- A. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.
- B. Cover: Contractor shall identify each binder with typed or printed title "WARRANTIES" and shall list title of Project.
- C. Table of Contents: Contractor shall provide title of Project; name, address, and telephone number of Contractor and equipment supplier; and name of responsible principal. Contractor shall identify each item with the number and title of the specific Specification, document, provision, or section in which the name of the product or work item is specified.
- D. Contractor shall separate each warranty with index tab sheets keyed to the Table of Contents listing, providing full information and using separate typed sheets as necessary. Contractor shall list each applicable and/or responsible Subcontractor(s), supplier(s), and/or manufacturer(s), with name, address, and telephone number of each responsible principal(s).

1.03 PREPARATION:

- A. Contractor shall obtain warranties, executed in duplicate by each applicable and/or responsible subcontractor(s), supplier(s), and manufacturer(s), within ten (10) days after completion of the applicable item or work. Except for items put into use with District's permission, Contractor shall leave date of beginning of time of warranty blank until the date of completion is determined.
- B. Contractor shall verify that documents are in proper form, contain full information, and are notarized, when required.
- C. Contractor shall co-execute submittals when required.
- D. Contractor shall retain warranties until time specified for submittal.

1.04 TIME OF SUBMITTALS:

- A. For equipment or component parts of equipment put into service during construction with District's permission, Contractor shall submit a draft warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.
- B. Contractor shall submit for District approval all warranties and related documents within ten (10) days after date of completion. Contractor must revise the warranties as required by the District prior to District's approval of Contractor's final Application for Payment.
- C. For items of work delayed beyond date of completion, Contractor shall provide an updated submittal within ten (10) days after acceptance, listing the date of acceptance as start of warranty period.

PART 2 - PRODUCTS Not Used.

PART 3 – EXECUTION Not Used.

END OF DOCUMENT

RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

- A. General Conditions, including, without limitation, Documents on Work;
- B. Special Conditions.

PART 2 - RECORD DRAWINGS

2.01 GENERAL:

- A. As indicated in the Contract Documents, the District will provide Contractor with one set of reproducible, full size original Contract Drawings.
- B. Contractor shall maintain at each Project Site one set of marked-up plans and shall transfer all changes and information to those marked-up plans, as often as required in the Contract Documents, but in no case less than once each month. Contractor shall submit to the Project Inspector one set of reproducible vellums of the Project Record Drawings ("As-Builts") showing all changes incorporated into the Work since the preceding monthly submittal. The As-Builts shall be available at the Project Site. The Contractor shall submit reproducible copy of the plans at the conclusion of the Project following review of the marked-up plans.
- C. Label and date each Record Drawing "RECORD DOCUMENT" in legibly printed letters.
- D. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused by without limitation Change Orders, Construction Claim Directives, RFI's, and Addenda, shall be accurately and legibly recorded by Contractor.
- E. Locations and changes shall be done by Contractor in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

2.02 RECORD DRAWING INFORMATION:

- A. Contractor shall record the following information:
 - (1) Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.

- (2) Actual numbering of each electrical circuit to match panel schedule.
- (3) Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Contract Drawings.
- (4) Locations of all items, not necessarily concealed, which vary from the Contract Documents.
- (5) Installed location of all cathodic protection anodes.
- (6) Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.
- (7) Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub-outs, invert elevations, etc.
- (8) Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.

In some instances, this information may be recorded by dimension. In other instances, it may be recorded in relation to the spaces in the building near which it was installed.

- B. Contractor shall provide additional drawings as necessary for clarification.
- C. Contractor shall provide reproducible record drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."
- D. After review and approval of the marked-up plans by the Project Inspector, Contractor shall provide electronic copies of the drawings (in PDF format) with one file with all of the sheets and one set of individual sheet files at the conclusion of the Project. Contractor shall also provide one copy, on bond copy paper, of the set of approved marked-up plans.

PART 3 - RECORD SPECIFICATIONS

3.01 GENERAL:

- A. Contractor shall mark each section legibly to record manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.
- B. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide one electronic copy of the specifications (in PDF format) at the conclusion of the Project. Contractor shall also provide one copy, on bond copy paper, of the approved marked-up specifications.

PART 4 - MAINTENANCE OF RECORD DOCUMENTS

4.01 GENERAL

- A. Contractor shall store Record Documents apart from documents used for construction as follows:
 - (1) Provide files and racks for storage of Record Documents.
 - (2) Maintain Record Documents in a clean, dry, legible condition and in good order.
- B. Contractor shall not use Record Documents for construction purposes.

PART 5 – PRODUCTS Not Used.

END OF DOCUMENT

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Footings and foundation walls.
 - 2. Interior Slabs-on-grade.
 - 3. Exterior slabs-on-grade.
- B. Special Coordination Requirements: Coordinate with the work of the following sections to identify the finish flooring manufacturer's concrete slab requirements. Such requirements may be over and above the requirements of the Contract Documents and may require additional materials, means, or methods, which shall be included as part of the Work.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Certificates: Weighmaster's Certificates.
- E. Material Certificates:

1. For each of the following, signed by manufacturers:
 - a. Cementitious materials.
 - b. Admixtures.
 - c. Waterstops.
 - d. Curing materials.
 - e. Floor and slab treatments.
 - f. Bonding agents.
 - g. Adhesives.
 - h. Vapor retarders.
 - i. Semi-rigid joint filler.
 - j. Joint-filler strips.
 - k. Repair materials.
- F. Material Test Reports:
 1. For the following, from a qualified testing agency, indicating compliance with requirements:
 - a. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

1.5 QUALITY ASSURANCE

- A. Codes and Standards:
 1. Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:
 - a. CBC 2019 California Building Code (CCR Title 24, Part 2, as adopted and amended by DSA).
- B. Manufacturer Qualifications:
 1. A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment:
 - a. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Source Quality Control: Furnish Weighmaster's Certificates for all concrete.
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D1.4M, "Structural Welding Code - Reinforcing Steel."
- E. ACI Publications:
 1. Comply with the following unless modified by requirements in the Contract Documents:
 - a. ACI 301, "Specifications for Structural Concrete."
 - b. ACI 117, "Specification for Tolerances for Concrete Construction and Materials and Commentary."
 - c. ACI 305R, "Guide to Hot Weather Concreting."

- d. ACI 306R, "Guide to Cold Weather Concreting."
 - e. ACI 318, "Building Code Requirements for Structural Concrete and Commentary."
- F. Concrete Testing Service: Engage a qualified independent testing agency approved by DSA to perform material evaluation tests and to design concrete mixtures.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete:
- 1. Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in large sizes to minimize number of joints:
 - a. Plywood, metal, or other approved panel materials.
 - b. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - 1) High-density overlay, Class 1 or better.
 - 2) Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - 3) Structural 1, B-B or better; mill oiled and edge sealed.
 - 4) B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent:
- 1. Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces:
 - a. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- F. Form Ties:
- 1. Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal:

- a. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A615/A615M, Grade 60.
- B. Welded Reinforcing Bars: Low-Alloy-Steel Reinforcing Bars, ASTM A706/A706M, deformed.
- C. Do not use reinforcement having any of the following defects:
 1. Bar lengths, depths, or bends exceeding the specified fabricating tolerances.
 2. Bends or kinks not indicated on the Drawings or required for this Work.
 3. Bars with cross-section reduced due to excessive rust or other causes.

2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports:
 1. Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - a. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material:
 1. Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - a. Portland Cement - ASTM C150, Type I/II. Supplement with the following:
 - 1) Fly Ash: ASTM C618, Class F.
- B. Normal-Weight Aggregates:
 1. ASTM C33:
 - a. Maximum Coarse-Aggregate Size: Per plan.
 - b. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C94 and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C260.

- B. Chemical Admixtures:
 - 1. Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride:
 - a. Water-Reducing Admixture: ASTM C494/C494M, Type A.
 - b. Retarding Admixture: ASTM C494/C494M, Type B.
 - c. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
 - d. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 - e. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
 - f. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
- C. Integral Waterproofing Admixtures:
 - 1. ASTM C494, Type S, complex catalyzed hydrous silicate, water and vapor proofing liquid admixture:
 - a. Product: Subject to compliance with requirements, provide Moxie International Inc.; Moxie Shield 1800 Concrete Admixture, P.O. Box 838 Loomis, CA 95650; Contact Manufacturer's representative: P:916-251-0825, F: 877-330-1930 Email: info@moxieshield.com.
 - b. Properties:
 - 1) Water/Cement Ratio: Maximum 0.52.
 - 2) Water Vapor transmission: Less than 0.1 perms (5.7 g/Pa-s-m²).
 - 3) Water Seepage or Permeability: Not to exceed 7.00 x 10⁻⁹ cm/s @ 50psi (2.3 x 10⁻¹⁰ ft/s).
 - 2. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.6 VAPOR RETARDERS

- A. Sheet Vapor Retarder:
 - 1. ASTM E1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape:
 - a. Products are subject to compliance with requirements. Acceptable products:
 - 1) Stego Industries, LLC: Stego Wrap 15 mil Class A.
 - 2) Grace Construction Products: Florprufe 120.
 - 3) W. R. Meadows, Inc.: Perminator 15 mil.
 - 4) Substitutions with Architect's approval, and pursuant to conditions of Divisions 00 and 01.
- B. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D448, Size 57, with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

2.7 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz. /sq. yd. when dry.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.

2.8 RELATED MATERIALS

- A. Non-shrink Grout:
 - 1. Factory premixed grout; ASTM C1107.
 - 2. Compressive strength: 7,000 psi at 28 days.
- B. Exterior Concrete Walks: Provide a capillary break consisting of 2" of clean dry sand, ASTM C33, evenly spread on top of the compacted subgrade.

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301:
 - 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
 - 2. All concrete mix designs shall be prepared and stamped by a California registered Civil Engineer.
- B. Cementitious Materials:
 - 1. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - a. Fly Ash: 15 to 25 percent.
- C. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings and Foundation Walls, Concrete Stairs, Concrete Walls:
 - 1. Proportion normal-weight concrete mixture as follows:
 - a. Minimum Compressive Strength: 3000 psi at 28 days unless otherwise noted.
 - b. Maximum Water-Cementitious Materials Ratio: 0.55.
 - c. Minimum Cementitious Materials Content: 5.5 sacks of cement per cubic yard.
 - d. Slump Limit: 4 inches, plus or minus 1 inch.

- B. Interior Slabs-on-Grade:
 - 1. Proportion normal-weight concrete mixture as follows:
 - a. Minimum Compressive Strength: 4000 psi at 28 days.
 - b. Maximum Water-Cementitious Materials Ratio: 0.45.
 - c. Minimum Cementitious Materials Content: 6.0 sacks of cement per cubic yard.
 - d. Slump Limit: 4 inches, plus or minus 1 inch.
- C. Exterior Slabs-on-Grade:
 - 1. Proportion normal-weight concrete mixture as follows:
 - a. Minimum Compressive Strength: 3000 psi at 28 days.
 - b. Maximum Water-Cementitious Materials Ratio: 0.55.
 - c. Minimum Cementitious Materials Content: 5.5 sacks of cement per cubic yard.
 - d. Slump Limit: 4 inches, plus or minus 1 inch.

2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete:
 - 1. Measure, batch, mix, and deliver concrete according to ASTM C94/C94M, and furnish batch ticket information:
 - a. 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.

2.13 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment:
 - 1. Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces:
 - a. Basis-of-Design Product: Subject to compliance with requirements, provide Moxie International Inc.; Moxie Shield 1500 Concrete Sealer or Moxie Shield MFSII Flooring Sealer, P.O. Box 838 Loomis, CA 95650; Contact Manufacturer's representative: P:916-251-0825, F: 877-330-1930 Email: info@moxieshield.com.
 - b. Products shall comply with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

PART 3 EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- E. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded. In no case shall any bolt or anchor be stabbed in place while or after the concrete is poured:
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 REMOVING AND REUSING FORMS

- A. General:
 - 1. 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:
 - a. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 75 percent of its 28-day design compressive strength.
 - b. Do not strip vertical concrete in less than 7 days.
 - c. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring:
 - 1. Do not remove shoring or reshoring until measurement of slab tolerances is complete.
- B. Plan sequence of removal of shores and reshore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.5 VAPOR RETARDERS

- A. Sheet Vapor Retarders:
 - 1. Place, protect, and repair sheet vapor retarder according to ASTM E1643 and manufacturer's written instructions:
 - a. Lap joints 6 inches and seal with Manufacturer's recommended tape.
 - b. Seal all penetrations (including pipes) per manufacturer's tape.
 - c. No penetration of the vapor barrier is allowed except for reinforcing and permanent utilities.
 - d. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6 inches and taping all four sides with tape.
 - e. Do not saturate the sand cushion.
 - f. If sand is saturated prior to placement of concrete, remove the sand and replace.
 - g. Protect all installed moisture barrier construction from precipitation and water penetration by covering and providing positive drainage away from the moisture barrier.
 - h. Cover slab openings and block-outs around columns to prevent water penetration of moisture barrier.

3.6 STEEL REINFORCEMENT

- A. General:
 - 1. Comply with CRSI's "Manual of Standard Practice" for placing reinforcement:
 - a. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
 - b. Clean reinforcement and remove loose dust and mill scale, earth, oil, and other materials which reduce bond or destroy bond with concrete.
 - c. Position, support, and secure reinforcement against displacement by forms, construction, and the concrete placement operations. Provide metal chairs, dobies, or other aids manufactured for this purpose.
 - d. Place reinforcement to obtain the required concrete coverages for concrete protection.

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Pittsburg HS – Stadium Parking Lot
Replacement Project

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AME 225-0181

3.7 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade:
 - 1. Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-inch as follows:
 - a. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - b. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch wide, 1/3-inch depth joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Saw cut slab as soon as surface has hardened to where it can support the equipment and operator, normally within 2 hours after finishing. Use saw which is specially designed for cutting fresh concrete, such as "Soff-Cut" or equal.
- D. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate one-half of dowel length to prevent concrete bonding to one side of joint.

3.8 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation:
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time

necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

- D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete:
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- E. Cold-Weather Placement:
 - 1. Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures:
 - a. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - b. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - c. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement:
 - 1. Comply with ACI 301 and as follows:
 - a. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - b. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.9 FINISHING FORMED SURFACES

- A. Rough-Formed Finish:
 - 1. As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities:
 - a. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish:
 - 1. As-cast concrete texture imparted by form-facing material, arranged in an orderly and

symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities:

- a. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.

C. Rubbed Finish:

1. Apply the following to smooth-formed finished as-cast concrete where indicated:
 - a. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
 - b. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one-part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
 - c. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one-part portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Except as may be shown otherwise on the drawings, provide the following finishes at the indicated locations.
- B. Scratch Finish:
1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in one direction:
 - a. Apply scratch finish to surfaces that are to receive concrete floor toppings or mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish:
1. 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 restraightening until surface is left with a uniform, smooth, granular texture:

- a. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

D. Trowel Finish:

1. 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 exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - b. Finish and measure surface so gap at any point between concrete surface and an unveled, freestanding, 10-ft. long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.
 - c. The contractor shall anticipate that grinding will be required as a result of curling or other slab defects. Grinding required to bring the slab surface into acceptable tolerances for finished flooring installation shall be included as part of the Work.

E. Trowel and Fine-Broom Finish:

1. Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom:
 - a. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

3.11 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining

cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.12 CONCRETE SURFACE REPAIRS

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

3.13 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. 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.
 - 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests:
 - 1. Testing of composite samples of fresh concrete obtained according to ASTM C172 shall be performed according to the following requirements:
 - a. 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.
 - b. Testing Frequency:
 - 1) Obtain at least one composite sample for each 50 cu. yd. or fraction thereof of each concrete mixture placed each day, but not less than once for each 2000 square feet of surface area for slabs or walls:
 - 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.
 - c. Slump: ASTM C143/C143M; 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.
 - d. Air Content: ASTM C231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

- e. Concrete Temperature: ASTM C1064/C1064M; 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.
- f. Unit Weight: ASTM C567, 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.
- g. Compression Test Specimens:
 - 1) ASTM C31/C31M:
 - a) Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b) Cast and field cure two sets of two standard cylinder specimens for each composite sample.
- h. Compressive-Strength Tests:
 - 1) ASTM C39/C39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days:
 - a) Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b) A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
- i. 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.
- j. 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.
- k. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- l. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- m. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.
- n. Additional testing and inspecting, at Contractor's expense, will be performed to

- determine compliance of replaced or additional work with specified requirements.
- o. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION - 0330000

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MATERIAL LIST			
ITEM	DESCRIPTION	PART NO.	QTY
1	ACCESS TILE	ACC-R-2X4	1
2	ANCHOR ASSEMBLY	ACC-R-ANCH	13

REFERENCE DRAWINGS	
DWG. NO.	DESCRIPTION

[illegible]

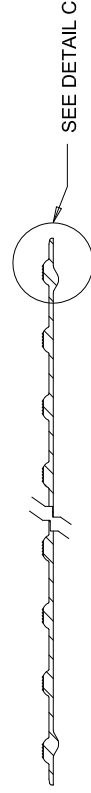
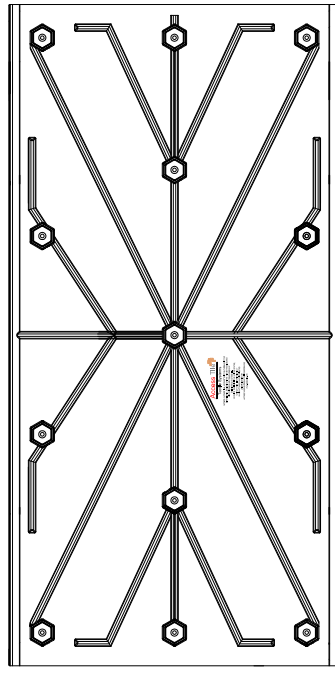
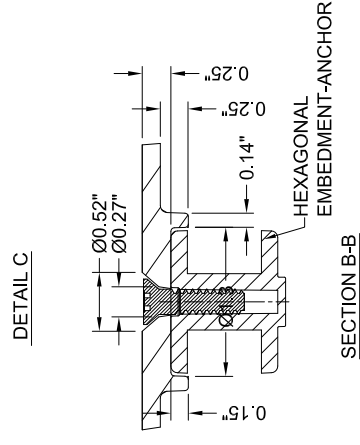
DESIGNED	KES	DATE
DRAWN	RWO	10/15/2008
DRAWN	KES	

PROJECT MANAGER	
TRADE DETECTABLE WARNING SURFACE	PART NO. ACC-R-2X4
MATERIAL	POLYMER COMPOSITE

ACCESS TILE®
TRUNCATED DOME, DETECTABLE
WARNING TACTILE SURFACE

PROJECT **ACCESS TILE®**
TRUNCATED DOME, DETECTABLE
WARNING TACTILE SURFACE
2X4 REPLACEABLE CAST IN PLACE
INLINE DOME TILE DRAWING.

DRAWING NO.	ACC-R-2X4	REV. NO.	0



SECTION A-A

SECTION 099100
PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and field painting, staining or refinishing of the following:
 - 1. Exposed exterior items and surfaces.
 - 2. Exposed interior items and surfaces.
 - 3. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
 - 4. Traffic striping.
 - 5. Painting of shop-primed metal surfaces.
- B. Paint/stain exposed surfaces, except where the paint/stain schedules indicate that a surface or material is not to be painted/stained or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available.
 - 1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Prefinished items include the following factory-finished components:
 - a. Acoustical wall panels.
 - b. Toilet enclosures.
 - c. Stainless steel items.
 - d. Finished mechanical and electrical equipment.
 - e. Light fixtures.
 - f. Distribution cabinets.
 - 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Furred areas.

- b. Ceiling plenums.
- c. Utility tunnels.
- d. Pipe spaces.
- e. Duct shafts.

3. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper.
 - e. Bronze and brass.
4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
5. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

D. Related Sections include the following:

1. Division 5 Section "Metal Fabrications" for shop priming ferrous metal.
2. Division 6 Section "Finish Carpentry".
3. Division 8 Section "Steel Doors and Frames" for shop priming steel doors and frames.
4. Division 9 Section "Gypsum Board Assemblies" for surface preparation for gypsum board.
5. Divisions 22, 23 and 26: Painting of mechanical and electrical work is specified in Divisions 22, 23 and 26, respectively.

1.3 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 5 and 20 when measured at a 60-degree meter.
3. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
4. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
5. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.

1.4 SUBMITTALS

A. Product Data: For each paint system specified. Include block fillers and primers.

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
 3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
- B. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish-coat material indicated.
1. After color selection, the Architect will furnish color chips for surfaces to be coated.
- C. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.
 3. Submit Samples on the following substrates for the Architect's review of color and texture only:
 - a. Concrete: Provide four 4-inch-square samples for each color and finish.
 - b. Concrete Masonry: Provide four 4-by-8-inch samples of masonry, with mortar joint in the center, for each finish and color.
 - c. Painted Wood: Provide two 12-inch- square samples of each color and material on hardboard.
 - d. Stained or Natural Wood: Provide two 4-by-8-inch samples of natural- or stained-wood finish on actual wood surfaces.
 - e. Ferrous Metal: Provide two 4-inch- square samples of flat metal and two 8-inch-long samples of solid metal for each color and finish.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

1.6 DELIVERY, STORAGE, AND HANDLING

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- A. Deliver materials to the Project Site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
 - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.7 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 deg F .
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.
- D. Protection:
 - 1. Cover or otherwise protect finished work of other trades, work not to be painted concurrently, landscaping, and adjacent property from damage.
 - 2. When not in use, store paints in designated areas. Keep containers closed. At end of day's work, remove empty containers, paint soaked rags, and debris. Vent fumes. Take precautions to prevent fire.
- E. Sequencing, Scheduling:
 - 1. Coordinate removal and replacement of hardware, electrical fixtures and trim, and related work of other Sections.
 - 2. Stain, prime, back paint, and pre-finish items before installation as required.

- F. Cleaning and Disposal:
 - 1. Do not use Project plumbing fixtures or piping systems for:
 - a. Cleaning painting equipment and utensils.
 - b. Disposal of waste from cleaning or disposal of paints.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products in the paint schedules.
- B. Manufacturers: The products specified at the end of Part 3 are based on the products of ICI Sinclair. The following listed manufacturers products equivalent to scheduled products are acceptable for use.
 - 1. Dunn Edwards
 - 2. Fuller-O'Brien Paints.
 - 3. Sherwin Williams
 - 4. Tnemec

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat 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.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Provide color selections made by the Architect. Colors to be factory mixed and to match approved samples.
- D. Mixing:
 - 1. Follow manufacturer's printed recommendations.
 - 2. Mix all paints thoroughly prior to application.
 - 3. Mix only in Inspector's presence in assigned spaces.

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4. Except where thinning is specifically recommended by manufacturer, do not thin products.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
 1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 2. Start of painting is the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
 1. Provide barrier coats over incompatible primers or remove and reprime.
 2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

- a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. All testing shall be performed and certified by a representative of the paint manufacturer. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.
 - d. At concrete and concrete block surfaces, fill cracks and defects with cement grout; match surface texture.
- 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
 - a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
 - b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, paneling, window sills and trim.
 - c. When transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
 - d. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
- 5. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with the Steel Structures Painting Council's (SSPC) recommendations.
 - a. Blast steel surfaces clean as recommended by paint system manufacturer and according to requirements of SSPC-SP 10.
 - b. Treat bare and sandblasted or pickled clean metal with a metal treatment wash coat before priming.
 - c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.
- 6. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.
- F. Drywall: Fill any cracks or defects with drywall joint compound or speckle. Sand any rough spots smooth. Do not raise nap on paper covering.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
 9. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
 10. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer on metal surfaces that have been shop primed and touchup painted.

3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items as identified in Divisions 15 and 16.
- F. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- G. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.
- H. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- I. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats.
- J. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.

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- K. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 SPECIAL REQUIREMENTS

- A. All paint which is skinned over or dirty shall be strained immediately through fine cheese cloth to remove dirt, grit, skins, etc., before using.
- B. When painting around glass on interior side of windows, paint shall extend out on glass approximately 1/16". This shall be done in a neat and workmanlike manner. Painting work, if done beyond this point, shall be removed flush with putty or wood stops and be repainted.
- C. All workers on the job site are to be dressed in painter's whites with caps and OSHA approved footwear.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.
- C. Correction of Defective Work:
 - 1. Repair abraded, damaged or incomplete paint surfaces by methods acceptable to Architect. Spot repairs to be well-blended into adjacent work. For large repairs, re-coat entire plane or building element in which damaged area occurs.
 - 2. Defaces surfaces of work not to be painted shall be cleaned and their original finish restored.

3.7 PAINT SYSTEMS SCHEDULE

A. Interior Paint Finishes

Surface		Finish Schedule Designation			Manufacturer's System Designation	
(1)	Gypsum Drywall	P12.A	Flat, Latex	First Coat Second Coat Third Coat	1000 1201 1201	Pigmented PVA Sealer HID WALL DULUX DULUX
		P12.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	1000 1406 1406	Pigmented PVA Sealer HID WALL DULUX DULUX
		P12.C	Eggshell Enamel Latex	First Coat Second Coat Third Coat	1000 1403 1403	Pigmented PVA Sealer HID WALL DULUX DULUX
	(Textured)	P12.D	Flat	One Coat	1251	Speed Wall
(2)	Wood	P13.A	Semi-Gloss Latex	First Coat Second Coat Third Coat	2000 1406 1406	DULUX DULUX DULUX
		P13.B	Eggshell Enamel, Latex	First Coat Second Coat Third Coat	2000 1403 1403	DULUX DULUX DULUX
		P13.C	Lacquer Velvet	Stain First Coat Second Coat Third Coat	1700 37798 LC383 LC383	Wood Pride Sanding Sealer High Solids Velvet Lacquer High Solids Velvet Lacquer
		P13.D	Lacquer Semi-Gloss	Stain First Coat Second Coat Third Coat	1700 37798 LC381 LC381	Wood Pride Sanding sealer High Solids Semi-Gloss Lacquer High Solids Semi-Gloss Lacquer
		P13.E	Lacquer Gloss	Stain First Coat Second Coat Third Coat	1700 37798 LC382 LC382	Wood Pride Sanding Sealer High Solids Gloss Lacquer High Solids Gloss Lacquer
		P13.F	Varnish Velvet	Stain First Coat Second Coat Third Coat	1700 1806 1806 1806	WOODPRIDE WOODPRIDE WOODPRIDE WOODPRIDE
		P13.G	Varnish Semi-Gloss	Stain First Coat Second Coat Third Coat	1700 1806 1806 1806	WOODPRIDE WOODPRIDE WOODPRIDE WOODPRIDE
		P13I	Fire Retardant Intumescent Paint (Sheen as selected by Architect)	First Coat Second Coat Third Coat	 	Water base sealer as recommended by manufacturer Flame Coat or Bar Flame or approved equal
(3)	Ferrous Metal	P14.A	Flat Latex	First Coat Second Coat Third Coat Fourth Coat	4020 1201 1201 1201	DEVFLEX DULUX DULUX DULUX

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		P14.B	Semi-Gloss Latex	First Coat Second Coat Third Coat Fourth Coat	4020 1406 1406 1406	DEVFLEX DULUX DULUX DULUX
(3) cont.	(Ferrous Metal)	P14.C	Eggshell Latex	First Coat Second Coat Third Coat Fourth Coat	4020 1403 1403 1403	DEVFLEX DULUX DULUX DULUX
(4)	Galvanized Metal/Aluminum	P15.A	Flat Latex	First Coat Second Coat Third Coat	4020 1201 1201	DEFLEX DULUX DULUX
		P15.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	4020 1406 1406	DEFLEX DULUX DULUX
		P15.C	Eggshell Latex	First Coat Second Coat Third Coat	4020 1403 1403	DEFLEX DULUX DULUX
(5)	Plaster, Concrete, Brick, Stucco	P16.A	Flat Latex	First Coat Second Coat Third Coat	3210 1201 1201	GRIPPER DULUX DULUX
		P16.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	3210 1406 1406	GRIPPER DULUX DULUX
		P16.C	Eggshell Latex	First Coat Second Coat Third Coat	3210 1403 1403	GRIPPER DULUX DULUX
(6)	Concrete Block	P17.A	Flat latex	First Coat Second Coat Third Coat	4000 1210 1210	Blox Fill DULUX DULUX
		P17.B	Semi-Gloss Latex	First Coat Second Coat Third Coat	4000 1201 1201	Block Fill DULUX DULUX
		P17.C	Eggshell Latex	First Coat Second Coat Third Coat	4000 1403 1403	Block Fill DULUX DULUX
(7)	Acoustical Ceiling Tile/Plaster	P18.A	Latex	One Coat to Cover	1251	Speed Wall
(8)	Ceramic Tile like Finishes	P19.A		First Coat Second Coat Third Coat	4408 4408 4408	TRU-GLAZE TRU-GLAZE TRU-GLAZE
(9)	Ceiling and Wall w/misc. Pipes & Conduit, attached and Trusses	P20.A		One Coat	1280	DRYFALL White or Black

	& Beams w/Spray-on Fire Insulation					

B. Exterior Paint Finishes

Surface		Finish Schedule Designation			Manufacturer's System Designation	
(1)	Plaster, Concrete	P50.A	Flat, Acrylic	First Coat Second Coat Third Coat	2000 2200 2200	DULUX DULUX DULUX
		P50.B	Low Sheen Enamel Acrylic	First Coat Second Coat Third Coat	2000 2403 2403	DULUX DULUX DULUX
		P50.C	Elastomeric (Smooth) 5 yr. labor warranty	First Coat Second Coat "Spray Application"	2000 2260	DECRA FLEX DECRA FLEX
		P50.D	Elastomeric (Medium Aggregate) 5 yr. labor warranty	First Coat Second Coat Third Coat	2000 2270 2270	DECRA FLEX DECRA FLEX DECRA FLEX
(2)	Concrete Block Masonry	P51.A	Flat, acrylic emulsion	First Coat Second Coat Third Coat	4000 2200 2200	DULUX DULUX DULUX
		P51.B	Elastomeric Smooth 5 Yr. labor warranty	First Coat Second Coat Third Coat	2000 2260 2260	DULUX DECRAFLEX DECRA FLEX
		P51.C	Elastomeric (Medium Aggregate) 5 yr labor warranty	First Coat Second Coat Third Coat	2000 2270 2270	DULUX DECRAFLEX DECRA FLEX
		P51.D	Elastomeric (Coarse Aggregate)	First Coat Second Coat Third Coat	2000 2290 2290	DULUX DECRAFLEX DECRA FLEX
		P51.E	Clear Water Repellent 10-yr Warranty	1 Coat		Rain Guard Micro-Seal
(3)	Wood	P53.A	Flat Acrylic Emulsion	First Coat Second Coat Third Coat	2000 2200 2200	DULUX DULUX DULUX
		P53.B	Semi-Gloss Acrylic	First Coat Second Coat Third Coat	2000 2406 2406	DULUX DULUX DULUX
		P53.C	Low Sheet Enamel Acrylic	First Coat Second Coat Third Coat	2000 2403 2403	DULUX DULUX DULUX
		P53.D	Flat, Stain Water Base Semi-Transparent	First Coat Second Coat	2610 2610	WOODPRIDE WOODPRIDE
		P53.E	Flat, Stain Opaque	First Coat Second Coat	2600 2600	WOODPRIDE WOODPRIDE
		P53.F	Varnish Clear Gloss	First Coat Second Coat	1808 1808	WOODPRIDE WOODPRIDE

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				Third Coat	1808	WOODPRIDE
		P53.G	Stain and Varnish	First Coat Second Coat Third Coat	1700 1808 1808	WOODPRIDE WOODPRIDE WOODPRIDE
(4)	Ferrous Metal	P55.D	Gloss High Perform..	First Coat Second Coat Third Coat	235 379 379	DEVTRAN DEVTHANE DEVTHANE
		P55.E	Semi-Gloss High Perform.	First Coat Second Coat Third Coat	235 378 378	DEVTRAN DEVTHANE DEVTHANE
(5)	Galvanized Metal & Aluminum	P56.C	Gloss High Perform.	First Coat Second Coat Third Coat	4020 379 379	DEVFLEX DEVTHANE DEVTHANE
		P56.D	Semi-Gloss High Perform.	First Coat Second Coat Third Coat	4020 378 378	DEVFLEX DEVTHANE DEVTHANE
		P56.E	Gloss	First Coat Second Coat Third Coat	4020 3028 3028	DEVFLEX DULUX DULUX
(6)	Aluminum	P58.A	Flat, Acrylic	First Coat Second Coat Third Coat	4020 2200 2200	DEVFLEX DULUX DULUX
		P58.B	Semi-Gloss Enamel Acrylic	First Coat Second Coat Third Coat	4020 2406 2406	DEVFLEX DULUX DULUX

END OF SECTION 099100

SECTION 101400
PANEL SIGNS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior and exterior panel signs attached to the building.
 - 2. Photoluminescent signs.
- B. Related Sections include the following:
 - 1. Division 01 - "Temporary Facilities and Controls" for Project identification signage.
 - 2. Division 10 - "Dimensional Sign Characters" for individual character signs.
 - 3. Division 10 - "Cast Metal Plaques" for cast metal dedication plaques.
 - 4. Division 22, 23, and 26 - "Plumbing, Mechanical, and Electrical" for tags and nameplates for plumbing, mechanical, and electrical equipment.
 - 5. Division 32 - "Parking Bumpers and Signage" for parking lot and pedestrian signage.

1.3 DEFINITIONS

- A. ADA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines."

1.4 SUBMITTALS

- A. Product Data: Manufacturer's product data including construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of sign.
- B. Shop Drawings: Include plans, elevations, and full-scale template layout of characters and other components. Show mounting methods, grounds, mounting heights, layout, spacing, reinforcement, accessories, and installation details.
 - 1. Provide message list for each sign, including large-scale details of wording, lettering, and Braille layout.

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- C. Schedule: Schedule indicating sign locations, type, other pertinent data, and referenced to rooms or doors. For bid purposes, the Contractor shall provide an allowance of twelve (12) characters per sign.
- D. Samples for Initial Selection: Manufacturer's color charts consisting of actual units or sections of units showing the full range of colors available for each type of sign and material indicated.
- E. Samples for Verification: Provide 2 full size sample signs showing edge and corner condition, border, text characters of height specified, Braille text, and selected colors, of each type of sign indicated. Sample will be retained by Architect.
- F. Maintenance Data: For signage cleaning and maintenance requirements to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain each sign type through one source from a single manufacturer.
- B. Regulatory Requirements: Comply with the California Building Code, Title 24, The Americans with Disabilities Act (ADA), and ANSI A117.1.
 - 1. Letters and numerals on signs shall be sans serif uppercase characters raised 1/32-inch from the background and be accompanied by Grade 2 Braille.
 - 2. Raised characters shall be between 5/8-inch and 2-inches high.
 - 3. Braille dots shall be 1/10 inches on center in each cell with 2/10 inch space between cells measured from the second column of dots in the first cell to the first column of dots in the second cell. Braille dots shall be raised a minimum of 1/40 inch above the background.
 - 4. Pictograms shall be accompanied by the equivalent written description located directly below the pictogram. The outside dimension of the pictogram field shall be a minimum of 6 inches in height.
 - 5. Characters, symbols, and backgrounds shall be of a non-glare finish.
 - 6. Characters and symbols shall contrast with their background.
 - 7. Letters and numbers on signs shall have a width to height ratio between 3:5 and 1:1, and a stroke width to height ratio between 1:5 and 1:10.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Where sizes of signs are determined by dimensions of surfaces on which they are installed, verify dimensions by field measurement before fabrication and indicate measurements on Shop Drawings.

1.7 WARRANTY

- A. Warranty: Manufacturer's standard form in which manufacturer agrees to replace signs that fail in materials or workmanship within specified warranty period.

1. Damage from deliberate destruction and vandalism is excluded.
2. Warranty Period for Interior Signs: Building lifetime.
3. Warranty Period for Exterior Signs: 20 years from date of Substantial Completion.
4. Warranty Period for Photoluminescent Signs: 15 years.

PART 2 - PRODUCTS

2.1 PANEL SIGNS

- A. Manufacturers, Basis-of-Design Products: Products indicated below are based on products manufactured by:
1. Best Sign Systems Inc.
 - a. Subject to compliance with requirements, provide the product(s) indicated or comparable products by one of the following:
 - 1) ASI-Modulex, Inc.
 - 2) Gemini Incorporated.
- B. General: Provide smooth panel sign surfaces constructed to remain flat under installed conditions within tolerance of plus or minus 1/16 inch measured diagonally from corner to corner complying with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.
- C. Provide signs that comply with requirements and at locations indicated in the Drawings and the Sign Schedule at the end of this specification Section.
- D. Braille Text: Braille text shall be Contracted Grade 2. Translation of sign copy into Braille to be the responsibility of the manufacturer.
- E. Text Font: Sans Serif, unless otherwise indicated.
- F. Text Height: As indicated on Drawings. Text height for each type of sign
- G. Interior Panel Signs: Basis of Design: Best Sign Systems, Inc., HC 300 Series signs complying with the following requirements:
1. Material: Fiberglass Sheet, 0.25-inch thick.
 2. Edge Condition: Beveled.
 3. Corner Condition: Rounded to radius of 1/2 inch.
 4. Border: 3/8-inch wide.
 5. Mounting: Unframed, wall mounted.
 6. Color: As selected by Architect from manufacturer's full range, text and border shall contrast with background.
- H. Exterior Panel Signs: Basis of Design: Best Sign Systems, Inc., HC 300 Series signs complying with the following requirements:
1. Material: Fiberglass Sheet, 0.25-inch thick.
 2. Edge Condition: Beveled.

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3. Corner Condition: Rounded to radius of 1/2 inch.
4. Border: 3/8-inch wide.
5. Mounting: Unframed, wall mounted.
6. Color: As selected by Architect from manufacturer's full range, text and border shall contrast with background.

2.2 PHOTOLUMINESCENT SIGNS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Bright Path Lighting, Inc.
 2. Evenlite Inc.
 3. Holophane Corporation.
 4. Isolite Corporation.
 5. Johnsonite; Division of Duramax, Inc.
- B. Photoluminescent Signs: Self-contained, single face, UL 924 photoluminescent "Exit" signs as follows:
 1. Sign Substrate: Manufacturer's standard photoluminescent self-extinguishing PVC.
 2. Frame: Manufacturer's standard clear anodized aluminum frame with transparent polycarbonate face with translucent lettering.
 3. Letter Color: Red or Green as selected by Architect.
 4. Mounting: Wall or ceiling mount as required for project conditions including manufacturer's standard mounting hardware where required.
 5. Service Life: 25 years.

2.3 ACCESSORIES

- A. Mechanical Fasteners: Use tamper resistant fasteners fabricated from materials that are not corrosive to sign material and mounting surface.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Locate signs and accessories where indicated, using mounting methods of types described and in compliance with manufacturer's written instructions.
 - 1. Install signs level, plumb, and at heights indicated, with sign surfaces free from distortion and other defects in appearance.
 - 2. Interior Wall Signs: Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as pairs of doors, install signs on nearest adjacent wall. Locate to allow approach within 3 inches of sign without encountering protruding objects or standing within swing of door. Install wall signs centered 60-inches above the floor surface.

- B. Wall-Mounted Panel Signs: Attach panel signs to wall surfaces using methods indicated below:
1. Vinyl-Tape Mounting: Use double-sided foam tape to mount signs to smooth, nonporous surfaces that cannot be drilled or screwed. Do not use this method for vinyl-covered or rough surfaces.
 2. Silicone-Adhesive Mounting: Use liquid-silicone adhesive recommended in writing by sign manufacturer to attach signs to irregular, porous, or vinyl-covered surfaces. Use double-sided vinyl tape where recommended in writing by sign manufacturer to hold sign in place until adhesive has fully cured.
 3. Mechanical Fasteners: Use non-removable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.
 4. Where panel signs are mounted on glass, provide matching plate on opposite side of glass to conceal mounting materials.

3.3 CLEANING AND PROTECTION

- A. After installation, clean soiled sign surfaces according to manufacturer's written instructions. Protect signs from damage until acceptance by Owner.
- B. Clean per manufacturer's recommendation prior to final inspection.

3.4 SIGN SCHEDULE

- A. Interior Room Identification Signs: Provide interior room identification signage adjacent to doors as indicated and scheduled on the Drawings.
1. Text Content: Identify rooms by number and name unless otherwise indicated. Room names and numbering shall comply with Owner's instructions (not Architect's referencing or numbering as indicated on the Drawings).
 2. Text Height: As indicated on Drawings and in compliance with ADA requirements.
 3. Sign Size: As indicated on drawings, and as required to contain all required text and characters.
- B. Interior Tactile Exit Signs: Provide tactile exit signs to comply with regulatory requirements at the following locations:
1. At each grade level exterior exit door, text to read "Exit."
 2. At exit doors to corridors from rooms having illuminated exit signs, text to read "Exit Route."
- C. Toilet Room Identification Signs: Signage shall consist of door and wall mounted signs to comply with regulatory requirements and as indicated on the Drawings.
- D. Exterior Identification Signs: Provide exterior identification signage at exterior public access doors to each usable or occupied space of the building.

1. Text Content: Identify building areas by functional use. Text content shall comply with Owner's instructions.
 2. Text Height: As indicated on Drawings and in compliance with ADA requirements.
 3. Sign Size: As indicated on drawings.
- E. Exterior International Symbol of Accessibility (ISA) Signs: Provide ISA signage at exterior public access entrances to each building.
1. Signs shall include an international symbol of accessibility graphic 5-inches square in size, field size 6-inches square minimum.
- F. Vertical Platform Lift Signs: Provide signs to comply with regulatory requirements located at lower landings of vertical platform lifts, sign information to include:
1. International Symbol of Accessibility.
 2. Text stating:
 - a. LIFT SHALLNOT BE USED TO TRANSPORT MATERIALS OR EQUIPMENT
 - b. LIFT CAPACITY 750 LBS
 - c. IN CASE OF EMERGENCY CALL ###-###-#### (Phone number to be confirmed prior to sign fabrication).

END OF SECTION 101400

DOCUMENT 26 00 00

GENERAL ELECTRICAL REQUIREMENTS

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes general requirements specifically applicable to Divisions 26, 27, & 28; including requirements from Division 1.

1.2 RELATED SECTIONS

- A All included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Standards
 - 1 AEIC – Association of Edison Illuminating Companies
 - 2 ANSI – American National Standards Institute
 - 3 ASTM – American Society of Testing and Materials
 - 4 CBM – Certified Ballast Manufacturers Association
 - 5 EIA – Electronic Industry Association
 - 6 ICEA – Insulated Cable Engineers Association
 - 7 IEEE – Institute of Electrical and Electronics Engineers
 - 8 NEMA – The Association of Electrical and Medical Imaging Equipment Manufacturers
 - 9 FM - Factory Mutual
 - 10 UL – Underwriter's Laboratory's, Inc., Standards for Safety
- B Local codes and authorities having jurisdiction
 - 1 City codes
 - 2 County codes
 - 3 Local fire department
- C State codes and authorities having jurisdiction
 - 1 CBC – California Building Code
 - 2 CEC – California Electrical Code
 - 3 State of California Codes
- D National codes and authorities having jurisdiction
 - 1 NESC – National Electrical Safety Code
 - 2 OSHA – Occupational Safety and Health Act
- E Utilities
 - 1 Local cable company
 - 2 Local electrical company
 - 3 Local telephone company
- F Code compliance
 - 1 All work and materials shall comply with the latest rules, codes and regulations, including, but not limited to the following:

- a Occupational Safety and Health Act Standards (OSHA).
 - b CCR, Title 24, Part 3: California Electrical Code (CEC)
 - c All other applicable Federal, State and Local laws and regulations.
- 2 Code compliance is mandatory. Nothing in these Drawings and Specifications permits work not conforming to National, State, and Local electrical and building codes. Where work is shown to exceed minimum code requirements, comply with Drawings and Specifications.
- 3 No work shall be concealed until after inspection and approval by proper authorities. If work is concealed without inspection and approval, the Contractor shall be responsible for opening the concealed areas, making any required corrections and/or modifications to his work, and restoring the area to its previous condition.

1.4 DEFINITIONS (APPLICABLE TO DRAWINGS AND SPECIFICATIONS)

- A Provide: To supply, install and connect complete and ready for safe and regular operation of particular work referred to unless specifically otherwise noted.
- B Install: To erect, mount and connect complete with related accessories.
- C Supply: To purchase, procure, acquire and deliver complete with related accessories.
- D Work: Labor, materials, equipment, apparatus, controls, accessories and other items required for proper and complete installation.
- E Wiring: Raceway, fittings, wire, boxes, related items and connection.
- F Concealed: Embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces or in enclosures.
- G Exposed: Either visible or subject to mechanical or weather damage, indoors or outdoors, including areas such as mechanical and storage rooms. In general, any item that is directly accessible without removing panels, walls, ceiling or other parts of structure.
- H Indicated, Shown, or Noted: As indicated, shown or noted on Drawings or Specifications.
- I Above Grade: Not buried in ground and not embedded in concrete slab on ground.
- J Below Grade: Buried in ground or embedded in concrete slab on ground.
- K Underground: Buried in ground, including under building slabs.
- L Connect: Complete hookup of item with required services, including conduit, wire and other accessories.
- M Furnish: Supply and deliver complete.
- N Similar or Equal: Of base bid manufacturer, equal in materials, weight, size, design, and efficiency of specified product, equivalent to Base Bid Manufacturer's product.
- O Reviewed, Satisfactory, Accepted, or Directed: As reviewed, satisfactory, accepted or directed by or to engineer.
- P Motor Controllers: Manual or magnetic starters (with or without switches), individual pushbuttons, or hand-off-automatic (HOA) switches controlling the operation of motors.

- Q Control Devices: Automatic sensing and switching devices such as thermostats, pressure, float, electro-pneumatic switches and electrodes controlling operation of equipment.
- R Contractor: Electrical Sub Contractor unless stated otherwise.
- S Use (verb): Furnish and install as defined above.

1.5 LICENSES, FEES AND PERMITS

Pay for all City, County or State electrical licenses, fees and permits. Arrange for all required inspections by agencies or authorities having local jurisdiction. The owner shall pay for all inspection fees and permits.

1.6 CONDITIONS AT SITE

- A A visit to the site is required of all bidders prior to submission of bid. All will be held to have familiarized themselves with all discernible conditions and no extra payment will be allowed for work required because of these conditions, whether specifically mentioned or not.
- B Underground or overhead lines or other services that are damaged as a result of this work shall promptly be repaired at no expense to the Owner and to complete satisfaction of the Owner.

1.7 DRAWINGS AND SPECIFICATIONS

- A All Drawings and all Divisions of these Specifications shall be considered as a whole and work of this Division shown anywhere therein shall be furnished under this Division.
- B The Contract Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Most direct routing of conduit and wiring is not assured. Exact requirements shall be governed by architectural, structural and mechanical conditions of the job. Consult all other Drawings in preparation of the bid. Extra lengths of wiring or addition of pull or junction boxes, etc., necessitated by such conditions shall be included in the bid. Check all information and report any apparent discrepancies before submitting bid.
- C Right is reserved to make change up to ten (10) feet in location of any outlet, device, or equipment prior to roughing in without increasing contract cost.
- D Equipment and fixtures shall be connected to provide circuit continuity in accordance with applicable codes, whether or not each piece of conductor, conduit or protective device is shown between items of equipment or fixtures and the point of circuit origin.

1.8 SAFETY AND INDEMNITY

- A Safety: The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and not be limited to normal working hours.
- B No act, service, Drawing review or construction review by Owner, the Architect, the Engineers or their Consultants, is intended to include review of the adequacy of the Contractor's safety measures, in on or near the construction site.

1.9 RECORD DRAWINGS

- A Submit record Drawings under provisions of Section 013000.
- B Submit prior to final acceptance inspection, one complete marked-up set of reproducible engineering design Drawings.
 - 1 Fully illustrate revisions made by crafts in course of work.
 - 2 Include field changes, adjustments, variances, substitutions and deletions, including Change Orders.
 - 3 Indicate exact location of raceways, equipment, and devices.
 - 4 Indicate exact size and location of underground and under floor raceways, grounding conductors, and duct banks.
 - 5 The record Drawings shall show all the work actually constructed and originally shown on the Drawing based upon the field construction by the Contractor.
- C These Drawings shall be for record purposes for Owner's use and are not considered Shop Drawings.

1.10 MANUFACTURER'S INSTRUCTIONS

- A Where the Specifications call for an installation to be made in accordance with manufacturer's recommendations, a copy of such recommendations shall at all times be kept in the job superintendent's office and shall be available to the Owner's representative.
- B Follow manufacturer's instructions where they cover points not specifically indicated on Drawings and Specifications. If they are in conflict with the Drawings and Specifications, obtain clarification from the Architect or Engineer before starting work.
- C One (1) set of equipment manufacturer's Drawings shall be submitted to the Engineer for their record.

1.11 OPERATING AND MAINTENANCE MANUALS

- A Operating and maintenance manuals and close-out documents are used interchangeably
- B Submit operating and maintenance manuals of equipment in the following format. Owner shall decide which format they prefer.
 - 1 Three (3) hardcopy sets
 - 2 PDF format
- C For specific requirements, see the sections in which the equipment is specified.

1.12 QUALITY ASSURANCE

- A Provide a meaningful quality assurance program. To assist the Contractor in this program, the Specifications contained herein are set forth as the minimum acceptable requirements. This does not relieve the Contractor from executing other quality assurance measures to obtain a complete operating facility within the scope of this project.
- B The Contractor shall insure that workmanship, materials employed, required equipment and the manner and method of installation conforms to accepted construction and engineering practices, and that each piece of equipment is in

satisfactory working condition to satisfactorily perform its functional operation.

1.13 GUARANTEE

Guarantee the installation free from defects of workmanship and materials for a period of one (1) year after Date of Certificate of final payment and promptly remedy any defects developing during this period, without charge.

1.14 BIDDING

- A The contractor shall bid on the plans, specifications, etc. that constitute the contract documents.
- B The contractor shall not attempt to modify the contract documents without the approval of the electrical engineer.
- C All "value engineering" proposals shall be submitted in to the electrical engineer writing.
- D If the contractor makes changes to the contract documents not approved by the electrical engineer, the contractor will still be responsible for installing all devices, conductors, conduits, etc. the contract documents call for.

1.15 ABBREVIATIONS

AIC	Amps interrupting capability
ANSI	American National Standards Institute
ASTM	ASTM International, formerly American Society for Testing and Materials
ATC	Astronomical time clock
ATS	Automatic transfer switch
CAD	Computer aided design
CATV	Cable television
CBC	California Building Code
CCTV	Closed circuit television
CEC	California Electrical Code
CFC	California Fire Code
CFR	Code of Federal Regulations
CMC	California Mechanical Code
CPC	California Plumbing Code
CSFM	California State Fire Marshal
DPDT	Double pole, double throw
DPST	Double pole, single throw
DVR	Digital video recorder
EIA	Electronic Industries Association
EMT	Electrometallic conduit
EOR	Engineer of record
EPA	Effective projected area
FACP	Fire alarm control panel
FMC	Flexible metallic conduit
GRS	Galvanized, rigid steel conduit
HVR	Hybrid video recorder
ICC-ES	International Code Council Evaluation Service
IDF	Intermediate data frame

IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society of North America
IMC	Intermediate metallic conduit
I/O	Input/output
IOR	Inspector of record
IP	Internet protocol
ISO	International Organization for Standardization
LAN	Local area network
LCD	Liquid crystal display
LCP	Lighting control panel/lighting relay panel
LED	Light emitting diodes
LPI	Lightning Protection Institute
MDF	Main data frame
NEC	National Electrical Code
NEMA	Association of Electrical Equipment and Medical Imaging Manufacturers
NETA	National Electrical Testing Association
NFPA	National Fire Protection Association
NIST	National Institute of Standards and Technology
OCPD	Overcurrent protection device
PDF	Portable document format
PG&E	Pacific Gas and Electric
PTZ	Pan, tilt, zoom
SCCR	Short circuit current rating
SPD	Surge protective device
SPDT	Single pole, double throw
SPST	Single pole, single throw
THD	Total harmonic distortion
TIA	Telecommunications Industries Association
UL	Underwriters' Laboratories
USB	Universal series bus
UPS	Uninterruptable power supply
VFD	Variable frequency drive
VOIP	Voice over Internet protocol
VPN	Virtual private network
WAN	Wide area network

PART 2 – PRODUCTS

2.1 MATERIAL APPROVAL

- A All materials must be new and bear Underwriters' Laboratories label. Materials that are not covered by UL testing standards shall be tested and approved by an independent testing laboratory or a governmental agency.
- B Material not in accordance with these Specifications may be rejected either before or after installation.
- C Materials or equipment specified by:
 - 1 Name of manufacturer.
 - 2 Brand or trade name.
 - 3 Catalog reference.

2.2 SUBSTITUTIONS

- A Base the bid on use of materials specified.
- B Equipment other than specified will be considered for approval provided it meets previous items A through C and the following is submitted in writing by the Contractor to the Engineer to allow approval at least 14 days before the bid date:
 - 1 The request for permission to substitute shall be accompanied with a statement of the amount of money to be returned to the contract if the substitution is permitted.
 - 2 Return a completed request for substitution form.
- C The engineer is the sole judge of acceptability of preferred substitutions.
- D If a substitute is permitted, and any re design effort is thereby necessitated, the required re design shall be at the Contractor's expense.

2.3 SUBMITTALS

Submit to architect, or engineer if no architect is involved, seven (7) copies of complete Shop Drawings and materials lists, as noted below, for review within thirty (35) days after award of contract. All proposed deviations from Specifications must be clearly listed and submitted separately under a prominent heading entitled "Substitutions."

- A Fire Alarm Systems
- B Communication Systems
- C Pull Boxes and Cabinets
- D Conduit and Wire
- E Service and distribution
- F Transformers

2.4 OPERATING AND MAINTENANCE MANUALS

Submit Operating and Maintenance Manuals of equipment as specified under Division 1. Verify exact quantity with architect, or engineer if no architect is involved.

2.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A Equipment shall be shipped in its original packages, to prevent damaging or entrance of foreign matter. Handling and shipping shall be performed in accordance with manufacturer's recommendations. Provide protective covering during construction.
- B Replace at no expense to Owner, equipment or material damaged during the storage or handling, as directed by the engineer.
- C Equipment shall be tagged with a weatherproof tag identifying equipment by name and purchase order number. Packing and shipping lists shall be included.

PART 3 – EXECUTION

3.1 CLEARANCE

Minimum code required clearances for electrical equipment shall not be violated.

3.2 WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS

- A Only quality workmanship will be accepted. Haphazard or poor installation practice will be cause for rejection of work.
- B The Electrical Contractor shall provide a Superintendent in charge of this work at all times to direct the quality of the installation.

3.3 COORDINATION

- A Coordinate work with other trades to avoid conflict and to provide correct rough in and connection for equipment furnished under other trades and requiring electrical connections. Inform Contractors of other trades of the required access to and clearances around electrical equipment to maintain serviceability and code compliance.
- B Verify equipment dimensions and requirements with provisions specified under this Section. Check actual job conditions before fabricating work. Report necessary changes in time to prevent needless work. Changes or additions subject to additional compensation and agreed price shall be at Contractor's risk and expense.
- C Provide temporary feeds and connections to areas and equipment as required to allow phased construction and operation.

3.4 CUTTING AND PATCHING

All cutting and patching required for work of this Division is included herein. Coordination with General Contractor and other trades is imperative. Contractor shall bear the responsibility for and bear the added expense of adjusting for improper holes, supports, etc.

END OF SECTION

DOCUMENT 26 05 00

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 – GENERAL

1.1 SECTION INCLUDES

Materials, equipment fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction, for the following:

- A Conduit and raceways
- B Wire and cables
- C Outlet boxes
- D Junction boxes
- E Pull boxes
- F Grounding

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

Published specification standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.

- A American Society for Testing and Materials
 - 1 ASTM B3: Standard Specification for Soft or Annealed Copper Wire
 - 2 ASTM B33: Standard Specification for Tin-Coated or Annealed Copper Wire for Electrical Purposes
 - 3 ASTM B738: Standard Specification for Fine-Wire Bunch-Stranded and Rope-Lay Bunch-Stranded Copper Conductors for Use as Electrical Conductors
 - 4 ASTM B355: Standard Specification for Nickel-Coated, Soft or Annealed Copper Wire
 - 5 ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension
- B California Electrical Code (CEC)
- C Institute of Electrical and Electronic Engineers (IEEE)
 - 1 IEEE 81: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System Part 1: Normal Measurements

- 2 IEEE 82: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
 - 3 IEEE 95: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
 - 4 IEEE 141: Recommended Practice for Electric Power Distribution for Industrial Plants
 - 5 IEEE 142: IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems
 - 6 IEEE 241: Recommended Practice for Electric Power Systems in Commercial Buildings
 - 7 IEEE 242: Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (IEEE Buff Book)
 - 8 IEEE 399: Recommended Practice for Industrial and Commercial Power Systems Analysis (Brown Book)
 - 9 IEEE 442: Guide for Soil Thermal Resistivity Measurements
 - 10 IEEE 576: Recommended Practice for Installation, Termination, and Testing of Insulated Power Cable as Used in Industrial and Commercial Applications
 - 11 IEEE 1185: Recommended Practice for Cable Installation in Generating Stations and Industrial Facilities
 - 12 IEEE 1584: Guide for Performing Arc Flash Hazard Calculations
 - 13 IEEE 1584a: Guide for Performing Arc-Flash Hazard Calculations--Amendment 1
 - 14 IEEE 1584b: Guide for Performing Arc-Flash Hazard Calculations--Amendment 2: Changes to Clause 4
- D Underwriters' Laboratories
- 1 UL 1: Flexible Metal Conduits
 - 2 UL 4: Armored Cable
 - 3 UL 6: Electrical Rigid Metal Conduit – Steel
 - 4 UL 13: Power Limited Circuit Cables
 - 5 UL 83: Thermoplastic Insulated Wires and Cables
 - 6 UL 310: Electrical Quick-connect Terminals
 - 7 UL 360: Liquid Tight Flexible Steel Conduit
 - 8 UL 444: Communications Cables
 - 9 UL 467: Grounding and Bonding Equipment
 - 10 UL 486A: Wire Connectors
 - 11 UL 486B: Wire Connectors
 - 12 UL 486C: Splicing Wire Connectors
 - 13 UL 486D: Sealed Wire Connector Systems
 - 14 UL 486E: Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
 - 15 UL 493: Thermoplastic Insulated Underground Feeder and Branch Circuit Cables
 - 16 UL 510: Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape
 - 17 UL 514A: Metallic Outlet Boxes
 - 18 UL 514B: Conduit, Tubing, and Cable Fittings
 - 19 UL 514C: Nonmetallic Outlet Boxes, Flush-device Boxes, and Covers
 - 20 UL 514D: Cover Plates for Flush-mounted Wiring Devices
 - 21 UL 568: Nonmetallic Cable Tray System
 - 22 UL 635: Insulating Bushings
 - 23 UL 651: Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings

- 24 UL 797: Electrical Metallic Tubing – Steel
- 25 UL 854: Service Entrance Cables
- 26 UL 870: Wireways, Auxiliary Gutters, and Associated Fittings
- 27 UL 969: Marking and Labeling Systems
- 28 UL 1242: Standard for Electrical Intermediate Metal Conduit - Steel
- 29 UL 1332: Organic Coatings for Steel Enclosures for Outdoor Use
Electrical Equipment
- 30 UL 1446: Systems of Insulating Materials – General
- 31 UL 1479: Fire Tests of Through Penetration Firestops
- 32 UL 1565: Position Devices (includes cable ties and clamps)
- 33 UL 1581: Reference Standard for Electrical Wires, Cables, and Flexible
Cords
- 34 UL 1652: Flexible Metallic Tubing
- 35 UL 1685: Vertical-tray Fire Propagation and Smoke Release Test for
Electrical and Optical Fiber Cables
- 36 UL 1773: Standard for Termination Boxes
- 37 UL 1977: Component Connectors for Use in Data, Signal, Control, and
Power Applications
- 38 UL 2024: Standard for Signaling, Optical Fiber and Communications
Raceways and Cable Routing Assemblies
- 39 UL 2196: Test for Fire Resistive Cables
- 40 UL 2239: Hardware for the Support of Conduit, Tubing, and Cable
- 41 UL 2256: Nonmetallic Sheathed Cable Interconnects
- 42 UL 2257: Identification Tests for Jacket and Insulation Materials Used
in Plenum Cables
- 43 UL 2277: Flexible Motor Supply Cable and Wind Turbine Tray Cable
- 44 UL 2459: Insulated Multi-pole Splicing Wire Connectors
- 45 UL 2556: Wire and Cable Test Methods

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.
- E Deliver, store and protect products under provisions of Section 016000.
- F Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- G Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- H Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 Calibration procedures and intervals
 - 7 A complete set of drawings for any special items
 - 8 Wiring diagrams
- C Electronic submittals shall be searchable
- D Seismic Restraint and Anchorage: Provide complete seismic anchorage and bracing for the lateral and vertical support of conduit and electrical equipment in accordance with CBC, Title 24, Part 2, Section 1616A.1 and ASCE 7-10 Section 13.6, and all provisions of this Section.
 - 1 Submit calculations prepared and signed by a Structural Engineer licensed in the State of California, showing compliance with the above for all electrical equipment weighing more than 50 pounds, excepting items corresponding exactly in configuration and weight to those specified and detailed. Where anchorage details are not shown on drawings, the field installation shall be subject to the approval of the Electrical Engineer.
 - 2 All equipment mounted on concrete shall be secured with post-installed concrete requiring a drilled hole. Power driven anchors are not acceptable. Minimum spacing shall be 10 diameter center to center and 5 diameters center to edge of concrete. Maximum allowable loads for tension and shear shall be as determined in compliance with ACI 318-14 Chapter 17 and the anchor's ICC or IAPMO evaluation report. Acceptable manufacturers are Hilti, Red Head, and Simpson Strong Tie.
 - 3 Conduit and suspended equipment shall be provided with supports and seismic restraints in accordance with Unistrut, Inc. Seismic Bracing Guide, or Super Strut Inc., Seismic Restraint System guide. Support requirements shall be based upon similar equipment; i.e., water piping as equivalent to conduit with wire fill. A copy of the guide shall be on the job site during construction.
- E The submittal shall be substantially complete for all items and equipment furnished under this section.
- F Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- G Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
 - 1 Table of contents
 - 2 Manufacturer (including contact information)

- 3 Model number
- 4 Voltage ratings
- 5 Current ratings
- 6 List of capabilities
- 7 Environmental ratings
- 8 NEMA enclosure type
- 9 Maintenance instructions and intervals
- 10 Calibration procedures and intervals
- 11 Installation instructions
- 12 Repair instructions (where applicable)
- 13 As-built drawings
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 CONDUIT AND OTHER RACEWAYS

- A Rigid Conduit, also referred to as Galvanized Rigid Steel Conduit (GRS)
 - 1 Material: High strength steel
 - 2 Coating
 - a All uses: hot-dipped galvanized
 - b Underground or corrosive areas
 - 1 40-mil, UV stabilized PVC coated
 - 2 Coating shall conform to NEMA RN-1
 - 3 Fittings shall be threaded.
 - 4 Conduit shall be UL-6 listed.
- B Intermediate Metal Conduit (IMC)
 - 1 Material: Steel
 - 2 Coating
 - a All uses: hot-dipped galvanized
 - b Underground or corrosive areas
 - 1 40-mil, UV stabilized PVC coated
 - 2 Coating shall conform to NEMA RN-1
 - 3 Conduit shall be UL-1242 listed.
- C Electrical Metallic Tubing (EMT)
 - 1 Material: Steel
 - 2 Coating
 - a All uses: hot-dipped galvanized
 - b Underground or corrosive areas
 - 1 40-mil, UV stabilized PVC coated
 - 2 Coating shall conform to NEMA RN-1
 - 3 Fittings shall be threaded.
 - 4 Connectors and couplings
 - a Water tight, steel compression type exterior and in wet locations. Use ETP Fittings InspectorRidge or approved equal when possible.
 - b Steel set screw type in interior, dry locations.
- D Non-metallic conduit
 - 1 Conduit shall be schedule 40 PVC (minimum)

- 2 Approved for use as non-metallic raceway with 90°C conductors
- 3 Comply with NEMA TC-2 and NEMA TC-3
- E Flexible Metallic Conduit
 - 1 Material: High strength, hot-dipped galvanized steel
 - 2 Construction: Interlocked
 - 3 Conduits in damp, wet, or corrosive areas shall be liquid tight type with PVC jacket extruded over the steel conduit.
- F Fittings and accessories
 - 1 Fittings and accessories for all conduit types shall be approved for the purpose and equal in all respects to the conduit or raceway.
 - 2 Fittings and accessories for metallic conduits shall be made of ferrous metal and galvanized after fabrication.
- G Pull lines
 - 1 Pull line shall be 1/8 inch diameter, yellow color.
 - 2 Pull lines shall be Tubbs Cordage "Polyline" or approved equal.
- H Wireways
 - 1 NEMA type
 - a NEMA-1 for dry locations
 - b NEMA-3R or NEMA-4 for damp and wet locations
 - c NEMA-4X for corrosive locations
 - 2 Metal type
 - a Non-corrosive locations: mild steel
 - b Corrosive locations: stainless steel
 - 3 Thicknesses
 - a 6"x6" cross-section and smaller: 16 gauge
 - b 8"x8" cross-section and larger: 14 gauge
 - 4 Finish: The entire enclosure shall be finished as follows:
 - a Degreasing
 - b Cleaning
 - c Phosphatizing
 - d Electrostatic deposition of polymer polyester powder coating followed by baking to produce a hard durable finish.
 - 1 The average thickness of the paint film shall be 2.0 mils.
 - 2 Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
 - e Finish shall conform to UL 50 and UL 50E.
 - f Color shall match surrounding area.
 - 5 Covers
 - a Wireways shall have hinged covers.
 - b NEMA 3R, 4 and 4X wireways shall be a gasket on the inside of the cover to seal the wireway when cover is closed.
 - c Covers shall have latches to secure the cover in the closed position.
 - 6 Wireways shall be UL listed.
- I Raceways shall be UL listed.

2.2 WIRE AND CABLE

- A Conductors for power and lighting systems 600V or less:
 - 1 Conductors shall be 90°C rated.
 - 2 Conductors size #12 AWG and larger shall be stranded copper.
 - 3 Type:

- a THWN for wet or underground locations
 - b THHN for dry locations.
 - c 90°C rated
- 4 Minimum conductor size for voltage drop:
 - a Minimum size #12 AWG for runs 50 feet or less for 208/120V systems or 100 feet or less for 480/277V systems
 - b Increase conductor by one size by one method below:
 - 1 For each additional 50 feet for 208/120V systems or 100 feet for 480/277V systems.
 - 2 Calculate voltage drop and size as directed by CEC Voltage Drop Restrictions.
 - c Underground circuits shall be #8 AWG minimum wire, unless otherwise noted.
 - d Once the contractor has determined conductors' route, calculate the minimum size to meet maximum voltage drop allowed per CEC using $D_{min} = C * L * I / (V_D * N)$.
 - 1 D_{min} is the minimum diameter (circular mills)
 - 2 $C = 24$ for copper, $C = 39$ for aluminum
 - 3 L is conductor length (feet)
 - 4 I is the current (amps)
 - 5 V_D is the maximum allowable voltage drop (volts)
 - 6 N is the quantity of parallel conductors per phase
- 5 Minimum size conductors for OCPD shall be determined from CEC Table 310.16 with ampacity corrected for 115°F.
- 6 Conductor size shall be the largest size to meet maximum voltage drop (2.2 A 4) and to meet CEC ampacity requirements (2.2 A 5).
- B For Signal and Communication Circuits:
 - 1 Special Cables: As specified on Drawings.
 - 2 Conductors for general communications use: Stranded copper conductor, #16 AWG minimum, with THWN insulation for underground or wet locations and THHN insulation for dry locations.
 - 3 Ends of stranded conductors shall be tinned.

2.3 OUTLET BOXES, JUNCTION BOXES, AND PULL BOXES

- A Above ground locations
 - 1 Outlet Boxes
 - a Hot-dipped galvanized after fabrication
 - b Of required size, minimum 4 inches square, for flush mounted devices and lighting fixtures
 - c Cast type with gasketed covers for outdoor or wet locations.
 - d Device and fixture back boxes shall be 2-1/4" deep, minimum.
 - 2 Junction and Pull Boxes
 - a Use outlet boxes with appropriate covers as junction boxes wherever possible.
 - b Larger junction and pull boxes
 - 1 Sheet steel, hot dipped galvanized after fabrication, finished gray baked enamel
 - 2 Sized according to code
 - 3 Screw-on covers.
- B In-ground pull boxes, handholes, and manholes
 - 1 Precast concrete type with required extension collars.

- 2 Covers
 - a Lids shall be steel or reinforced concrete, as shown on plans. Pull box lids in traffic areas or large grassy areas subject to mowing by riding mowers shall traffic rated.
 - b Covers shall include hold down bolts.
 - c Top of cover shall be flush with top of box.
 - d Covers shall be identified as ELECTRICAL, SIGNAL, or COMMUNICATIONS unless otherwise specified.
- 3 Size boxes as indicated on Drawings. If size is not indicated on Drawings, use CEC as a minimum requirement.
- 4 Boxes shall have 2" thick (minimum), reinforced concrete bottoms with 1" diameter drain hole over 12" of crushed rock.
- 5 Boxes shall have approved cable supports.
- 6 Concrete encased stubs for handholes extending five (5) feet beyond handhole.
- 7 All pull boxes shall be no smaller than a Christy N-9.
- 8 All pull boxes shall be set flush to finished grade and shall have an 8-inch wide by 3-inch thick concrete mow strip poured around it.
- 9 Manufacturer shall be Brooks Products, Oldcastle Enclosure Solutions (Christy), Jensen Precast, or approved equal.
- 10 All sections between box, extension rings, etc. and penetrations shall be sealed with mortar.
- C Floor Boxes
 - 1 Provide Walker or equal Modulink non-metallic floor box for concrete areas.
 - 2 Provide quantity of boxes required to accommodate each device.
 - 3 Provide Walker Wood Floor Boxes at wood floors provide quantity required to accommodate each device.
 - 4 Provide brass flip cover lids.
- D Outlet boxes, junction boxes, pull boxes, etc. recessed in a concrete wall shall be deep masonry boxes.

2.4 CONDUIT AND EQUIPMENT SUPPORTS

- A Conduit supports
 - 1 For Individual conduit runs not directly fastened to the structure: Rod hangers
 - 2 For multiple conduit runs: Trapeze type conduit support designed for maximum loading deflection not exceeding manufacturer's recommendations.
- B Materials
 - 1 All materials not otherwise noted:
 - a Steel with the finished part hot dipped galvanized
 - b Stainless steel for corrosive or damp environments
 - 2 All bolts and nuts shall be stainless steel.
- C Supports anchored to earth shall be anchored in a concrete base per details.
- D Manufacturers shall be Caddy, Unistrut, Powerstrut, or approved equal.
- E All exposed channels shall have end caps made by the channel manufacturer and designed for use with the channel.

2.5 WIRE CONNECTORS

- A For wire size #8 AWG and smaller: Insulated, screw type, rated 105°C, 600V for building wiring and 1000V for fixtures; Scotchlok, Ideal, or approved equal.
- B For wire size #6 AWG and larger: T&B or approved equal screw type with 3M "#33+" or Plymouth "Slipknot Gray" tape insulation.
- C Underground wire splices
 - 1 Connect ends of conductors with copper compression connectors, 3M Scotchlok or approved equal.
 - 2 Seal splice with inline resin splice kit approved for weather exposure, direct burial, and wet locations, 3M Scotchcast or approved equal.
- D Only set screw, compression type connectors may be used for MC cables. Fish hook/open tang connectors are prohibited.

2.6 GROUNDING

- A Ground Rods
 - 1 3/4 inch diameter
 - 2 Copper weld type
 - 3 10 feet in length.
- B Ground Wire: Conductors shall be medium-hard drawn, copper, and stranded, with sizes as shown on drawings.
- C Utilize CADWELD Multi-System Exothermic Welding for below grade ground connections.
- D Bolts, nuts, and washers shall be bronze, cadmium plated steel, or other corrosion resistant material approved for the purpose.

2.7 MISCELLANEOUS MATERIALS

- A All screws, bolts, nuts, and washers on equipment outdoors or in wet or corrosive environments shall be stainless steel.

2.8 SEALANTS

- A General purpose sealant: One part polysulfide or polyurethane, Federal Standard TT-S-00230c or two-part polyurethane, Federal Standard TT-SS-227E of Mameco Vulkem 116 or 227 or approved equal product manufactured by Products Research and Chemical Corporation. Pecora, Sika, Sonneborn, or Tremco may be substituted under provisions of Section 016000.
- B Conduit sealant
 - 1 Two part, self curing urethane
 - 2 Non-sagging
 - 3 Liquid and gas tight
 - 4 Chemically stable once cured
 - 5 Compatible with conduit and conductor materials
 - 6 Designed for use as conduit seal
- C Fire retardant sealant: Dow Corning Company, Type 3-6548 silicone RTV foam sealant, closed cell, 18 lb. density, 2-part system with UL certification. Type 96-081 one-part sealant shall be used for small spaces and cracks. 3M Fire Barrier Caulk CP25 is also acceptable.

2.9 IDENTIFICATION

- A Nameplates:
 - 1 White, acrylic plastic suitable for indoor or outdoor use
 - 2 Face colored as below with engraved, white, 3/16" minimum, Arial or similar font characters
 - a Equipment on normal systems: Black face
 - b Equipment on emergency systems: Red face
 - 3 Clear plastic overlay suitable for indoor or outdoor use that can be replaced if vandalized.
 - 4 Sign shall include device name, voltage, and size.
 - 5 Outdoor nameplates shall be UV stable and fade resistant.
- B Pull line identification tags:
 - 1 Aluminum plate
 - 2 1/8" tall (minimum), Arial (or similar) font, identifying text stamped on plate
 - 3 Tags shall describe conduit's length, source, and destination.

PART 3 – EXECUTION

3.1 GENERAL

- A Electric system layouts indicated on the Drawings are generally diagrammatic but shall be followed as closely as actual construction and work of other trades will permit. Govern exact routing of cable and wiring and the locations of outlets by the structure and equipment served. Dimensions shall be taken from Architectural Drawings.
- B Consult all other Drawings. Verify scales and report any dimensional discrepancies or other conflicts to architect, or engineer if no architect is involved, before submitting bid.
- C Home runs to panelboards are indicated as starting from the outlet nearest the panel and continuing in the general direction of that panel. Continue such circuits to the panel as though the routes were completely indicated. Terminate homeruns of signal, alarm, and communications system in a similar manner.
- D Avoid cutting and boring holes through structure or structural members wherever possible. Obtain prior approval of Architect and conform to structural requirements when cutting or boring the structure is necessary or permitted.
- E Furnish and install necessary hardware, hangers, blocking, brackets, bracing, runners, required for equipment specified under this section.
- F Provide necessary backing required to insure rigid mounting of outlet boxes.
- G Install pull line in all conduits to remain that will have their conductors removed.

3.2 INSTALLATION OF CONDUIT

- A Run conduit concealed unless otherwise noted or shown on Drawings.
- B Run exposed conduit parallel to or at right angles to center lines of columns and beams.
- C Run no conduit in concrete slabs or floors except at point of penetration. Penetrations shall be at right angles to slab surfaces.

- D Install conduit above ceilings to avoid obstructing removal of ceiling tiles, lighting fixtures, air diffusers, etc.
- E Conduit shall not cross any duct shaft or area designated as future duct shaft. Coordinated with mechanical work to avoid any conflict.
- F Install pull line in empty conduit installed under this contract. Provide and install labels as describe in "Identification" sub-section.
- G Spare conduits shall be capped to prevent intrusion of moisture and foreign objects.
- H Minimum conduit size shall be 1/2 inches when installed above ground and 3/4 inches when installed underground or under building slabs. Increase conduit size as required for wiring. Size for conduit, unless specifically shown otherwise, shall be determined from Table 3 for all conductors, Chapter 9 of latest National Electric Code.
- I Conduit shall be rigid conduit, IMC, EMT, or plastic as follows:
 - 1 Above ground and dry locations: Use rigid conduit, IMC or EMT.
 - a Wet locations: Rigid conduit, IMC.
 - b Locations subject to mechanical injury: Rigid conduit or IMC only.
 - c In concrete walls or block walls: Rigid steel conduit or IMC only.
 - d Dry locations and not subject to mechanical injury: EMT (interior locations only), IMC, or rigid conduit.
 - 2 Underground: Use wrapped rigid steel or plastic.
 - a Schedule 40 PVC: For use underground where protected by concrete slabs, asphaltic pavement, or concrete walkways. Use steel elbows for plastic conduit runs penetrating floor slabs. Bends in plastic conduit other than normal long sweeps shall be made only with factory formed ells or curved segments. Heat bending may not be used. Sections of rigid steel conduit runs are required where direction changes. In all cases where use of plastic conduit is allowed or specified, Contractor may, at his option, use rigid steel conduit.
 - b Underground conduits shall have red 4" wide identifying caution tape reading "CAUTION ELECTRICAL LINE BELOW", length as required and installed 12" above all conduits runs.
 - c Do not install plastic conduit in rock base.
 - d Underground conduit entering building shall be provided with one (1) 10 foot section of rigid steel conduit at point of penetration of foundation, footing or basement wall, with approximately equal lengths inside and outside building line, unless otherwise noted.
 - 3 Bends
 - a Make risers to grade with rigid steel long radius sweep conduit and rigid steel elbow fittings only.
 - b Minimum radius of sweeps shall be 24 inches.
- J Burial depth of conduit shall be as follows:
 - 1 Concrete encased: 24 inch minimum for 600V or lower systems to top of concrete encasement.
 - 2 Conduit without concrete encasement or cap: 24 inch minimum to top of conduit.
 - 3 When installed under buildings, the above minimum depth shall be 18 inches below bottom of floor slab.

- K Use flexible steel conduit in the following applications:
 - 1 Recessed lighting fixtures.
 - 2 Motor connections.
 - 3 Connection between fan plenum and structure.
 - 4 At expansion joints.
 - 5 At transformers and other equipment which produce vibration.
- L Provide junction boxes/pull boxes as required to limit any power system conduit run to a maximum of four (4) 90 degree bends (two (2) 90 degree bends for signal communication system conduit runs) or to avoid "U" bends.
- M Conduit Supports:
 - 1 Support conduit with Underwriters' Laboratories listed conduit support intervals required by the California Electric Code.
 - 2 Wire or sheet metal strips are not acceptable for conduit not directly fastened to structure or for multiple conduit runs.
 - 3 Individual conduit 1/2 inch and 3/4 inch size may be supported from ceiling support wire with Caddy clips only if acceptable to local code. Only one conduit is permitted to be attached to any ceiling support wire. Hang such conduit so as not to affect level of ceiling.
 - 4 Avoid attaching conduit to fan plenums. When it is necessary to support conduit from fan plenum, provide a length of flexible conduit between the section attached to the fan plenum and other sections. Provide a length of flexible conduit between the portion attached to the building to minimize transmission of vibration to the building structure.
- N Conduit penetration of roof, walls, floors and ceilings shall be sealed to preserve the integrity of waterproofing, fire rating and soundproofing for which the roof, wall, floor or ceiling is designed. Materials and methods used shall conform to that specified under Architectural sections.
- O Underground conduit and ducts 2 inches and larger shall be proven clear by pulling through a mandrel 1/4 inch smaller than the inside diameter.
- P Where flush branch circuit panelboards or terminal cabinets are shown on walls, stub a minimum of four (4) 1 inch empty conduit into overhead ceiling spaces and four (4) 1 inch empty conduit into space below floor (if any) in addition to conduit required for circuit wiring.
- Q Paint all exposed conduit to match its surroundings.
- R Plastic conduits exposed to sun light shall be UV stabilized.
- S Where rigid steel conduit runs in direct contact with the earth, conduit shall be wrapped with 10-mil PVC tape to form 40 mil of protection, or shall have factory applied PVC coating.
- T Label all conduits at each terminus, pull box, and junction box.
- U All conduits shall have a minimum of one pull line.
- V All pull lines shall be tagged at both ends so as to indicate the length of the conduit run, source, and the destination.

3.3 INSTALLATION OF WIRE

- A Install all wiring in raceway unless specifically shown or noted otherwise.
- B Pull no wire into any portion of the conduit system until construction work which may damage the wire has been completed.
- C Install wire continuous from outlet to outlet or terminal to terminal. Splices in cables when required shall be made in handholes, pull boxes or junction

- boxes. Make branch circuit splices in outlet boxes with 8 inches of correctly color-coded tails left in the box.
- D Make splices in wires and cables utilizing specified materials and methods.
- E Cables and wires passing through handholes shall be full looped inside the handhole (360 degree) and supported on galvanized steel racks, beginning 10" above the bottom of the handhole. Leave handhole in clean condition with debris removed.
- F Make ground, neutral, and line connections to receptacle and wiring device terminals as recommended by manufacturer. Provide ground jumper from outlet box to ground terminal of devices when the device is not approved for grounding through the mounting screws.
- G Provide Brady wire markers where number of conductors in a box exceed four (4).
- H Wiring shall be tested for continuity (600V and below). All systems shall be entirely free from grounds, short circuits, and any or all defects.
- I Measure and record the insulation resistance of 600 volt insulated conductors size #4/0 AWG and larger using a 500 volt megger for one minute. Make tests with circuits isolated from source and load.
- J All conductor bends must have a radius greater than or equal to the manufacturer's listed bending radius.
- K Label all conductors at each terminus, pull box, and junction box.

3.4 WIRE COLOR CODE

- A Color code conductors. Wire sized #8 AWG and smaller shall have integral color coded insulation. Wire sizes #6 AWG and larger may have black insulation but shall be identified by color coded electrical tape at junction, splice, pull and termination points. Apply color tape with 1/2 lap to at least 6 inches of the conductor.
- B Color code wire as follows:

Conductors	208/120V	480/277V
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	White or Gray (consistent throughout facility)
Ground	Green	Green

3.5 CONNECTIONS TO EQUIPMENT

- A General:
 - 1 Furnish and install required power supply conduit and wiring to equipment. See below for other wiring required.
 - 2 Furnish and install a disconnect switch immediately ahead of and adjacent to each magnetic motor starter or appliance unless the motor or appliance is located adjacent to and within sight of the serving panelboard, circuit breaker or switch. Verify equipment nameplate current ratings prior to installation.
 - 3 Mount motor starters including those furnished under other sections or specifications and provide power wiring to them.
 - 4 Install rough-in work for equipment from approved shop drawings to suit the specific requirements of the equipment.

- 5 Furnish and install magnetic motor starters that are shown on the Drawings or specified under other divisions to be furnished under this division of work. Verify equipment nameplate ratings prior to installation and furnish adequately rated starters for the loads.
- 6 Furnish and install manual thermal protection for motors not integrally equipped with thermal protection.
- 7 Furnish and install 120V power to each control panel and time switch requiring a source of power to operate.
- B Heating, ventilating, and air conditioning equipment:
 - 1 Coordinate with mechanical contractor for sizes, locations and details of motors, heating units, and control requirements.
 - 2 Provide required power supply conduit and wiring to equipment.
 - 3 Provide a suitable means of disconnect switch immediately ahead of and adjacent to each motor and appliance unless the motor or appliance is located adjacent and within sight of the service panelboard, circuit breaker or switch at a distance allowed by codes. Verify equipment nameplate current ratings prior to installation. Provide a disconnect means at each magnetic motor starter.
 - 4 Provide magnetic motor starters required under this division of work.
 - 5 Provide manual thermal protection for motors not integrally equipped with thermal protection.
 - 6 Line and low voltage temperature control and interlock wiring, conduit, and required connections are a part of other divisions unless specifically shown or noted on the Drawings as to be furnished under this section.
 - 7 Provide 120V power supply to control panels, time switch furnished and installed under other divisions of work.
 - 8 Furnish and install 120V power to each duct detector scheduled for operation of fire dampers or shut down of mechanical equipment. Coordinate the exact quantity and locations with the mechanical drawings.
- C Plumbing and other contractor-furnished and Owner-furnished equipment:
 - 1 Required power and control conduit, wiring and connections are included under this section of the work. Control sensing and alarm devices will be furnished under the respective section of the contract supplying the equipment unless noted otherwise. These devices will be located in pipes, ducts, vessels, tanks, etc., and will be mounted in a place by the Contractor furnishing the devices. Other devices shall be mounted under this section of the work.
 - 2 Control panels for packaged equipment will be furnished under the respective section of the contract supplying the equipment unless otherwise noted. Installation and connection of the control panels are under this section of the work.

3.6 SYSTEM NEUTRAL GROUND

- A Ground the neutral conductor of each transformer to limit the maximum potential above ground due to normal operating voltage and limit the voltage level due to abnormal conditions.
- B Ground transformers with secondary voltage 600V class or less as follows: 3 phase, 4 wire wye connected: ground neutral point.

- C For transformers 75kVA size or lower with primary voltage 480V or lower, the primary equipment ground conductor may be used for grounding the secondary neutral provided it is adequately sized in accordance with CEC system ground conductor size.

3.7 EQUIPMENT GROUND

- A Ground non-current carrying metal parts of electrical equipment enclosures, frames, or conductor raceways to provide a low impedance path for line to ground fault current and to bond all non current carrying metal parts together. Install a ground conductor in each raceway system. Equipment ground conductor shall be electrically and mechanically continuous from the electrical circuit source to the equipment to be grounded. Size ground conductors per CEC 250.95 unless otherwise shown on drawings.
- B Grounding conductors shall be identified with green insulation. Where green insulation is not available, on larger sizes, black insulation shall be used and suitably identified with green tape at each junction box or enclosure device.
- C Install metal raceway couplings, fittings and terminations secure and tight to insure good ground continuity. Provide grounding bushing and bonding jumper where metal raceway is not directly attached to equipment metal enclosure and at concentric knockouts.
- D Lighting fixtures shall be securely connected to equipment ground conductors. Outdoor lighting standards shall have a factory installed ground for terminating the ground wire.
- E Motors shall be connected to equipment ground conductors with a conduit grounding bushing and with a bolted solderless lug connection on the metal frame.

3.8 STRUCTURAL GROUND

- A Concrete encased electrode shall be 2 inches above the bottom of concrete footing where shown on drawings. See drawings for details.
- B Domestic, chilled and hot water mains and fire protection metallic water pipes shall be connected to the ground bus with #4/0 AWG bare copper conductor at a minimum of two points.
- C Miscellaneous metal objects including piping, vessels and structural shapes within six feet of metallic objects connected to the ground system and which are not interconnected mechanically with the grounding system, shall be interconnected with a minimum #6 AWG bare copper conductor.

3.9 IDENTIFICATION

- A Provide and install nameplates on all switchboards, distribution boards, panels, motor starters, VFDs, transformers, safety switches/disconnects, push buttons, selector switches, pilot lights, and other similar devices. Fasten nameplates to equipment with one sheet metal screw at each corner.
- B Provide and install labels on lighting switches and convenience and special purpose receptacles to show panel and circuit number to which the device is connected.
- C Provide and install identification tags on all conduit pull.
- D Provide label meeting ANSI Z535 standards on motors reading:

WARNING

**AUTOMATIC EQUIPMENT
MAY START AT ANY TIME**

3.10 CIRCUIT BREAKER ELECTRICAL COORDINATION STUDY

- A If required, contractor shall provide a coordination study to determine trip settings of circuit breakers.
- B Contractor may elect to have the engineer of record provide such services at the contractor's expense.

3.11 ARC FLASH STUDY

- A If required, contractor shall provide a study to determine potential arc flash energy.
- B Contractor may elect to have the engineer of record provide such services at the contractor's expense.

END OF SECTION

DOCUMENT 26 05 26

GROUNDING

PART 1 – GENERAL

1.1 SECTION INCLUDES

Materials, equipment fabrication, installation and tests in conformity with equipment applicable to this project, applicable codes and authorities having jurisdiction, for grounding

1.2 RELATED SECTIONS

- A All included sections under Division 1
- B All included sections under Division 26
- C Plans
- D Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS

Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 16000.

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Supply equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.

1.5 SUBMITTALS

- A Submit under provisions of Section 01330. Provide detailed description of items supplied, including specifications, performance characteristics, materials, wiring diagrams and schedules.
 - 1 Submit evidence that products satisfy seismic requirements for the State of California.
 - 2 Submit evidence of compliance with the applicable standards listed under Article 1.3 of this section.
- B Manufacturer's Instructions: Submit manufacturer's installation instructions.
- C Product Data: Submit manufacturer's descriptive literature.
- D Shop Drawings: Submit complete fabrication details, elevations and sections of switchboard, dimensions, space available for conduit, rating, short circuit withstand ability of bus and lowest rated device, circuit schedule showing circuit number, device description, device frame ampere rating and trip, fuse clip ampere rating, termination lug size, feeder and circuit identification, conductor ratings and one-line and wiring diagrams. Include both elementary diagram and terminal to terminal wiring diagrams.

- E Substitutions: Items of same function and performance shall be in conformance with Division 1.
- F Submit field test and operations check report for circuit breakers and motor starters under provisions of Section 16080.

1.6 OPERATION AND MAINTENANCE DATA

- A Submit operation instructions, maintenance and repair data under provisions of Division 1.
- B Ship equipment in its original packages to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- C Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- D Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

PART 2 – PRODUCTS

2.1 GROUND RODS

Ground rods shall be:

- A. 3/4 inch diameter
- B. Copper weld type
- C. 10 feet in length.
- D. Ground rings

2.2 BARE COPPER GROUND WIRE

Conductors shall be medium-hard drawn, copper, and stranded, with sizes as shown on drawings.

2.3 BELOW GRADE GROUND CONNECTIONS

Utilize CADWELD Multi-System Exothermic Welding.

2.4 HARDWARE

Bolts, nuts and washers shall be bronze, cadmium plated steel, or other non-corrosive material, approved for the purpose.

PART 3 – EXECUTION

3.1 SYSTEM NEUTRAL GROUND

- A Ground the neutral conductor of each transformer to limit the maximum potential above ground due to normal operating voltage and limit the voltage level due to abnormal conditions.
- B Ground transformers with secondary voltage 600V class or less as follows: 3-phase, 4-wire wye connected: ground neutral point.

- C For transformers 75kVA size or lower with primary voltage 480V or lower, the primary equipment ground conductor may be used for grounding the secondary neutral provided it is adequately sized in accordance with CEC system ground conductor size.

3.2 EQUIPMENT GROUND

- A Ground non-current carrying metal parts of electrical equipment enclosures, frames, or conductor raceways, structural metal supports for the mechanical and plumbing equipment to provide a low impedance path for line-to-ground fault current and to bond all non-current carrying metal parts together. Install a ground conductor in each raceway system. Equipment ground conductor shall be electrically and mechanically continuous from the electrical circuit source to the equipment to be grounded. Size ground conductors per CEC 250-95 unless otherwise shown on drawings.
- B Grounding conductors shall be identified with green insulation. Where green insulation is not available, on larger sizes, black insulation shall be used and suitably identified with green tape at each junction box or enclosure device.
- C Install metal raceway couplings, fittings and terminations secure and tight to insure good ground continuity. Provide grounding bushing and bonding jumper where metal raceway is not directly attached to equipment metal enclosure and at concentric knockouts.
- D Lighting fixtures shall be securely connected to equipment ground conductors. Outdoor lighting standards shall have a factory installed ground for terminating the ground wire.
- E Motors shall be connected to equipment ground conductors with a conduit grounding bushing and with a bolted solderless lug connection on the metal frame.

3.3 STRUCTURAL GROUND

- A Concrete encased electrode shall be 2 inches above the bottom of concrete footing where shown on drawings. See drawings for details.
- B Domestic, chilled and hot water mains and fire protection metallic water pipes shall be connected to the ground bus with #3/0 AWG bare copper conductor at a minimum of two points.
- C Miscellaneous metal objects including piping, vessels and structural shapes within six feet of metallic objects connected to the ground system and which are not interconnected mechanically with the grounding system, shall be interconnected with a minimum #3/0 AWG bare copper conductor.

3.4 GROUND RESISTANCE TEST

- A Building ground electrode resistance testing shall be accomplished with a ground resistance, direct reading, single test meter utilizing the Fall-of-Potential method and two (2) referenced electrodes. Perform test prior to interconnection to other grounding system. Orient the concrete encased ground electrode to be tested and the two referenced electrodes in straight line spaces fifty (50) feet apart. Drive the two (2) reference electrodes ten (10) feet deep.
- B Test results shall be in writing, and shall show temperature, humidity and condition of the soil at the time of the tests. In the case where the ground



resistance exceeds 25 ohms, add an additional ground rod and retest. Add additional ground rods when necessary in order to bring the ground resistance below 25 Ohms. All testing shall be done prior to concrete pour and in the presence of the inspector of record. Provide test results for engineer review.

END OF SECTION

DOCUMENT 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Hangers and supports for electrical equipment and systems.
- B. Construction requirements for concrete bases.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B American Society for Testing and Materials (ASTM)
 - 1 ASTM A36/A36M: Standard Specification for Carbon Structural Steel
 - 2 ASTM A167: Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
 - 3 ASTM A276: Standard Specification for Stainless Steel Bars and Shapes
 - 4 ASTM A325: Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 KSI Minimum Tensile Strength
 - 5 ASTM A563: Standard Specification for Carbon and Alloy Steel Nuts
 - 6 ASTM B221: Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
 - 7 ASTM B632: Standard Specification for Aluminum-Alloy Rolled Tread Plate
 - 8 ASTM B633: Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
 - 9 ASTM E488: Standard Test Methods for Strength of Anchors in Concrete Elements
 - 10 ASTM F594: Standard Specification for Stainless Steel Nuts
- C American Welding Society (AWS)
 - 1 AWS D1.1: Structural Welding Code - Steel

- D California Building Safety Codes (CBSC)
 - 1 California Building Code (CBC)
 - 2 California Electrical Code (CEC)
- E General Services Administration
 - 1 FF-S-325
 - 2 W-C-582: Conduit, Raceway, Metal and Fittings: Surface
 - 3 WW-H-171: Hanger and Support, Pipe
- F ICC Evaluation Service (ICC-ES)
 - 1 ESR-1917
- G Manufacturers Standardization Society (MSS)
 - 1 MSS SP-58: Pipe Hangers and Supports – Materials, Design, Manufacture, Selection, Application, and Installation
 - 2 MSS SP-69: Pipe Hangers and Supports – Selection and Application
- H Metal Framing Manufacturers' Association
 - 1 MFMA-4: Metal Framing Standard Publication
 - 2 MFMA-101: Guidelines for the Use of Metal Framing
- I National Electrical Contractors Association
 - 1 NECA 1: Standard Practice of Good Workmanship in Electrical Construction
 - 2 NECA 101: Standard for Installing Steel Conduits (Rigid, IMC, EMT)
- J Underwriters' Laboratories
 - 1 UL 2239: Hardware for the Support of Conduit, Tubing, and Cable

1.4 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- B. Comply with latest editions of the California Building Code and California Electric Code

1.5 SUBMITTALS

- A. Submit under provisions of Section 013000 or 013300.
- B. Submittals shall include the following:
 - 1. Table of contents
 - 2. A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3. Part numbers
 - 4. Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5. Maintenance instructions and intervals
 - 6. A complete set of drawings for any special items
- C. Electronic submittals shall be searchable
- D. Shop drawings shall be stamped and signed by a licensed structural engineer. Show fabrication and installation details and include calculations for the following:
 - 1. Trapeze hangers: include product data for components
 - 2. Steel slotted channel systems: include product data for components
 - 3. Equipment supports
- E. Welding certificates
- F. The submittal shall be substantially complete for all items and equipment furnished under this section.

- G. Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- H. Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit manuals at close out.
- B The manuals shall, at minimum, include the following:
 - 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Load ratings
 - 4 Material type(s)
 - 5 Environmental ratings
 - 6 Maintenance requirements
 - 7 Installation instructions
 - 8 Repair instructions (where applicable)
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

1.7 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

PART 2 – PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems
 - 1. Comply with MFMA-4, factory-fabricated components for field assembly.
 - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 3. Nonmetallic Coatings:
 - a. PVC, polyurethane, or polyester coating applied according to MFMA-4.
 - b. Minimum thickness shall be 40 mils.
 - 4. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 - 5. Channel Dimensions: Selected for applicable load criteria.
 - 6. Manufacturers:

- a. Cooper B-Line, Inc.
 - b. ERICO International Corporation
 - c. Hilti Corporation
 - d. Thomas & Betts Corporation
 - e. Unistrut
 - f. Approved equal
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- E. Structural Steel for Fabricated Supports and Restraints: ASTM A36/A36M, steel plates, shapes, and bars; black and galvanized.
- F. Mounting, Anchoring, and Attachment Components:
 - 1. General:
 - a. Anchors shall be steel with corrosion resistant, durable coating or stainless steel
 - b. Select anchors with strength required for anchor and as tested according to ASTM E488.
 - c. Minimum length shall be eight times diameter.
 - d. Tension, shear, and pullout capacities shall be appropriate for supported loads and building materials used
 - e. Post installed anchors must be listed in a current evaluation report issued by one of the following:
 - 1. International Code Council Evaluation Service (ICC-ES) (<http://www.icc-es.org/reports/index.cfm?search=search>)
 - 2. City of Los Angeles Research Report
 - 2. Powder-Actuated Fasteners:
 - a. Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood
 - b. Manufacturers:
 - 1. Hilti Corporation
 - 2. Simpson Strong-Tie Co., Inc.
 - 3. Approved equal
 - 3. Mechanical-Expansion Anchors:
 - a. Insert-wedge-type, stainless steel, for use in hardened portland cement
 - b. Anchors shall meet the descriptive part of Federal Specifications FF-S-325 Group II, Type 2, Class 2, Style 1.
 - c. Anchors shall be equivalent to Hilti Kwik-Bolt TZ.
 - 4. Concrete inserts shall be steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58
 - 5. Clamps for attachment to steel structural elements: MSS SP-58, type suitable for attached structural element
 - 6. Through bolts shall be structural type, hex head, high strength and comply with ASTM A325
 - 7. Toggle Bolts: All-steel springhead type

8. Hanger Rods: Threaded steel

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials:
 1. Comply with requirements with ASTM A36 (ferrous metals), ASTM A167 and ASTM A276 (stainless steel), and ASTM B221 and B632 (aluminum) for shapes and plates.
 2. Hot dipped galvanized steel
 3. Stainless steel for corrosive areas

2.3 CONCRETE BASES

- A. Concrete Pad
 1. Concrete shall have strength of 3000 PSI within 28 days.
 2. The pad shall be large enough to achieve the following:
 - a. Edge of anchor bolt holes shall be a minimum of 10 times the bolt diameter from edge of pad.
 - b. Edge of equipment shall be a minimum of 8 inches from edge.
 3. Minimum thickness shall be 12 inches with 3 inch deep by 12 inch wide footing around perimeter
 4. Bottom of footings shall be a minimum of 8" below finished grade.
 5. Pad shall include #4 rebar at 10 inch intervals in both x direction and y direction.
- B. Concrete Pole Bases: Refer to Typical Details

PART 3 – EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by California Electrical Code. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways or Cables:
 1. Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 2. Secure raceways and cables to these supports with two-bolt conduit clamps
- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in California Electric Code.
- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (890 N).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code.
 - 1. Wood framing: Fasten with lag screws or through bolts.
 - 2. Light gauge steel framing: self tapping screws
 - 3. Steel beams: beam clamps
 - 4. Concrete: expansion fasteners

3.3 CONDUIT SUPPORTS

- A Conduit supports
 - 1 For Individual conduit runs not directly fastened to the structure: Rod hangers
 - 2 For multiple conduit runs: Trapeze type conduit support designed for maximum loading deflection not exceeding manufacturer's recommendations.
 - 3 Wire or sheet metal strips are not acceptable for conduit not directly fastened to structure or for multiple conduit runs.
- B Support conduit with Underwriters' Laboratories listed conduit support intervals required by the California Electric Code.
- C Individual conduit 1/2 inch and 3/4 inch size may be supported from ceiling support wire with Caddy clips only if acceptable to local code. Only one conduit is permitted to be attached to any ceiling support wire. Hang such conduit so as not to affect level of ceiling.
- D Avoid attaching conduit to fan plenums. When it is necessary to support conduit from fan plenum, provide a length of flexible conduit between the section attached to the fan plenum and other sections. Provide a length of flexible conduit between the portion attached to the building and the rest of the conduit run to minimize transmission of vibration to the building structure.
- E Supports anchored to earth shall be anchored in a concrete base per details.

3.4 INSTALLATION OF POST-INSTALLED ANCHORS

- A. Minimum distances
 - 1. Bolt hole edge to edge of concrete: 10 times bolt diameter
 - 2. Bolt center to bolt center: 12 times bolt diameter
- B. Expansion type anchors
 - 1. Anchor shall be installed and torque per manufacturer's recommendations.
 - 2. Setting verification:

- a. Torque-controlled anchors: Following attainment of 10% of the required torque, torque-controlled anchors shall not require more than six (6) additional complete turns of the nut during installation to achieve the manufacturer's specified installation torque. The extent of bolt projection after installation shall be measured to confirm that this requirement has been met.
 - b. Displacement-controlled anchors: The position of the plug in the anchor shell shall be checked with the manufacturer-supplied installation tool or other appropriate device. The position of the plug shall conform to the manufacturer's specifications.
- 3. Allowable loads
 - a. Anchors not installed in underside of beam/slab:
 - 1. When tested in accordance with AC01, Section 5.6: Values listed in ICC-ES report
 - 2. When not tested in accordance with AC01, Section 5.6: 80% of values listed in ICC-ES report
 - b. Anchors installed in underside of beam/slab:
 - 1. When tested in accordance with AC01, Section 5.6: Values for anchor without special inspection or in cracked concrete in ICC-ES report
 - 2. When not tested in accordance with AC01, Section 5.6: 80% of values for anchor without special inspection or in cracked concrete in ICC-ES report
- C. Epoxy-type (adhesive) Anchors
 - 1. Allowable loads: values from ICC-ES report when compliant with AC58.
- D. Anchors must receive special inspection per CBC Section 1704.15.

3.5 TESTING AND INSPECTION OF POST-INSTALLED ANCHORS

- A. General
 - 1. Post-installed anchors shall be tested in accordance with the provisions of 2001 California Building Code Section 1923A.3.5, by an authority having jurisdiction accepted testing facility, unless approval of an alternative individual is obtained in advance from the authority having jurisdiction.
 - 2. If any anchor fails testing, test all anchors of the same type, not previously tested until twenty (20) consecutive anchors pass, then resume the initial test frequency. If the anchors are used for the support and bracing of non-structural components (pipe, duct or conduit), the twenty (20) shall be only those anchors installed by the same trade.
 - 3. Test equipment (including torque wrenches) is to be calibrated by an approved testing laboratory in accordance with standard recognized procedures.
 - 4. Regardless of which test method is chosen, test values and all appropriate criteria shall be shown on the contract documents.
 - 5. Anchor diameter refers to the thread size for the wedge and sleeve categories, and to the anchor outside diameter for the sleeve category.
 - 6. Apply proof test loads to wedge and sleeve anchors without removing the nut if possible. If not, remove nut and install a threaded coupler to the same tightness as the original nut using a torque wrench to apply the test load.

7. For sleeve/shell internally threaded categories, verify that the anchor is not prevented from withdrawing by a baseplate or other fixtures. If restraint is found, loosen and shim or remove fixture(s) prior to testing.
8. Reaction loads from test fixtures may be applied close to the anchor being tested, provided the anchor is not restrained from withdrawing by the fixture(s).
9. Alternate torque test procedures and test values for shell type anchors may be submitted to the enforcement agency for review and approval on a case-by-case basis when test procedures are submitted and approved by the enforcement agency.
10. Required test loads may be determined by either of the following methods:
 - a. Twice the allowable tension load from Part 3.4.
 - b. Tension or torque test values from the table and procedures.

Test Values (Hardrock or Lightweight Concrete)							
Anchor	Wedge		Sleeve		Shell		Screw
Diameter (in)	Load (lbs)	Torque (ft. lbs)	Load (lbs)	Torque (ft. lbs)	Load (lbs)	Torque (ft. lbs)	Torque (ft. lbs)
1/4	800	10	400	4	1000	-	-
5/16	-	-	400	5	1400	-	-
3/8	1100	25	700	10	1800	-	10
1/2	2000	50	900	20	2700	-	10
5/8	2300	80	1100	45	3700	-	10
3/4	3700	150	1400	90	5400	-	20
1	5800	250	-	-	-	-	-

11. If the manufacturer's recommended installation torque is less than the test torque noted in the table, the manufacturer's recommended installation torque should be used in lieu of the tabulated values.
- B. Expansion-type Anchors
1. The test load may be applied by any method that will effectively measure the tension in the anchor, such as direct pull with a hydraulic jack, calibrated spring-loaded devices, or a calibrated torque wrench. Displacement-controlled anchors such as drop-ins shall not be tested using a torque wrench.
 2. Anchors tested with a hydraulic jack should exhibit no discernable movement during the tension test, e.g., as evidenced by loosening of the washer under the nut.
 3. Anchors tested with a calibrated torque wrench must attain the specified torque within 1/2 turn of the nut.
 4. Exceptions: Undercut anchors that are so designed to allow visual confirmation of full set, need not be tension or torque tested. If the manufacturer's installation torque is less than the specified test torque, use the manufacturer's specified installation torque for testing the anchor.
 5. Apply proof test loads to wedge and sleeve anchors without removing the nut if possible. If not, remove nut and install a threaded coupler to the same tightness as the original nut using a torque wrench to apply the test load.

6. For sleeve/shell internally threaded categories, verify that the anchor is not prevented from withdrawing by a baseplate or other fixtures. If restraint is found, loosen and shim or remove fixture(s) prior to testing.
7. Reaction loads from test fixtures may be applied close to the anchor being tested, provided the anchor is not restrained from withdrawing by the fixture(s).
8. Shell type anchors should be tested as follows:
 - a. Visually inspect 25% for full expansion as evidenced by the location of the expansion plug in the anchor body. Plug location of a fully expanded anchor should be as recommended by the manufacturer, or, in the absence of such recommendation, as determined on the job site following the manufacturer's installation instructions. At least 5% of the anchors shall be proof loaded as indicated in the table above, but not less than three anchors per day for each different person or crew installing anchors, or;
 - b. Test installed anchors per current edition of the CBC Section 1913A.7.
- C. Epoxy-type (adhesive) Anchors
 1. Epoxy-type (adhesive) anchors shall be tension tested per current edition of the CBC Section 1913A.7. The tension test load shall equal twice the allowable load for the specific location of the anchor to be tested (i.e., accounting for edge distance) or 80% of the yield strength of the bolt ($0.8A_bF_y$), whichever is less. The test procedures for expansion-type anchors in the attached table shall also be used for epoxy-type (adhesive) anchors. Torque testing of epoxy-type (adhesive) anchors is not permitted.
 2. Where epoxy-type (adhesive) anchors are used as shear dowels across cold joints in slabs on grade and the slab is not part of the structural system, testing of those dowels is not required.
 3. Anchors shall exhibit no discernible movement during the tension test.
- D. Screw-type Anchors
- E. The following criteria apply for the acceptance of installed anchors:
 1. Hydraulic ram method: The anchor should have no observable movement at the applicable test load. For wedge and sleeve type anchors, a practical way to determine observable movement is that the washer under the nut becomes loose.
 2. Torque wrench method: The applicable test torque must be reached within the following limits:
 - a. Wedge or Sleeve type: One-half (1/2) turn of the nut.
 - b. One-quarter (1/4) turn of the nut for the 3/8 in. sleeve anchor only.

3.6 PAINTING

- A. Touchup:
 1. Clean field welds and abraded areas of shop paint.
 2. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting.
 3. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
 4. Comply with the following requirements



- a. Architectural painting specifications
 - b. SSPC-PA 1 requirements for touching up field-painted surfaces.
- B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780.

END OF SECTION

VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SECTION INCLUDES

Anchoring and vibration isolation equipment for electrical equipment:

- A. Isolation pads
- B. Spring isolators
- C. Restrained spring isolators
- D. Channel support systems
- E. Restraint cables
- F. Hanger rod stiffeners
- G. Anchorage bushings and washers

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B American Society for Testing and Materials (ASTM)
 - 1 ASTM A36/A36M: Standard Specification for Carbon Structural Steel
 - 2 ASTM A325: Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 KSI Minimum Tensile Strength
 - 3 ASTM A563: Standard Specification for Carbon and Alloy Steel Nuts
 - 4 ASTM B633: Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
 - 5 ASTM E488: Standard Test Methods for Strength of Anchors in Concrete Elements
 - 6 ASTM F594: Standard Specification for Stainless Steel Nuts
- C American Welding Society (AWS)
 - 1 AWS D1.1: Structural Welding Code - Steel
- D California Building Safety Codes (CBSC)
 - 1 California Building Code (CBC)

- 2 California Electrical Code (CEC)
- E General Services Administration
 - 1 FF-S-325
 - 2 W-C-582: Conduit, Raceway, Metal and Fittings: Surface
 - 3 WW-H-171: Hanger and Support, Pipe
- F ICC Evaluation Service (ICC-ES)
 - 1 ESR-1917
- G National Electrical Contractors Association
 - 1 NECA 1: Standard Practice of Good Workmanship in Electrical Construction
- H Underwriters' Laboratories

1.4 QUALITY ASSURANCE

- A. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- C. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval OPA number from OSHPD, preapproval by ICC-ES, or preapproval by another agency meeting requirements of Part 1.6, showing maximum seismic-restraint ratings. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are not available, submittals based on independent testing are preferred. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.
- D. Comply with latest editions of the California Building Code and California Electric Code

1.5 SUBMITTALS

- A. Submit under provisions of Section 013000 or 013300.
- B. Submittals shall include the following:
 - 1. Table of contents
 - 2. A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3. Part numbers
 - 4. Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5. Maintenance instructions and intervals
 - 6. A complete set of drawings for any special items
 - 7. Include rated load, rated deflection, and overload capacity for each vibration isolation device.
 - 8. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
 - a. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an agency meeting requirements of Part 1.6.
 - b. Annotate to indicate application of each product submitted and compliance with requirements.

9. Restrained-Isolation Devices: Include ratings for horizontal, vertical, and combined loads.
- C. Electronic submittals shall be searchable
- D. Delegated-Design Submittal: For vibration isolation and seismic-restraint details indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified licensed structural engineer responsible for their preparation.
 1. Design Calculations:
 - a. Calculate static and dynamic loading due to equipment weight and operation, seismic forces required to select vibration isolators and seismic restraints.
 - b. Coordinate design calculations with wind-load calculations required for equipment mounted outdoors. Comply with requirements in other electrical Sections for equipment mounted outdoors.
 2. Indicate materials and dimensions and identify hardware, including attachment and anchorage devices.
 3. Field-fabricated supports.
 4. Seismic-Restraint Details:
 - a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and shear loads.
 - b. Details: Indicate fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacing. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events. Indicate association with vibration isolation devices.
 - c. Preapproval and Evaluation Documentation: By an agency meeting requirements of Part 1.6, showing maximum ratings of restraint items and the basis for approval (tests or calculations).
- E. Welding certificates.
- F. Field quality-control test reports.
- G. The submittal shall be substantially complete for all items and equipment furnished under this section.
- H. Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- I. Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit manuals at close out.
- B The manuals shall, at minimum, include the following:
 - 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Load ratings
 - 4 Material type(s)
 - 5 Environmental ratings
 - 6 Maintenance requirements
 - 7 Installation instructions

- 8 Repair instructions (where applicable)
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

1.7 PERFORMANCE REQUIREMENTS

Seismic-Restraint Loading:

- A. Site Class as Defined in the CBC: Refer to structural plans
- B. Assigned Seismic Use Group or Building Category as Defined in the CBC: Refer to structural plans
 - 1. Component Importance Factor: Refer to structural plans
 - 2. Component Response Modification Factor: Refer to structural plans
 - 3. Component Amplification Factor: Refer to structural plans
- C. Mapped Spectral Acceleration for Short Period (0.2 Second): S_s Refer to structural plans
- D. Site Coefficient for Short Period: F_a Refer to structural plans
- E. Maximum Spectral Response Acceleration for Short Period: S_{MS} Refer to structural plans
- F. Design Spectral Response Acceleration for Short Period: S_{DS} Refer to structural plans
- G. Mapped Spectral Acceleration for 1 Second Period: S_1 Refer to structural plans
- H. Site Coefficient for 1 Second Period: F_v Refer to structural plans
- I. Maximum Spectral Response Acceleration for 1 Second Period: S_{M1} Refer to structural plans
- J. Design Spectral Response Acceleration for 1 Second Period: S_{D1} Refer to structural plans

1.8 QUALIFICATIONS OF TESTING AGENCY

The testing agency shall meet the following requirements:

- A. Federal OSHA criteria for accreditation of testing laboratories, Standard Number 1910.7 (Definition and Requirements for a nationally recognized testing laboratory). Membership in the National Electrical Testing Association constitutes proof of meeting such criteria.
- B. Acceptable to authorities having jurisdiction.

PART 2 – PRODUCTS

2.1 VIBRATION ISOLATORS

- A. Pads:
 - 1. Arrange in single or multiple layers of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment.
 - 2. Resilient Material: Oil and water resistant, waffle embossed neoprene.
- B. Spring Isolators: Freestanding, laterally stable, open-spring isolators.
 - 1. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.

2. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 3. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 4. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
 5. Baseplates: Factory drilled for bolting to structure and bonded to 1/4-inch- (6-mm-) thick, rubber isolator pad attached to baseplate underside. Baseplates shall limit floor load to 500 psig (3447 kPa).
 6. Top Plate and Adjustment Bolt: Threaded top plate with adjustment bolt and cap screw to fasten and level equipment.
- C. Restrained Spring Isolators: Freestanding, steel, open-spring isolators with seismic or limit-stop restraint.
1. Housing: Steel with resilient vertical-limit stops to prevent spring extension due to weight being removed; factory-drilled baseplate bonded to 1/4-inch- (6-mm-) thick, neoprene or rubber isolator pad attached to baseplate underside; and adjustable equipment mounting and leveling bolt that acts as blocking during installation.
 2. Restraint: Seismic or limit-stop as required for equipment and authorities having jurisdiction.
 3. Outside Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
 4. Minimum Additional Travel: 50 percent of the required deflection at rated load.
 5. Lateral Stiffness: More than 80 percent of rated vertical stiffness.
 6. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.

2.2 SEISMIC-RESTRAINT DEVICES

- A. General Requirements for Restraint Components: Rated strengths, features, and application requirements shall be as defined in reports by an agency meeting requirements of Part 1.6.
- B. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four (verify with structural engineer) times the maximum seismic forces to which they will be subjected.
- C. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.
- D. Restraint Cables: ASTM A 492 stainless-steel cables with end connections made of steel assemblies with thimbles, brackets, swivels, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable engagement.
- E. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections or reinforcing steel angle clamped to hanger rod. Do not weld stiffeners to rods.
- F. Bushings for Floor-Mounted Equipment Anchor: Neoprene bushings designed for rigid equipment mountings and matched to type and size of anchors and studs.

- G. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings and matched to type and size of attachment devices.
- H. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.
- I. Mounting, Anchoring, and Attachment Components: Refer to Section 260529.
- J. Steel parts shall be hot dipped galvanized after fabrication for dry areas or stainless steel for damp or wet locations.

PART 3 – EXECUTION

3.1 APPLICATIONS

- A. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by an agency meeting requirements of Part 1.6.
- B. Hanger Rod Stiffeners: Install hanger rod stiffeners where indicated or scheduled on Drawings to receive them and where required to prevent buckling of hanger rods due to seismic forces.
- C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits.

3.2 SEISMIC-RESTRAINT DEVICE INSTALLATION

- A. Equipment and Hanger Restraints:
 - 1. Install restrained isolators on electrical equipment.
 - 2. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch (3.2 mm).
 - 3. Install seismic-restraint devices using methods approved by an agency meeting requirements of Part 1.6 providing required submittals for component.
- B. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
- C. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
- D. Drilled-in Anchors:
 - 1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
 - 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
 - 3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve

fully engaged in the structural element to which anchor is to be fastened.

4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
5. Set anchors to manufacturer's recommended torque, using a torque wrench.
6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

3.3 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where they terminate with connection to equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

3.4 FIELD QUALITY CONTROL

Tests and Inspections:

- A. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
- B. Test at least 10% of each type and size of installed anchors and fasteners selected by Architect.
- C. Test to 90 percent of rated proof load of device.
- D. Measure isolator restraint clearance.
- E. Measure isolator deflection.
- F. Verify snubber minimum clearances.
- G. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.
- H. Remove and replace malfunctioning units and retest as specified above.
- I. Prepare test and inspection reports.

3.5 ADJUSTING

- A. Adjust isolators after isolated equipment is at operating weight.
- B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.
- C. Adjust active height of spring isolators.
- D. Adjust restraints to permit free movement of equipment within normal mode of operation.

3.6 ELECTRICAL VIBRATION-CONTROL AND SEISMIC-RESTRAINT DEVICE SCHEDULE

- A. Provide the owner with a schedule of all major supported or suspended electrical equipment. Include the following.
 - 1. Equipment Location
 - 2. Pads:
 - a. Material
 - b. Thickness
 - c. Durometer
 - d. Number of Pads
 - 3. Isolator Type
 - 4. Component Importance Factor
 - 5. Component Response Modification Factor
 - 6. Component Amplification Factor
- B. Provide the owner with cut sheets for all other support equipment.

END OF SECTION

DOCUMENT 26 08 00

COMMISSIONING OF ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A Testing in conformity with equipment applicable to this project, applicable codes and authorities having jurisdiction
- B Test equipment requirements listed in this section shall apply to testing required by all other sections in Division 26, Division 27, and Division 28.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B California Electrical Code
- C International Electrical Testing Association (NETA)
 - 1 NETA ATS: for Acceptance Testing Specifications for Electrical Power Equipment and Systems
- D Institute of Electrical and Electronic Engineers
 - 1 IEEE 81: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System Part 1: Normal Measurements
 - 2 IEEE 82: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
 - 3 IEEE 95: Standard Test Procedure for Impulse Voltage Tests on Insulated Conductors
 - 4 IEEE 112: Standard Test Procedure for Polyphase Induction Motors and Generators
 - 5 IEEE 114: Standard Test Procedure for Single-Phase Induction Motors
 - 6 IEEE 115: IEEE Guide for Test Procedures for Synchronous Machines Part I—Acceptance and Performance Testing Part II—Test Procedures and Parameter Determination for Dynamic Analysis

- 7 IEEE 141: Recommended Practice for Electric Power Distribution for Industrial Plants
- 8 IEEE 142: Recommended Practice for Grounding of Industrial and Commercial Power Systems
- 9 IEEE 241: Recommended Practice for Electric Power Systems in Commercial Buildings
- 10 IEEE 242: Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems (IEEE Buff Book)
- 11 IEEE 252: Standard Test Procedure for Polyphase Induction Motors Having Liquid in the Magnetic Gap
- 12 IEEE 259: Standard Test Procedure for Evaluation of Systems of Insulation for Dry-Type Specialty and General-Purpose Transformers
- 13 IEEE 389: Recommended Practice for Testing Electronics Transformers and Inductors
- 14 IEEE 393: Test Procedures for Magnetic Cores
- 15 IEEE 399: Recommended Practice for Industrial and Commercial Power Systems Analysis (Brown Book)
- 16 IEEE 400: Guide for Field Testing and Evaluation of the Insulation of Shielded Power Cable Systems Rated 5 kV and Above
- 17 IEEE 442: Guide for Soil Thermal Resistivity Measurements
- 18 IEEE 495: Guide for Testing Faulted Circuit Indicators
- 19 IEEE 576: Recommended Practice for Installation, Termination, and Testing of Insulated Power Cable as Used in Industrial and Commercial Applications
- 20 IEEE 1188: Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications
- 21 IEEE 1234: Guide for Fault Locating Techniques on Shielded Power Cable Systems
- 22 IEEE 1415: Guide for Induction Machinery Maintenance Testing and Failure Analysis
- 23 IEEE 1458: Recommended Practice for the Selection, Field Testing, and Life Expectancy of Molded Case Circuit Breakers for Industrial Applications
- E National Institute of Standards and Technology (NIST)
- F Underwriters' Laboratories
 - 1 UL 1244: Electrical and Electronic Measuring and Testing Equipment
 - 2 UL 1436: Outlet Circuit Testers and Similar Indicating Devices
 - 3 UL 61010-2-030: Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits
 - 4 UL 61010B-1: Electrical Measuring and Test Equipment – Part 1: General Requirements
 - 5 UL 61010B-2-031: Electrical Equipment for Measurement, Control, and Laboratory Use – Part 2: Particular Requirements for Hand-Held Probe Assemblies for Electrical Measurement and Test
 - 6 UL 61010B-2-032: Electrical Equipment for Measurement, Control, and Laboratory Use – Part 2: Particular Requirements for Hand-Held Current Clamps for Electrical Measurement and Test

1.4 QUALITY ASSURANCE

- A The Contractor shall engage and pay for the services of a recognized independent testing laboratory for the purpose of performing inspections and tests as herein specified.
- B The testing laboratory shall provide all material, equipment, labor and technical supervision to perform switch tests and inspections.
- C It is the intent of these tests to assure that all electrical equipment, both Contractor and Owner supplied, is operational within industry and manufacturer's tolerances and is installed in accordance with design specifications.
- D The tests and inspections shall determine the suitability for energizing.
- E Schedule tests and give a minimum of two weeks advance notice to the Owner.

1.5 SUBMITTALS

- A List of tests performed
- B Test procedures
- C Test results
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted for review.

1.6 QUALIFICATIONS OF TESTING AGENCY

The testing agency shall meet federal OSHA criteria for accreditation of testing laboratories, Standard Number 1910.7 (Definition and Requirements for a nationally recognized testing laboratory). International Electrical Testing Association (NETA) accreditation constitutes proof of meeting such criteria.

1.7 TEST INSTRUMENT TRACEABILITY

- A The testing laboratory shall have a calibration program which maintains all applicable test instrumentation within rated accuracy.
- B The accuracy shall be traceable to the National Institute of Standards and Technology (NIST) in an unbroken chain.
- C Instruments shall be calibrated in accordance with the following frequency schedule:
 - 1 Field instruments: 6 months maximum.
 - 2 Laboratory instruments: 12 months.
 - 3 Leased specialty equipment: 12 months
- D Dated calibration labels shall be visible on all test equipment.

1.8 FINAL SETTINGS

- A The test report shall include the following: summary of project, description of equipment tested, description of test, list of test equipment used in calibration and calibration date, test results, conclusions and recommendations, and appendix, including appropriate test forms.
- B The test report shall be bound and its contents certified.
- C Submit three copies of the completed report to the architect, or engineer if no architect is involved, no later than fifteen (15) days after completion of test, unless otherwise directed.

1.9 FAILURE TO TEST

- A Any system material or workmanship which is found defective on the basis of acceptance tests shall be reported directly to the architect or engineer if no architect is involved.
- B Contractor shall replace the defective material or equipment and have test repeated until test proves satisfactory without additional cost to the Owner.

PART 2 – PRODUCTS: [NOT USED]

PART 3 – EXECUTION

3.1 GROUND RESISTANCE TEST

- A Building ground electrode resistance testing shall be accomplished with a ground resistance, direct-reading, single test meter utilizing the Fall-of-Potential method and two (2) referenced electrodes. Perform test prior to interconnection to other grounding system. Orient the concrete-encased ground electrode to be tested and the two referenced electrodes in straight line spaces fifty (50) feet apart. Drive the two (2) reference electrodes ten (10) feet deep.
- B Test results shall be in writing, and shall show temperature, humidity and condition of the soil at the time of the tests. In the case where the ground resistance exceeds 25 ohms, add an additional ground rod and retest. Add additional ground rods when necessary in order to bring the ground resistance below 25 Ohms. All testing shall be done prior to concrete pour and in the presence of the inspector of record. Provide test results for engineer review.

3.2 MISCELLANEOUS TESTING

- A Functional and operational testing to the fire alarm, security system, telephone system, paging/intercom system, and all electrical components upon completion of electrical work.
- B Perform an insulation resistance test on all switchboard busses, bus ducts; feeder conductors, including neutrals, using a megohmmeter. Minimum value for each conductor shall be 20 megohms.

3.3 ELECTRICAL DISTRIBUTION EQUIPMENT OPERATIONAL CHECK

- A Electrical distribution equipment operational check includes main switchboards, distribution boards, panelboards, panels, switchgear, etc.
- B Verify proper operating condition of all equipment mechanically and electrically including, but not limited to verifying operation of each circuit breaker trip device with a rating of 100A or more using an accurately metered timed instrument (by passing 300% rated current through each pole).
- C If any equipment is found defective during operational check, it shall be replaced by the Contractor without cost to the Owner. The tests shall be repeated by the Contractor without cost to the owner until satisfactory results are obtained.



END OF SECTION

DOCUMENT 26 22 00

LOW VOLTAGE (0-600V) TRANSFORMERS

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes minimum requirement for low voltage transformers.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Transformers 750kVA and smaller shall be listed by Underwriters Laboratories.
- B Institute of Electrical and Electronics Engineers (IEEE)
 - 1 IEEE 259: Standard Test Procedure for Evaluation of Systems of Insulation for Dry-Type Specialty and General-Purpose Transformers
 - 2 IEEE 295: Electronics Power Transformers
 - 3 IEEE 389: Recommended Practice for Testing Electronics Transformers and Inductors
 - 4 IEEE 393: Test Procedures for Magnetic Cores
 - 5 IEEE C57.12.01: Standard General Requirements for Dry-Type Distribution and Power Transformers Including Those with Solid Cast and/or Resin Encapsulated Windings
 - 6 IEEE C57.12.28: Pad Mounted Equipment Enclosure Integrity
 - 7 IEEE C57.12.34: Three Phase, Pad Mounted, Distribution Transformers
 - 8 IEEE C57.12.60: Standard Test Procedure for Thermal Evaluation of Insulation Systems for Dry-Type Power and Distribution Transformers, Including Open-Wound, Solid-Cast, and Resin-Encapsulated Transformers
 - 9 IEEE C57.12.91: Standard Test Code for Dry-type Distribution and Power Transformers
 - 10 IEEE C57.98: Guide for Transformer Impulse Tests
- C National Electrical Manufacturers' Association
 - 1 Transformers shall be manufactured and tested in accordance with NEMA ST20.
 - 2 Transformers losses shall conform to NEMA TP1 requirements.

- 3 Transformer losses shall be tested in accord with NEMA TP2 procedures.
- 4 Transformers shall be labeled in accord with NEMA TP3 requirements.
- D California Electric Code
 - 1 CEC: California Electrical Code
- E ANSI C57.110 and ANSI C57.12.22 requirements for pad mounted, compartmental type, self cooled, three phase distribution transformers and applicable provisions of other ANSI standards C57 Series.
- F Underwriters' Laboratories
 - 1 UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
 - 2 UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
 - 3 UL 467: Grounding and Bonding Equipment
 - 4 UL 486E: Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
 - 5 UL 506: Specialty Transformers
 - 6 UL 1332: Organic Coatings for Steel Enclosures for Outdoor Use Electrical Equipment
 - 7 UL 1446 Systems of Insulating Materials – General
 - 8 UL 1561: Dry-type General Purpose and Power Transformers
 - 9 UL 2763: Energy Efficient Harmonic Cancellation Transformers
 - 10 UL 5085-1: Low Voltage Transformers – Part 1: General Requirements
 - 11 UL 5085-2: Low Voltage Transformers – Part 2: General Purpose Transformers
 - 12 UL 5085-3: Low Voltage Transformers – Part 3: Class 2 and Class 3 Transformers

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Supply equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.
- E Ship equipment in its original packages to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- F Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- G Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents

- 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
- 3 Part numbers
- 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
- 5 Maintenance instructions and intervals
- 6 A complete set of drawings for any special items
- 7 Wiring diagrams
- 8 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C Electronic submittals shall be searchable
- D Shop drawings required: drawings and descriptions containing information of weight, dimensions, rated kVA, sound level, impedance, voltage regulation and efficiency. Provide manufacturer's literature describing the product.
- E Test report of transformer furnished as hereinafter specified.
- F The submittal shall be substantially complete for all items and equipment furnished under this section.
- G Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- H Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
 - 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Manufacturer's data sheets – When data sheets include more than one model the model(s) used shall be noted
 - 4 Manufacturer's user and maintenance manual(s), including trouble-shooting guidelines
 - 5 Configuration settings
 - 6 Wiring diagrams
 - 7 Voltage ratings
 - 8 Current ratings
 - 9 Calibrated range
 - 10 List of capabilities
 - 11 Environmental ratings
 - 12 NEMA enclosure type
 - 13 Maintenance requirements
 - 14 Installation instructions
 - 15 Repair instructions
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 DISTRIBUTION TRANSFORMERS

- A General
 - 1 Except as otherwise indicated, provide manufacturer's standard materials and components as indicated by published product information, designed and constructed as recommended by manufacturer and as required for complete installation.
 - 2 Temperature
 - a 150°C rise
 - b Self-cooled type
 - c The maximum temperature of the top of the enclosure shall not exceed 50°C rise above a 40°C ambient.
 - 3 Impedance shall be manufacturer's standard.
 - 4 All insulating materials used shall be in accordance with NEMA ST20 or NEMA TR27 standards and be rated for 220°C UL component recognized insulation system.
 - 5 The core of the transformer shall be visibly grounded to the enclosure by means of a flexible grounding conductor sized in accordance with applicable NEMA, IEEE and ANSI standards.
 - 6 Primary voltage, secondary voltage, and kVA capacity shall be as shown on the single line or three-line diagram(s).
 - 7 All windings shall be copper.
- B Manufacturer:
 - 1 Square D
 - 2 General Electric
 - 3 Eaton
 - 4 Approved equal
- C Enclosure
 - 1 Dead front
 - 2 Transformers 25 kVA and larger shall be in a heavy gauge, sheet steel, ventilated enclosure
 - 3 Provide wire fabric rodent guard over ventilated openings and designed to prevent accidental access to live parts in accordance with UL, NEMA, and California Electric Code standards for ventilated enclosures.
 - 4 Mounting
 - a Transformers 15 kVA through 75 kVA shall be designed so they can be either floor or wall mounted.
 - b Transformers above 75 kVA shall be floor mounted.
 - 5 Corrosion resistant coating
 - a The completed enclosure shall be degreased and cleaned.
 - b After the cleaning process is finished, the enclosure shall be phosphatized.
 - c After the phosphatizing, the enclosure shall receive an electrostatic deposition of polyester powder coating followed by baking to produce a hard, durable finish.
 - 1 The minimum thickness of the paint film shall be 2.0 mils.
 - 2 For the exterior of transformer tank, interior and exterior of primary and secondary cable compartments the minimum total dry film thickness shall be 3.5 mils.
 - 3 Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
 - d Finish shall conform to UL 50 and UL 50E.

- e Color shall be ANSI 61 Gray.
- f Coat underside surfaces of equipment outdoors or in damp locations with a corrosion resistant coating.
- D Sound: Sound levels shall be guaranteed by the manufacturer not to exceed the following.

1	15-50 kVA	45 dB	
2	51-150 kVA		50 dB
3	151-300 kVA		55 dB
4	301-500 kVA		60 dB
5	501-700 kVA		62 dB
6	701-1000 kVA	64 dB	
7	1000-1500 kVA	65 dB	
8	1501-2000 kVA	66 dB	
- E Efficiency: Transformers shall be low loss type with minimum efficiencies per DOE 2016.
- F

Single Phase		Three Phase	
kVA	Efficiency	kVA	Efficiency
15	97.7%	15	97.0%
25	98.0%	30	97.5%
37.5	98.2%	45	97.7%
50	98.3%	75	98.0%
75	98.5%	112.5	98.2%
100	98.6%	150	98.3%
167	98.7%	225	98.5%
250	98.8%	300	98.6%
333	98.9%	500	98.7%
700	98.9%	750	98.8%
- G The transformer(s) shall supply phase shift of 0° or 30°.
- H Transformers shall be supplied with quality, full width electrostatic shields resulting in a maximum effective coupling capacitance between primary and secondary of 33 picofarads. With transformers connected under normal, loaded operating conditions, the attenuation of line noise and transients shall equal or exceed the following limits.

1	Common Mode: 0 to 1.5kHz - 120dB; 1.5kHz to 10kHz - 90dB; 10kHz to 100kHz - 65dB; 100kHz to 1MHz - 40dB
2	Transverse Mode: 1.5kHz to 10kHz - 52dB; 10kHz to 100kHz - 30dB; 100kHz to 1MHz - 30dB
- I Taps: distribution transformers shall come equipped with the following taps.

1	2.5% FCAN
2	5.0% FCAN
3	2.5% FCBN
4	5.0% FCBN
5	7.5% FCBN
6	10.0% FCBN
- J All transformers listed below shall be K-13 rated unless explicitly noted as having a different K rating on the plans.

1	All school transformers
2	Any transformer feeding a load where the load from harmonic producing devices is at least 50% of the transformer's capacity.

2.2 CONSTRUCTION

- A Transformer coils shall be of copper windings, continuous wound construction, and shall be impregnated with non-hygroscopic, thermosetting varnish.
- B All cores shall be constructed with low hysteresis and eddy current losses. Magnetic flux densities are to be kept well below the saturation point to prevent core overheating. Cores for transformers greater than 500kVA shall be clamped utilizing insulated bolts through the core laminations to ensure proper pressure throughout the length of the core. The completed core and coil shall be bolted to the base of the enclosure but isolated by means of rubber vibration-absorbing mounts. There shall be no metal-to-metal contact between the core and coil and the enclosure except for a flexible safety ground strap. Sound isolation systems requiring the complete removal of all fastening devices will not be acceptable.
- C The core of the transformer shall be visibly grounded to the enclosure by means of a flexible grounding conductor sized in accordance with applicable UL and CEC standards.
- D The transformer enclosures shall be ventilated and be fabricated of heavy gauge, sheet steel construction. The entire enclosure shall be finished utilizing a continuous process consisting of degreasing, cleaning and phosphatizing, followed by electrostatic deposition of polymer polyester powder coating and baking cycle to provide uniform coating of all edges and surfaces. The coating shall be UL recognized for outdoor use. The coating color shall be ANSI 49.

PART 3 – EXECUTION

3.1 ANCHORING

- A Install transformers as indicated, complying with manufacturers written instructions, applicable requirements of CEC, NEMA, ANSI, and IEEE standards, and in accordance with recognized industry practices to ensure that products fulfill requirements.
- B Floor and roof mounted transformers shall be mounted on steel plates cemented to neoprene pads with a bolt hole through both. Refer to details. Conduit entering transformers shall be isolated from case with oversize hole, ground wire, and rubber grommet.
- C Anchor transformer to concrete pad with 3/4" minimum diameter anchor bolts. Bolts and washers shall be galvanized. Strength of materials used to secure the transformer shall be sufficient to resist shear and uplift produced by force equal to one half of the equipment mass applied horizontally at center of gravity.

3.2 GROUNDING

Provide equipment grounding connections, sufficiently tight, to assure permanent and effective ground, for transformers as indicated.

3.3 TESTING

Upon completion of installation of transformers, energize primary circuit at rated voltage and frequency from normal power source and test transformers, including, but not limited to, audible sound levels, to demonstrate capability and compliance with requirements. Where possible, correct malfunctioning units at the site, then retest to demonstrate compliance; otherwise, remove and replace with new units and proceed with re-testing.

END OF SECTION

DOCUMENT 26 24 13

SWITCHBOARDS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A Main Switchboards
- B Distribution Boards

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B California Electrical Code
- C California Building Code
- D Institute of Electrical and Electronic Engineers (IEEE)
 - 1 IEEE 81: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
 - 2 IEEE 100: The Authoritative Dictionary of IEEE Standards Terms
 - 3 IEEE 1584: Guide for Performing Arc Flash Hazard Calculations
 - 4 IEEE 1584a: Guide for Performing Arc-Flash Hazard Calculations--Amendment 1
 - 5 IEEE 1584b: Guide for Performing Arc-Flash Hazard Calculations--Amendment 2: Changes to Clause 4
 - 6 IEEE C2: National Electrical Safety Code
 - 7 IEEE C12.16: Solid-State Electricity Meters
 - 8 IEEE C37.13: Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures
 - 9 IEEE C37.20.1: Standard for Metal-Enclosed Low-Voltage Power Circuit-Breaker Switchboard
 - 10 IEEE C37.90.1: Standard for Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus
 - 11 IEEE C57.12.28: Standard for Pad-Mounted Equipment - Enclosure Integrity

- 12 IEEE C57.13: Standard Requirements for Instrument Transformers
- E National Electrical Manufacturers' Association
 - 1 NEMA 12.10: Physical Aspects of Watt-hour Meters - Safety Standards
 - 2 NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum)
 - 3 NEMA AB 1: Molded Case Circuit Breakers
 - 4 NEMA PB 2: Deadfront Distribution Switchboards
 - 5 NEMA PB 2.1: General Instructions for Proper Handling, Installation, Operation and Maintenance of Deadfront Distribution Switchboards Rated 600 V or Less
 - 6 NEMA SG 3: Low Voltage Power Circuit Breakers
 - 7 NEMA ST 20: Standard for Dry-Type Transformers for General Applications
- F National Electrical Testing Association (NETA)
 - 1 NETA ATS: Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems
- G National Fire Protection Association (NFPA)
 - 1 NFPA 70E: Standard for Electrical Safety in the Workplace
- H Underwriters' Laboratories (UL)
 - 1 UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
 - 2 UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
 - 3 UL 414: Meter Sockets
 - 4 UL 467: Grounding and Bonding Equipment
 - 5 UL 486A: Wire Connectors
 - 6 UL 486B: Wire Connectors
 - 7 UL 486E: Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
 - 8 UL 489: Molded Case Circuit Breakers, Molded Case Switches, and Circuit Breaker Enclosures
 - 9 UL 891: Switchboards
 - 10 UL 1053: Ground-fault Sensing and Relaying Equipment
 - 11 UL 1059: Terminal Blocks
 - 12 UL 2735: Electric Utility Meters
 - 13 UL 60947-1: Low-Voltage Switchboard and Controlgear – Part 1: General Rules
 - 14 UL 60947-7-1: Low-voltage switchboard and controlgear – Part 7-1: Ancillary equipment - Terminal blocks for copper conductors
 - 15 UL 60947-7-2: Low-Voltage Switchboard and Controlgear - Part 7-2: Ancillary Equipment - Protective Conductor Terminal Blocks for Copper Conductors

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Supply equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.

- E Ship equipment in its original packages to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- F Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- G Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 Calibration procedures and intervals
- C Submit shop drawings that include:
 - 1 Complete fabrication details
 - 2 Elevations and sections of enclosure(s)
 - 3 Dimensions of enclosure(s)
 - 4 Space available for conduits
 - 5 Voltage, ampacity, short circuit, and enclosure ratings
 - 6 Short circuit withstand ability of bus and lowest rated device,
 - 7 Circuit schedule showing circuit number, device description, circuit breaker frame ampere rating and trip or fuse clip ampere rating
 - 8 Termination lug size
 - 9 Feeder identification
 - 10 Single line diagram
 - 11 Include both elementary diagram and terminal to terminal wiring diagrams.
- D Electronic submittals shall be searchable
- E The submittal shall be substantially complete for all items and equipment furnished under this section.
- F Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- G Substitutions: Items of same function and performance shall be in conformance with Division 1. The Contractor shall provide a comparison of the proposed substitute with the specified equipment for review by the Engineer.
- H Submit field test and operations check report for circuit breakers under provisions of Section 260500.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:

- 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Manufacturer's data sheets – When data sheets include more than one model the model(s) used shall be noted
 - 4 Manufacturer's user and maintenance manual(s), including trouble-shooting guidelines
 - 5 Configuration settings
 - 6 Wiring diagrams
 - 7 Voltage ratings
 - 8 Current ratings
 - 9 List of capabilities
 - 10 Environmental ratings
 - 11 NEMA enclosure type
 - 12 Maintenance requirements
 - 13 Installation instructions
 - 14 Repair instructions
- C Provide manuals in one of the following formats
- 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A Square D Company QED series
- B Approved equal
- C Switchboards serving critical infrastructure (hospitals, utilities, public safety, etc.) shall be seismically certified by OSHPD.

2.2 RATINGS

- A Voltage and ampacity shall be as shown on plans with maximums of 600V_{AC}/250V_{DC} and 5000A.
- B Continuous main current ratings as indicated on associated drawings.
- C All switchboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 891. Tests shall be conducted for all bus ratings.
- D Provide UL Listed short circuit current ratings (SCCR) as indicated on the associated drawings not to exceed the lowest interrupting capacity rating of any circuit breaker.
- E Boards shall be fully rated.
- F Switchboards and distribution boards serving critical infrastructure (hospitals, utilities, public safety, etc.) shall be seismically certified by OSHPD.

2.3 INTERIOR

- A Buses shall be copper.
- B Buses shall be braced to withstand the rms symmetrical short-circuit current ratings as shown in the drawings.

- C Each section shall include phase, neutral, and ground buses.
- D Each section shall include horizontal through buses.
- E Each section shall include vertical buses for connection to circuit breakers/branch circuits.
- F Each section of a bus shall be firmly bolted to the adjacent section using bolt, Belleville spring washer, and nut.
- G Buses shall maintain full rating the entire length of the board. Do not taper the buses.
- H Circuit breakers shall be plug-on type and bolt to the board frame.
- I Where any circuit breaker is capable of 1200A trip setting, all circuit breakers 100A and larger shall include zone selective interlocking capability.
- J The main circuit breaker shall have a barrier separating it from the rest of the board.

2.4 ENCLOSURES

- A General
 - 1 All enclosures shall be galvanized steel constructed in accordance with UL 50 requirements and be UL 50 listed.
 - 2 Each section shall be of uniform depth and height.
 - 3 Each section shall bolt firmly to adjacent section(s).
 - 4 All components shall be front accessible.
 - 5 Rodent guards and steel mesh screens shall be provided and installed so that all openings are sealed.
 - 6 Each section shall be separated from adjacent sections with barriers.
 - 7 The through bus shall be separated from the branch circuit breakers with barriers.
- B Type 1 Boxes
 - 1 Boxes shall have removable blank end walls and interior mounting studs. Interior support bracket shall be provided for ease of interior installation.
 - 2 Type 1 trim fronts shall be galvanized steel and meet strength and rigidity requirements per UL 50 standards.
- C Type 3R Boxes
 - 1 All enclosures for switchboards installed outside or in wet locations shall be NEMA 3R rated.
 - 2 End walls shall be welded and sealed.
 - 3 All doors shall be gasketed.
- D Doors
 - 1 The enclosure shall be dead-front with door opened to access circuit breakers.
 - 2 A clear plastic directory card holder shall be mounted on the inside of door.
- E Locks
 - 1 All doors shall include locks.
 - 2 Locks shall be cylindrical tumbler type with larger enclosures requiring sliding vault locks with 3-point latching.
 - 3 All lock assemblies shall be keyed alike.
 - 4 Two (2) keys shall be provided with each lock.

2.5 ARC FLASH ENERGY REDUCTION

All fixed trip circuit breakers 1200A or greater and adjustable trip circuits breakers with a maximum rating 1200A or greater shall be equipped with one of the following methods to reduce arc flash energy.

- A Zone selective interlocking
- B Differential relaying
- C Arc flash detection and mitigation system in panel/board with the 1200A circuit breaker, refer to Section 260930

2.6 ENCLOSURE FINISH

- A The completed enclosure shall be degreased and cleaned.
- B After the cleaning process is finished, the enclosure shall be phosphatized.
- C After the phosphatizing, the enclosure shall receive an electrostatic deposition of polyester powder coating followed by baking to produce a hard durable finish.
 - 1 The minimum thickness of the paint film shall be 2.0 mils.
 - 2 For the exterior of transformer tank, interior and exterior of primary and secondary cable compartments the minimum total dry film thickness shall be 3.5 mils.
 - 3 Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
- D Finish shall conform to UL 50 and UL 50E.
- E Color shall be ANSI 61 Gray.
- F Coat underside surfaces of equipment outdoors or in damp locations with a corrosion resistant coating.

2.7 NAMEPLATES

Provide and install nameplates per Section 260500.

PART 3 – EXECUTION

3.1 INSTALLTION

- A Install all equipment per manufacturer's instructions.
- B Secure switchboard to mounting pad
 - 1 Top of concrete pad shall be 6" above surround finished floor or finished grade.
 - 2 Pad shall extend a minimum of 5" below grade with 3" deep, 6" wide footings around entire perimeter of pad.
 - 3 Secure with a minimum of one 1/2" diameter, stainless Hilti Kwik-Bolt TZ (or approved equal) anchor bolts with 3" embedment at each corner.
 - 4 Strength of materials used to secure the switchboard shall be sufficient to resist shear and uplift produced by force equal to one half of the equipment mass applied horizontally at center of gravity.
- C Mount switchboard with center of top circuit breaker handle no higher than 78" above finished floor.
- D Front align all switchboard sections and any adjacent switchgear or distribution board sections.

- E Submit three copies of the certified list for permanent record to be referenced to in the event of failure of any motor either within or beyond expiration of the warranty period.

3.2 FIELD TESTS

- A Test all equipment per manufacturer's instructions.
- B Test the operation of each interlock, circuit breaker, signal, etc. to verify that all components perform their functions.
- C Test system for correct execution of control logic. Adjust wiring connections in panel to correct errors.
- D Operate each breaker and verify that all phases of each load are disconnected.

3.3 WIRING

- A All wiring between components of the switchboard shall be factory installed.
- B Terminal blocks shall be provided complete with marking strips, covers, and pressure connectors. They shall be track mount type. Compression terminals will not be allowed. 25% spare terminals shall be provided. Terminals shall be labeled to agree with the identification indicated on the supplier's submittal drawings.
- C Contractor shall make all connections for a fully functional system.
 - 1 Minimum wire size shall be as shown on Single Line Diagram.
 - 2 If wire sizes are not shown, size wires per CEC.
- D Contractor shall make all communications connections per manufacturers' instructions.
- E All wires shall be contained within conduits.

3.4 GROUNDING

- A. Ground equipment per manufacturer's instructions, Section 260500, and applicable codes.
- B. Minimize resistance from device to ground.
- C. Resistance from device to ground shall not exceed 25 ohms.

3.5 NEW UTILITY METERS

Provide and install a 6-pair, 22AWG cable from any new utility company meter to the telephone MPOE for remote monitoring of meter. Coordinate with the utility company and the telephone company.

3.6 LOAD BALANCING

If the contractor changes circuiting from the panel schedule on the approved plans, the contractor shall be responsible to ensure that the loads on any two phases differ by no more than 5%.

3.7 IDENTIFICATION

- A Provide nameplate identifying panel on exterior of panel per requirements in Section 260500.

- B Provide type written panel schedule on interior of door.

3.8 OVER CURRENT PROTECTION DEVICE COORDINATION STUDY

- A Contractor shall provide a coordination study to determine trip settings of circuit breakers and/or appropriate fuse types.
- B Fault, circuit overload, etc shall only trip closest circuit breaker or melt closest fuse. No other circuits shall be affected.
- C Contractor may elect to have the engineer of record provide such services at the contractor's expense.

END OF SECTION

DOCUMENT 26 24 16

PANELBOARDS

PART 1 – GENERAL

1.1 SECTION INCLUDES

Lighting and Appliance Panelboards

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B California Electrical Code
- C California Building Code
- D Institute of Electrical and Electronic Engineers (IEEE)
 - 1 IEEE 81: Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System
 - 2 IEEE 100: The Authoritative Dictionary of IEEE Standards Terms
 - 3 IEEE C2 National Electrical Safety Code
 - 4 IEEE C12.16: Solid-State Electricity Meters
 - 5 IEEE C37.13: Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures
 - 6 IEEE C37.20.1: Standard for Metal-Enclosed Low-Voltage Power Circuit-Breaker Switchgear
 - 7 IEEE C37.90.1: Standard for Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus
 - 8 IEEE C57.12.28: Standard for Pad-Mounted Equipment - Enclosure Integrity
 - 9 IEEE C57.13: Standard Requirements for Instrument Transformers
- E National Electrical Manufacturers' Association
 - 1 NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum)
 - 2 NEMA PB 2: Deadfront Distribution Switchboards

- 3 NEMA PB 2.1: General Instructions for Proper Handling, Installation, Operation and Maintenance of Deadfront Distribution Switchboards Rated 600 V or Less
- 4 NEMA ST 20: Standard for Dry-Type Transformers for General Applications
- 5 NEMA 12.10: Physical Aspects of Watthour Meters - Safety Standards
- F National Electrical Testing Association (NETA)
 - 1 NETA ATS: Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems
- G Underwriters' Laboratories (UL)
 - 1 UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
 - 2 UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
 - 3 UL 467: Grounding and Bonding Equipment
 - 4 UL 486A: Wire Connectors
 - 5 UL 486B: Wire Connectors
 - 6 UL 486E: Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
 - 7 UL 489: Molded Case Circuit Breakers, Molded Case Switches, and Circuit Breaker Enclosures
 - 8 UL 891: Switchboards
 - 9 UL 1053: Ground-fault Sensing and Relaying Equipment
 - 10 UL 1059: Terminal Blocks
 - 11 UL 1558: Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
 - 12 UL 2735: Electric Utility Meters
 - 13 UL 60947-1: Low-Voltage Switchgear and Controlgear – Part 1: General Rules
 - 14 UL 60947-7-1: Low-voltage switchgear and controlgear – Part 7-1: Ancillary equipment - Terminal blocks for copper conductors
 - 15 UL 60947-7-2: Low-Voltage Switchgear and Controlgear - Part 7-2: Ancillary Equipment - Protective Conductor Terminal Blocks for Copper Conductors

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Supply equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.
- E Ship equipment in its original packages to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- F Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- G Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 Calibration procedures and intervals
- C Submit shop drawings that include:
 - 1 Complete fabrication details
 - 2 Elevations and sections of enclosure(s)
 - 3 Dimensions of enclosure(s)
 - 4 Space available for conduits
 - 5 Voltage, ampacity, short circuit, and enclosure ratings
 - 6 Short circuit withstand ability of bus and lowest rated device,
 - 7 Circuit schedule showing circuit number, device description, circuit breaker frame ampere rating and trip or fuse clip ampere rating
 - 8 Termination lug size
 - 9 Feeder identification
 - 10 Single line diagram
 - 11 Include both elementary diagram and terminal to terminal wiring diagrams.
- D Electronic submittals shall be searchable
- E The submittal shall be substantially complete for all items and equipment furnished under this section.
- F Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- G Substitutions: Items of same function and performance shall be in conformance with Division 1. The Contractor shall provide a comparison of the proposed substitute with the specified equipment for review by the Engineer.
- H Submit field test and operations check report for circuit breakers under provisions of Section 260500.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
 - 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Manufacturer's data sheets – When data sheets include more than one model the model(s) used shall be noted
 - 4 Manufacturer's user and maintenance manual(s), including trouble-shooting guidelines
 - 5 Configuration settings
 - 6 Wiring diagrams
 - 7 Voltage ratings

- 8 Current ratings
- 9 List of capabilities
- 10 Environmental ratings
- 11 NEMA enclosure type
- 12 Maintenance requirements
- 13 Installation instructions
- 14 Repair instructions
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A Square D Company
 - 1 I-LINE
 - 2 NQ
 - 3 NF
- B Equals
 - 1 General Electric
 - 2 Eaton/Cutler-Hammer
 - 3 Approved equal

2.2 TYPE NQ PANELBOARD

- A Interior
 - 1 Shall be type NQ panelboard or approved equal rated for 240V_{AC}/48V_{DC} maximum. Continuous main current ratings, as indicated on associated schedules, not to exceed 600 amperes maximum.
 - 2 Minimum short circuit current rating: 22000AIC as indicated in rms symmetrical amperes at 240V_{AC}.
 - 3 Provide one (1) continuous bus bar per phase. Each bus bar shall have sequentially phased branch circuit connectors suitable for plug-on or bolt-on branch circuit breakers. The bussing shall be fully rated. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67. Bussing rated 100-400 amperes shall be copper. Bussing shall be copper as standard construction.
 - 4 Interior trim shall be of dead-front construction to shield user from energized parts. Dead-front trim shall have pre-formed twistouts covering unused mounting space.
- B Main Circuit Breaker
 - 1 Main circuit breakers shall have an over-center, trip-free, toggle mechanism which will provide quick-make, quick-break contact action. Circuit breakers shall have a permanent trip unit with thermal and magnetic trip elements in each pole. Each thermal element shall be true rms sensing and be factory calibrated to operate in a 40°C ambient environment. Thermal elements shall be ambient compensating above 40°C.
 - 2 Two- and three-pole circuit breakers shall have common tripping of all poles. Circuit breakers frame sizes above 100 amperes shall have a

single magnetic trip adjustment located on the front of the circuit breaker which allows the user to simultaneously select the desired trip level of all poles. Circuit breakers shall have a push-to-trip button for maintenance and testing purposes.

- 3 Breaker handle and faceplate shall indicate rated ampacity. Standard construction circuit breakers shall be UL Listed for reverse connection without restrictive line or load markings.
- 4 Lugs shall be UL Listed to accept solid or stranded copper and aluminum conductors 90°C rated wire, sized according to the 75°C temperature rating per CEC Table 310-16.

C Enclosures

- 1 Type 1 Boxes
 - a Boxes shall be galvanized steel constructed in accordance with UL 50 requirements.
 - b Boxes shall have removable end walls with knockouts located on one end. Boxes shall have welded interior mounting studs. Interior mounting brackets are not required.
 - c Box width shall be 20 in wide.
- 2 Type 1 Fronts
 - a Front shall meet strength and rigidity requirements per UL 50 standards.
 - b Front shall have cylindrical tumbler type lock with catch and spring-loaded stainless steel door pull. All lock assemblies shall be keyed alike. Two (2) keys shall be provided with each lock. A clear plastic directory card holder shall be mounted on the inside of door.
 - c All electrical busses shall be copper.
- 3 Type 3R, 5, and 12
 - a Enclosures shall be constructed in accordance with UL 50 requirements
 - b All doors shall be gasketed and equipped with a tumbler type vault lock. All lock assemblies shall be keyed alike. One (1) key shall be provided with each lock. A clear plastic directory card holder shall be mounted on the inside of door.
 - c Maximum enclosure dimensions shall not exceed 20 in wide and 6.5 in deep.

2.3 TYPE NF PANELBOARD

- A Interior
 - 1 Shall be type NF panelboard for 480Y/277V_{AC} maximum. Continuous main current ratings, as indicated on associated schedules, not to exceed 600 amperes maximum.
 - 2 Minimum Short Circuit Rating: 14000 as indicated rms symmetrical amperes at 480Y/277V_{AC}.
 - 3 Provide one (1) continuous bus bar per phase. Each bus bar shall have sequentially phased branch circuit connectors limited to bolt-on branch circuit breakers. The bussing shall be fully rated. Panelboard bus current ratings shall be determined by heat-rise tests conducted in accordance with UL 67. Bussing rated 100-400 amperes shall be copper. Bussing rated for 600 amperes shall be copper as standard construction.

- 4 Interior trim shall be of dead-front construction to shield user from energized parts. Dead-front trim shall have pre-formed twistouts covering unused mounting space.
- B Main Circuit Breaker
 - 1 Main circuit breakers shall have an over-center, trip-free, toggle mechanism which will provide quick-make, quick-break contact action. Circuit breakers shall have a permanent trip unit with thermal and magnetic trip elements in each pole. Each thermal element shall be true rms sensing and be factory calibrated to operate in a 40°C ambient environment. Thermal elements shall be ambient compensating above 40°C.
 - 2 Two- and three-pole circuit breakers shall have common tripping of all poles. Circuit breakers frame sizes above 100 amperes shall have a single magnetic trip adjustment located on the front of the breaker which allows the user to simultaneously select the desired trip level of all poles. Circuit breakers shall have a push-to-trip button for maintenance and testing purposes.
 - 3 Circuit breaker handle and faceplate shall indicate rated ampacity. Standard construction circuit breakers shall be UL Listed for reverse connection without restrictive line or load markings.
 - 4 Lugs shall be UL Listed to accept solid or stranded copper and aluminum conductors. Lugs shall be suitable for 90°C rated wire, sized according to the 75°C temperature rating per CEC Table 310-16.
- C Enclosures
 - 1 Type 1 Boxes
 - a Boxes shall be galvanized steel constructed in accordance with UL 50 requirements.
 - b Boxes shall have removable end walls with knockouts located on one end. Boxes shall have welded interior mounting studs. Interior mounting brackets are not required.
 - 2 Type 1 Fronts
 - a Front shall meet strength and rigidity requirements per UL 50 standards.
 - b Front shall have flat latch type lock with catch and spring loaded stainless steel door pull. All lock assemblies shall be keyed alike. One (1) key shall be provided with each lock. A clear plastic directory card holder shall be mounted on the inside of door.
 - 3 Type 3R, 5, and 12
 - a Enclosures shall be constructed in accordance with UL 50 requirements
 - b All doors shall be gasketed and equipped with a tumbler type vault lock and two (2) additional trunk type latches. All lock assemblies shall be keyed alike. One (1) key shall be provided with each lock. A clear plastic directory card holder shall be mounted on the inside of door.
 - c Maximum enclosure dimensions shall not exceed 21 inches wide and 8 inches deep.

2.4 ENCLOSURE FINISH

- A The completed enclosure shall be degreased and cleaned.
- B After the cleaning process is finished, the enclosure shall be phosphatized.
- C After the phosphatizing, the enclosure shall receive an electrostatic deposition of polyester powder coating followed by baking to produce a hard durable finish.
 - 1 The minimum thickness of the paint film shall be 2.0 mils.
 - 2 For the exterior of transformer tank, interior and exterior of primary and secondary cable compartments the minimum total dry film thickness shall be 3.5 mils.
 - 3 Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
- D Finish shall conform to UL 50 and UL 50E.
- E Color shall be ANSI 61 Gray.
- F Coat underside surfaces of equipment outdoors or in damp locations with a corrosion resistant coating.

2.5 NAMEPLATES

Provide and install nameplates per Section 260500.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install all equipment per manufacturers' instructions.
- B. Test all equipment per manufacturer's instructions.
- C. Mount panelboards with center of top circuit breaker handle no higher than 78" above finished floor. Install flush mounted panelboards as indicated on architectural interior elevation drawings. Provide all necessary blocking, channels and other hardware for securing panelboards to wall, column or other parts of building structure.
- D. Submit three copies of the certified list for permanent record to be referenced to in the event of failure of any motor either within or beyond expiration of the warranty period.

3.2 GROUNDING

- A. Ground equipment per manufacturer's instructions, Section 260500, and applicable codes.
- B. Minimize resistance from device to ground.
- C. Resistance from device to ground shall not exceed 25 ohms.

3.3 LOAD BALANCING

If the contractor changes circuiting from the panel schedule on the approved plans, the contractor shall be responsible to ensure that the loads on any two phases differ by no more than 5%.

3.4 IDENTIFICATION

- A Provide nameplate identifying panel on exterior of panel per requirements in Section 260500.
- B Provide type written panel schedule on interior of door.

END OF SECTION

DOCUMENT 26 27 00

LOW VOLTAGE (0-600V) DISTRIBUTION EQUIPMENT

PART 1 – GENERAL

1.1 SECTION INCLUDES

Materials, equipment fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction, for the following:

- A Wiring devices
- B Terminal cabinets
- C Power distribution terminal blocks

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS

Published specification standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.

- A California Building Code
- B California Electrical Code
- C Underwriters' Laboratories
 - 1 UL 20: General Use Snap Switches
 - 2 UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
 - 3 UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
 - 4 UL 111: Multi-Outlet Assemblies
 - 5 UL 231: Power Outlets
 - 6 UL 486A: Wire Connectors
 - 7 UL 486B: Wire Connectors
 - 8 UL 486E: Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
 - 9 UL 498: Attachment Plugs and Receptacles
 - 10 UL 514A: Metallic Outlet Boxes
 - 11 UL 514C: Nonmetallic Outlet Boxes, Flush-device Boxes, and Covers
 - 12 UL 514D: Cover Plates for Flush-mounted Wiring Devices

- 13 UL 917: Clock Operated Switches
- 14 UL 943: Ground Fault Circuit Interrupters
- 15 UL 1681: Wiring Devices Configurations
- 16 UL 1773: Standard for Termination Boxes
- 17 UL 1953: Power Distribution Terminal Blocks
- 18 UL 2255: Standard for Receptacle Closures
- 19 UL 2682: Switch Rated Plugs and Receptacles

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.
- E Deliver, store and protect products under provisions of Section 016200.
- F Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- G Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- H Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 Calibration procedures and intervals
 - 7 A complete set of drawings for any special items
 - 8 A single line block diagram showing exactly the manner in which the contractor proposes to layout the system.
 - 9 Wiring diagrams
 - 10 Illustrations and scale drawing of the racks, equipment layouts etc.
 - 11 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
 - 12 The contractor shall also submit a copy of his valid state contractor's license and show proof that he is a distributor of the submitted equipment.
- C Electronic submittals shall be searchable
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be

- accepted for review.
- F Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
- 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Manufacturer's data sheets – When data sheets include more than one model the model(s) used shall be noted
 - 4 Manufacturer's user and maintenance manual(s), including trouble-shooting guidelines
 - 5 Configuration settings
 - 6 Wiring diagrams
 - 7 Voltage ratings
 - 8 Current ratings
 - 9 List of capabilities
 - 10 Environmental ratings
 - 11 NEMA enclosure type
 - 12 Maintenance requirements
 - 13 Installation instructions
 - 14 Repair instructions
- C Provide manuals in one of the following formats
- 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 WIRING DEVICES

- A Wall (Local) Switches
- 1 Totally enclosed
 - 2 AC rated
 - 3 20A rated
 - 4 Silent type, unless noted otherwise on the plans
 - 5 Manufacturers
 - a Hubbell Premise Wiring
 - b Leviton
 - 6 Specification Grade
- B Receptacles
- 1 Duplex receptacles shall be 20A, 125V_{AC} rated, 3-wire, grounded
 - 2 Receptacle shall include a LED that indicates it has power.
 - 3 Receptacles shall be tamperproof.
 - 4 Manufacturers
 - a Hubbell Premise Wiring
 - b Leviton
 - 5 Specification Grade

- 6 Exterior receptacle plates shall have steel, weatherproof, vandal-resistant while-in-use cover with key lockable/locking cover with keys to match owner standards.
- 7 All automatically switched receptacles shall be marked per 2016 CEC 406.3(E).
- C Other special purpose receptacles shown on Drawings shall be of same quality.
- D GFI receptacles shall self test every 3 seconds and indicate if the GFI protection has passed or failed the test.
- E Wall Plates:
 - 1 Commercial: Satin finish stainless steel
 - 2 Educational and medical: Satin finish stainless steel
 - 3 Medical: Satin finish stainless steel
 - 4 Residential:
 - a Material: Nylon
 - b Color: Match wall color
- F Switch and receptacle colors shall be as noted below unless otherwise specified.
 - 1 Job type dependant:
 - a Educational and medical: Gray
 - b Commercial: White
 - c Residential: Match wall color
 - 2 Feature type dependant (not job type dependant):
 - a Isolated Ground (IG) receptacle: Orange
 - b Equipment on emergency system: Red
 - c Receptacle with surge suppression: Blue
 - d Isolated ground receptacles with feature dependant color (other than orange) shall have orange triangle.
 - 3 Follow the facility has a color code scheme if the facility has one. Verify with owner.

2.2 TERMINAL CABINETS

- A Construction
 - 1 Fabricated from code gauge steel, size as indicated on drawings, with flush latch and concealed hinges and mounting screws.
 - 2 Enclosure for flush mounted cabinets shall be designed for flush mounting.
 - 3 Enclosure for surface mounted cabinets shall be designed for surface mounting.
- B Where size is not indicated, the minimum size shall be 24 inches wide x 30 inches high x 4 inches deep.
- C Cabinet shall be Square D "Mono-Flat Fronts", or approved equal.
- D Terminal cabinets shall include a backboard at inside back of cabinet.
 - 1 The backboard shall be 3/4" inch thick plywood
 - 2 Paint backboard with 3 coats of fire retardant paint.
- E Provide and install one terminal point for each wire within the terminal cabinet.
- F NEMA type:
 - 1 Interior, non-corrosive, non-hazardous (classified) locations: NEMA 1
 - 2 Exterior locations with vents: NEMA 3R
 - 3 Cooled enclosures: NEMA 4
 - 4 Enclosures containing electronics in dusty areas or outdoors: NEMA 4
 - 5 Enclosures in hazardous (classified) locations: NEMA 4 or 4X (corrosive locations) listed for hazardous classification

- 6 Enclosure in corrosive locations: NEMA 4X
- 7 All seams on NEMA 3R, 4, and 4X enclosures shall be continuously welded with welds ground smooth.
- G Coating
 - 1 The completed enclosure shall be degreased and cleaned.
 - 2 After the cleaning process is finished, the enclosure shall be phosphatized.
 - 3 After the phosphatizing, the enclosure shall receive an electrostatic deposition of polyester powder coating followed by baking to produce a hard durable finish.
 - a The minimum thickness of the paint film shall be 2.0 mils.
 - b For the exterior of transformer tank, interior and exterior of primary and secondary cable compartments the minimum total dry film thickness shall be 3.5 mils.
 - c Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
 - 4 Finish shall conform to UL 50 and UL 50E.
 - 5 Color shall be ANSI 61 Gray.
 - 6 Coat underside surfaces of equipment outdoors or in damp locations with a corrosion resistant coating.

2.3 POWER DISTRIBUTION TERMINAL BLOCKS

- A Power distribution terminal blocks (PDTB) shall be finger-safe, NEMA 1 type.
- B Conducting material shall be copper.
- C Current rating and short circuit rating of PDTBs shall be no lower than upstream overcurrent protective device.
- D Terminals
 - 1 Each terminal shall be screw type and be designed for wire size connecting to it.
 - 2 PDTB shall have one terminal for each wire connected to it on both load and line sides.
- E Load wire sizes and OCPD shall comply with CEC 240.21(B) and 240.92(B) as well as all other applicable codes.
- F PDTBs shall have provisions for panel or DIN rail mounting.
- G PDTBs shall be mounted within enclosure unless otherwise noted.

2.4 NAMEPLATES

Provide and install nameplates per Section 260500.

PART 3 – EXECUTION

3.1 GENERAL

- A Electric system layouts indicated on the Drawings are generally diagrammatic, but shall be followed as closely as actual construction and work of other trades will permit. Govern exact routing of cable and wiring and the locations of outlets by the structure and equipment served. Dimensions shall be taken from Architectural Drawings.

- B Consult all other Drawings. Verify scales and report any dimensional discrepancies or other conflicts to architect, or engineer if no architect is involved, before submitting bid.
- C Home runs to panelboards are indicated as starting from the outlet nearest the panel and continuing in the general direction of that panel. Continue such circuits to the panel as though the routes were completely indicated. Terminate homeruns of signal, alarm, and communications system in a similar manner.
- D Avoid cutting and boring holes through structure or structural members wherever possible. Obtain prior approval of Architect and conform to structural requirements when cutting or boring the structure is necessary or permitted.
- E Furnish and install necessary hardware, hangers, blocking, brackets, bracing, runners, required for equipment specified under this section.
- F Provide necessary backing required to insure rigid mounting of outlet boxes.
- G Outlet boxes shall be plumb.
- H Back of wall plates shall be flush with wall finish. Gaps between wall plates and wall or wall plates not parallel to wall are not acceptable.

3.2 CONNECTIONS TO EQUIPMENT

- A General:
 - 1 Furnish and install required power supply conduit and wiring to equipment. See below for other wiring required.
 - 2 Install rough-in work for equipment from approved shop drawings to suit the specific requirements of the equipment.
 - 3 Furnish and install magnetic motor starters that are shown on the Drawings or specified under other divisions to be furnished under this division of work. Verify equipment nameplate ratings prior to installation and furnish adequately rated starters for the loads.
 - 4 Furnish and install manual thermal protection for motors not integrally equipped with thermal protection.
 - 5 Furnish and install 120V power to each control panel and time switch requiring a source of power to operate.
- B Heating, ventilating, and air conditioning equipment:
 - 1 Coordinate with mechanical contractor for sizes, locations and details of motors, heating units, and control requirements.
 - 2 Provide required power supply conduit and wiring to equipment.
 - 3 Provide a suitable means of disconnect switch immediately ahead of and adjacent to each motor and appliance unless the motor or appliance is located adjacent and within sight of the service panelboard, circuit breaker or switch at a distance allowed by codes. Verify equipment nameplate current ratings prior to installation. Provide a disconnect means at each magnetic motor starter.
 - 4 Provide magnetic motor starters required under this division of work.
 - 5 Provide manual thermal protection for motors not integrally equipped with thermal protection.
 - 6 Line and low voltage temperature control and interlock wiring, conduit, and required connections are a part of other divisions unless specifically shown or noted on the Drawings as to be furnished under this section.
 - 7 Provide 120V power supply to control panels, time switch furnished and installed under other divisions of work.

- 8 Furnish and install 120V power to each duct detector scheduled for operation of fire dampers or shut down of mechanical equipment. Coordinate the exact quantity and locations with the mechanical drawings.
- C Plumbing and other contractor-furnished and Owner-furnished equipment:
 - 1 Required power and control conduit, wiring and connections are included under this section of the work. Control sensing and alarm devices will be furnished under the respective section of the contract supplying the equipment unless noted otherwise. These devices will be located in pipes, ducts, vessels, tanks, etc., and will be mounted in a place by the Contractor furnishing the devices. Other devices shall be mounted under this section of the work.
 - 2 Control panels for packaged equipment will be furnished under the respective section of the contract supplying the equipment unless otherwise noted. Installation and connection of the control panels are under this section of the work.

3.3 IDENTIFICATION

Refer to Section 260500.

END OF SECTION

DOCUMENT 26 28 00

LOW VOLTAGE (0-600V) CIRCUIT PROTECTIVE DEVICES

PART 1 – GENERAL

1.1 SECTION INCLUDES

Materials, equipment fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction, for overcurrent protective devices

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

Published specification standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.

- A California Building Code
- B California Electrical Code
- C Institute of Electrical and Electronic Engineers
 - 1 IEEE 1015: Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems
 - 2 IEEE 1458: Recommended Practice for the Selection, Field Testing, and Life Expectancy of Molded Case Circuit Breakers for Industrial Applications
- D Underwriters' Laboratories
 - 1 UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
 - 2 UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
 - 3 UL 98: Enclosed and Dead-front Switches
 - 4 UL 244A: Solid-state Controls for Appliances
 - 5 UL 363: Knife Switches
 - 6 UL 489: Molded-case Circuit Breakers, Molded-case Switches, and Circuit Breaker Enclosures
 - 7 UL 1066: Standard for Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
 - 8 UL 2367: Standard for Solid State Overcurrent Protectors

9 UL 60947-7-3: Low-Voltage Switchgear and Controlgear - Part 7-3:
Ancillary Equipment - Safety Requirements for Fuse Terminal Blocks

1.4 QUALITY ASSURANCE

- A Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B Supply equipment and accessories new, free from defects.
- C Equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D Items of a given type shall be the products of the same manufacturer.
- E Deliver, store and protect products under provisions of Section 016200.
- F Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- G Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- H Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 A complete set of drawings for any special items
 - 7 Wiring diagrams
- C Electronic submittals shall be searchable
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
 - 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Manufacturer's data sheets – When data sheets include more than one model the model(s) used shall be noted

- 4 Manufacturer's programming, user, and maintenance manual(s), including trouble-shooting guidelines
- 5 Configuration settings
- 6 Wiring diagrams
- 7 Voltage ratings
- 8 Current ratings
- 9 Calibrated range
- 10 List of capabilities
- 11 Environmental ratings
- 12 NEMA enclosure type
- 13 Maintenance requirements
- 14 Installation instructions
- 15 Repair instructions
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 CIRCUIT BREAKERS

- A Circuit breakers shall be constructed in accordance with the following standards:
 - 1 UL 489 or UL 1066
 - 2 Federal Specification W-C-375B/GEN
 - 3 NEMA AB1
 - 4 CSA 22.2, No. 5-M91
 - 5 IEC 157-1
 - 6 BS 4752
- B Construction
 - 1 Circuit breakers shall be constructed using glass reinforced polyester insulating material providing superior dielectric strength.
 - 2 Current-carrying components shall be completely isolated from the handle and the accessory mounting area.
 - 3 Breaker contact material shall be a non-weldable silver alloy.
 - 4 Breakers shall have arc-extinguishing chutes.
 - 5 Circuit breakers shall have an over-center, trip-free, toggle operating mechanism which will provide quick-make, quick-break contact action.
 - 6 Multiple pole breakers shall have a common trip element and a single operating handle.
 - 7 Circuit breakers for branch circuits shall be molded case
 - 8 Circuit breakers shall have bolt-on/plug-on type bus connectors.
- C Trip type
 - 1 Circuit breakers having a frame size of 150 amperes or less shall have thermal magnetic non-interchangeable, trip-free sealed trip units.
 - 2 Circuit breakers with a frame size of 175 amperes to 1200 amperes shall have interchangeable thermal and adjustable magnetic trip elements.
- D There shall be two forms of visible trip indication.
 - 1 The breaker handle shall reside in a position between ON and OFF.

- 2 In addition, there shall be a red trip indicator appearing in the clear window of the circuit breaker housing.
- E Circuit breakers shall be UL Listed with amperage ratings, interrupting ratings, and number of poles as indicated on the panelboard schedules.
- F Circuit breakers faceplates shall be marked with the following
 - 1 Rated ampacity
 - 2 UL and IEC certification standards
 - 3 Applicable voltage systems and corresponding AIR ratings
- G Lugs shall be UL Listed to accept solid or stranded copper and aluminum conductors. Lugs shall be suitable for 90°C rated wire, sized according to the 75°C temperature rating per CEC Table 310-16.
- H Branch circuit breakers rated 30 amperes and below shall be UL Listed to accept 60°C rated wire.
- I The interrupting capacity of all main and feeder branch circuit breakers shall be a minimum of 42,000A_{RMS} symmetrical amperes.
- J All circuit breakers feeding HVAC units, motors, or circuit breakers supplying loads other than convenience receptacles or lights shall have lockout devices.
- K Standard circuit breakers up to 250A at 600V_{AC} shall be UL Listed with HACR ratings.
- L All circuit breakers feeding 120V, 15A and 20A branch circuits in dwellings shall be AFCI.
- M Circuit breakers with shunt-trip or low voltage release shall be switch duty rated.
- N All fixed trip circuit breakers 1200A or greater and adjustable trip circuits breakers with a maximum rating 1200A or greater shall be equipped with one of the following methods to reduce arc flash energy.
 - 1 Zone selective interlocking
 - 2 Differential relaying
 - 3 Arc flash detection and mitigation system in panel/board with the 1200A circuit breaker, refer to Section 260930

2.2 SAFETY SWITCHES (DISCONNECTS)

- A Switches shall be heavy duty type
- B Minimum voltage rating shall be 600V.
- C Minimum Size
 - 1 Switches for disconnecting motors shall be sized for the horsepower of for motor(s).
 - 2 All switches shall be sized per the overcurrent protective device protecting the switch.
- D Construction
 - 1 NEMA 1 for indoors
 - 2 NEMA 3R or NEMA 4 for outdoors
 - 3 Handle shall be lockable in the off/disconnected/open position.
- E The switch shall include a barrier between the fuse section and the switch section with separate doors for each section. The entire fuse section shall be de-energized when the switch is in the off position.
- F Switch shall be equivalent to Square D H-rated series.
- G Finish: The entire enclosure shall be finished as follows.
 - 1 Degreasing
 - 2 Cleaning
 - 3 Phosphatizing

- 4 Electrostatic deposition of polymer polyester powder coating followed by baking to produce a hard, durable finish.
 - a The minimum thickness of the paint film shall be 2.0 mils.
 - b Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
- 5 Finish shall conform to UL 50 and UL 50E.
- 6 Color shall be ANSI 61 Gray.
- 7 Coat underside surfaces of equipment outdoors or in damp locations with a corrosion resistant coating

PART 3 – EXECUTION

3.1 GENERAL

- A Electric system layouts indicated on the Drawings are generally diagrammatic but shall be followed as closely as actual construction and work of other trades will permit. Govern exact routing of cable and wiring and the locations of outlets by the structure and equipment served. Dimensions shall be taken from Architectural Drawings.
- B Consult all other Drawings. Verify scales and report any dimensional discrepancies or other conflicts to architect, or engineer if no architect is involved, before submitting bid.
- C Furnish and install necessary hardware, hangers, blocking, brackets, bracing, runners, required for equipment specified under this section.

3.2 OVER CURRENT PROTECTION DEVICE COORDINATION STUDY

- A Contractor shall provide a coordination study to determine trip settings of circuit breakers and/or appropriate fuse types.
- B Fault, circuit overload, etc shall only trip closest circuit breaker or melt closest fuse. No other circuits shall be affected.
- C Contractor may elect to have the engineer of record provide such services at the contractor's expense.

END OF SECTION

DOCUMENT 26 50 00

LIGHTING

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes materials, equipment fabrication, installation and tests in conformity with applicable codes and authorities having jurisdiction, for lighting fixtures and installation.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A. Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.
- B. California Electrical Code
- C. Illuminating Engineering Society: The Lighting Handbook
- D. Underwriters' Laboratories
 - 1. UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
 - 2. UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
 - 3. UL 924: Emergency Lighting and Power Equipment
 - 4. UL 1598: Luminaires
 - 5. UL 2575: Standard for Lithium Ion Battery Systems for Use in Electric Power Tool and Motor Operated, Heating and Lighting Appliances
 - 6. UL 8750: Light Emitting Diode Equipment for Use in Lighting Products

1.4 QUALITY ASSURANCE

- A. Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- B. Supply equipment and accessories new, free from defects.

- C. Supply equipment and accessories in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
- D. Items of a given type shall be the products of the same manufacturer.
- E. Ship equipment in its original packages to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- F. Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- G. Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.

1.5 SUBMITTALS

- A. Submit under provisions of Section 013000 or 013300.
- B. Submittals shall include the following:
 - 1. Table of contents
 - 2. A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3. Part numbers
 - 4. Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5. Maintenance instructions and intervals
 - 6. Calibration procedures and intervals
 - 7. A complete set of drawings for any special items
 - 8. Wiring diagrams
 - 9. Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C. Electronic submittals shall be searchable
- D. The submittal shall be substantially complete for all items and equipment furnished under this section.
- E. Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F. Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.
- G. Pole mounted fixtures, including complete data on the pole material, finish, handholes, anchoring and attachment. Support method shall be submitted for interior fixtures weighing more than fifty (50) pounds.

1.6 OPERATION AND MAINTENANCE MANUALS

- A. Submit operation and maintenance manuals in accordance with Section 260000.
- B. The manuals shall, at minimum, include the following:
 - 1. Manufacturer (including contact information)
 - 2. Model number
 - 3. Programming manual (where applicable)
 - 4. Wiring diagrams
 - 5. Trouble-shooting guidelines (where applicable)
 - 6. Voltage ratings
 - 7. Current ratings

- 8 Calibrated range (where applicable)
- 9 List of capabilities
- 10 Environmental ratings
- 11 NEMA enclosure type
- 12 Maintenance requirements
- 13 Installation instructions
- 14 Repair instructions (where applicable)
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 GENERAL

- A. Furnish and install all fixtures complete, including lamps, ballasts, whips, conductors, etc. and ready for service.
- B. Fixture Designation: Fixtures are designated on Drawings by means of letters. See Lighting Fixture Schedule. Where only one (1) fixture designation appears in a room or area, that designation applies to all fixtures in that room or area.
- C. Tandem wired units acceptable where appropriate.
- D. Manufacturers and models for fixtures, ballasts, and lamps shall be as shown on the fixture schedule or approved equal.

2.2 FIXTURES

- A Linear fixtures
 - 1 Fixture housings shall be steel.
 - 2 Housing shall be painted after fabrication with white, electro-statically deposited paint. Housing shall be completely covered with paint to prevent corrosion.
- B All lenses shall be clear, prismatic, 0.125", K12 pattern, acrylic lenses.
- C Louvers shall be semi-specular aluminum.
- D Open can light reflectors shall be semi-specular aluminum.
- E Fixtures installed in gyms and similar rooms, locker rooms, storage rooms, and warehouses shall include stainless steel wireguards to protect fixture from damage.
- F Fixtures shall direct a minimum of 75% of light within zone below 30 degrees below horizontal.

2.3 LAMPS

- A. All LED fixtures shall have a color rendering index (CRI) of 0.8 and color temperature of 4000°K unless otherwise noted on plan.

2.4 EXIT SIGNS

- A. All exit signs shall be connected to an unswitched source.
- B. Colors
 - 1. Face shall be white.

2. Letters and arrows shall be green.
- C. Exit signs shall have arrows to indicate direction of exit where necessary.
- D. All exit signs shall include batteries to provide 90 minutes of illumination in the event of a power outage.

2.5 FIXTURE HANGERS AND SUPPORTS

- A. Provide proper supports and mounting accessories, such as hangers, stems, yokes, plaster frames, etc., as required by the type of ceiling installed.
- B. Where pendant mounted fixtures with stems are specified, provide swivel canopies or ball aligners in order to hang plumb regardless of ceiling slope.
- C. Entire assemblies shall comply with state earthquake resistance/ bracing guidelines.

2.6 POLES

- A. The minimum pole shall be capable of supporting the weights and effective projected areas listed below in 100 MPH winds:
 1. 20 foot tall: $W_{MAX}=390\text{lbs}$, $EPA_{MAX}=15.6\text{FT}^2$
 2. 25 foot tall: $W_{MAX}=495\text{lbs}$, $EPA_{MAX}=19.8\text{FT}^2$
 3. 30 foot tall: $W_{MAX}=550\text{lbs}$, $EPA_{MAX}=22.0\text{FT}^2$
 4. 35 foot tall: $W_{MAX}=363\text{bs}$, $EPA_{MAX}=14.5\text{FT}^2$
 5. 39 foot tall: $W_{MAX}=475\text{lbs}$, $EPA_{MAX}=19.0\text{FT}^2$
 6. 45 foot tall: $W_{MAX}=475\text{lbs}$, $EPA_{MAX}=19.0\text{FT}^2$
 7. 50 foot tall: $W_{MAX}=340\text{lbs}$, $EPA_{MAX}=13.6\text{FT}^2$
- B. Anchoring
 1. Concrete base depth and anchor bolt length shall be as shown on plans.
 2. In no case shall the concrete base embedment depth be less than 20% of the pole height.
 3. Minimum anchor bolt length is 10% of the pole height.
 4. Minimum anchor bolt diameter is 1 inch.
- C. Coordinate with architect for pole color.
- D. Poles shall be made of ATSM A595, Grade A steel.

2.7 GROUNDING

- A. Fixtures shall have factory installed grounding studs.
- B. All fixtures shall be capable of being grounded.

2.8 LIGHTING CONTROLS

Refer to Section 265700.

PART 3 – EXECUTION

3.1 GENERAL

- A. Verify ceiling type and conditions. Order fixtures designed for conditions and the type of ceiling installed.

- B. Architectural reflected ceiling plans shall be used to determine exact locations of lighting fixtures.
- C. Determine exact location and height of fixtures by the structural and mechanical limitations of the building. Install fixtures in such a manner as to avoid such obstructions and to give proper illumination result. Verify layouts with architect.
- D. All recessed lighting fixtures shall be wired from adjacent junction boxes utilizing 6' flexible metal conduit to permit future fixture relocation. Outlet box for surface or stem mounted fixtures shall be provided with fixture stud as well as tapped and drilled canopy covers. All outlets shall finish flush with walls or ceiling except where in ceiling tiles, locate these in the center of a tile or at the intersection of four (4) tiles.
- E. All building mounted fixtures shall be supported from the building structural members. Provide all necessary blocking and hardware so that fixtures installed suspended below grid type ceiling shall be supported independently of the grid system at a minimum of four (4) points per 4' long fixture.
- F. Minimum mounting provisions for closed ceiling (surface) mounted fluorescent lighting fixtures in ceilings other than grid type shall be as follows:
 - 1. 4' long fixture body: By a pair of 3/8" machine bolts separated by a maximum distance possible and located 4 inches in from each end of fixture - total of four (4) bolts per fixture.
- G. Support for fixtures installed in suspended ceilings shall conform to Section 4701 of Title 24, Part 2.
- H. When installed in grid type ceiling, a slack #12 gauge galvanized tie wire permanently attached to the structure shall be provide at four (4) corners of each 4' long fixture.
- I. At fire rated ceiling, provide sheet rock at top and at all sides of recessed mounted lighting fixtures.
- J. Ground all fixtures.

END OF SECTION

DOCUMENT 26 57 00

LIGHTING CONTROLS

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Materials, equipment fabrication, installation and tests in conformity with equipment applicable to this project, applicable codes and authorities having jurisdiction.
- B. The work to be provided under these specifications consists of furnishing and installing a complete and operable lighting control system.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

Published specifications standards, tests or recommended methods of trade, industry or government organizations apply to work in this section as cited in Section 260000.

- A California Electrical Code
- B Underwriters' Laboratories
 - 1 UL 20: General Use Snap Switches
 - 2 UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
 - 3 UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
 - 4 UL 67: Panelboards
 - 5 UL 98: Enclosed and Dead-front Switches
 - 6 UL 467: Grounding and Bonding Equipment
 - 7 UL 486A: Wire Connectors
 - 8 UL 486B: Wire Connectors
 - 9 UL 489: Molded-case Circuit Breakers, Molded-case Switches, and Circuit Breaker Enclosures
 - 10 UL 773A: Nonindustrial Photoelectric Switches for Lighting Control
 - 11 UL 917: Clock Operated Switches
 - 12 UL 60730-2-7: Automatic Electrical Controls for Household and Similar Use – Part 2: Particular Requirements for Timers and Time Switches

1.4 QUALITY ASSURANCE

- A. Equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.
- B. Supply equipment and accessories new, free from defects.
- C. Equipment and accessories in compliance with the applicable standards listed in Article 1.1 of this section and with applicable national, state and local codes.
- D. Items of a given type shall be the products of the same manufacturer.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 Calibration procedures and intervals
 - 7 A complete set of drawings for any special items
 - 8 A single line block diagram showing exactly the manner in which the contractor proposes to layout the system.
 - 9 Wiring diagrams
 - 10 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C Electronic submittals shall be searchable
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
 - 1 Manufacturer (including contact information)
 - 2 Model numbers
 - 3 Programming manuals
 - 4 Wiring diagrams
 - 5 Trouble-shooting guidelines
 - 6 Voltage ratings
 - 7 Current ratings
 - 8 Calibrated range (where applicable)
 - 9 List of capabilities
 - 10 Environmental ratings
 - 11 NEMA enclosure type

- 12 Maintenance requirements
- 13 Installation instructions
- 14 Repair instructions
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

1.7 ABBREVIATIONS

- A. ATC Astronomical Time Clock
- B. LCP Lighting Control Panel
- C. LCS Lighting Control System

PART 2 – PRODUCTS

2.1 GENERAL

- A. The LCP size and quantity; and relay quantity shall be sufficient for all circuits with 25% spare circuits.
- B. Enclosures shall be NEMA 1 for interior, dry locations and NEMA 3R or NEMA 4 for exterior or wet locations.
- C. Energy Management Systems
 - 1. All LCPs with 12 or more switch legs shall be capable of communications with an Energy Management System via a minimum of one of the following protocols.
 - a. BACnet
 - b. LONWorks
 - c. Modbus
 - 2. Provide and install a communications gateway if LCP/LCS and EMS system do not have a common protocol.
- D. All equipment shall be rated for voltage used.

2.2 BUILDING LIGHTING CONTROL SYSTEMS

- A. Building lighting control systems shall be Wattstopper Digital Lighting Management system and consist of the following, except as allowed in Part B.
 - 1. Lighting control systems shall have the following capabilities and features.
 - a. Networkable (TCP/IP interface)
 - b. Scheduling controls
 - c. Astronomical time clock
 - d. Manual switches interfaces
 - e. Photocell interface
 - 2. Controllers where dimming is required:
 - a. System controller
 - 1. 100 or fewer sub-controllers and no more than three segments: Wattstopper LMSM-3E
 - 2. More than 100 sub-controllers or 3 segments: Wattstopper LMSM-6E
 - b. Switch leg relay sub-controller where dimming is required

1. Wattstopper LMRC-210 series for 0-10V_{DC} dimming
2. Wattstopper LMRC-220 series for line voltage dimming
- c. Switch leg relay sub-controller where dimming is not required: Wattstopper LMRC-100 series
- d. Provide Wattstopper LMBC-300 network bridge for each sub-controller.
3. Switches: Wattstopper LMSW-100 series
4. Dimmers: Wattstopper LMDM-101
5. Switches and dimmers in multiple stall restrooms or where noted on plans shall have locking, stainless steel covers (Legrand #WP26L or approved equal).
6. Motion sensors (All motion sensors shall be dual technology [passive infrared and ultrasonic]).
 - a. Ceiling mounted: Wattstopper LMDC-100
 - b. Wall mounted: Wattstopper LMDX-100

2.3 OTHER DEVICES

- A. On/off Switches
 1. SPST switch for 120V or 277V
 2. DPST switch for 208V, 240V, or 480V
- B. Switches for use with sport lighting shall be 3 position, maintained position switch for on-off-automatic control.
- C. Astronomical time switch: Wattstopper RT-200
- D. Clock input
 1. 120V
 2. Six (6) months cumulative battery back-up
 3. SPDT dry contact
 4. Enclosure shall be fiberglass, suitable for outdoor/indoor UL listed.
 5. Digital LED display.
 6. Tork model K801Z or equal.
- E. Lighting Relays
 1. Electrically operated, mechanically held, specifically designed as lighting contactors
 2. 20A, 480V_{AC} rated, with 120V_{AC} controls unless otherwise specified
 3. Minimum of 4-pole
 4. Relays shall be mounted on shock absorbers within an acoustically treated enclosure to eliminate make and break noise.
 5. Install the relays in code gage cabinets 24"W x 36"H x 6"D with ¾" fire rated plywood backboards.
 6. Products: GE CR460 series, ASCO 917 series, or equivalent
 7. Contact response time shall be no more than 5 milliseconds.
- F. Lighting Relay panels Wattstopper or indicated on plan.

PART 3 – EXECUTION

3.1 COMPATIBILITY

The installing contractor shall insure to the Owner that all components installed are compatible with all other components within the lighting control system.

3.2 INSTALLATION PRACTICES

- A. All equipment shall be installed in a neat and workmanlike manner and to the satisfaction of an authorized representative.
- B. All equipment power wiring and grounding shall conform to the California Electrical Code and applicable local codes. Electronics equipment shall be grounded using a No. 6 solid copper wire.
- C. Cable shall be adequately supported, and connectors specifically designed for the type cable in use shall be installed.

3.3 SYSTEM PROOF OF PERFORMANCE

- A. Upon completion of the system installation, it shall be the responsibility of the contractor to perform the necessary adjustments.
- B. The system shall be physically inspected by an authorized representative of the customer to assure that all equipment is installed in a neat and workmanlike manner as called for by the plans and specifications.
- C. Before the contract shall be considered completed, the contractor shall conduct an operating test for approval. The system shall be demonstrated to operate in accordance with the requirements of these specifications. The test shall be performed in the presence of an authorized representative of the Owner. The contractor shall furnish all equipment and personnel required for the tests.
- D. Should such a demonstration of performance show that the system does not perform as intended, the contractor shall make all necessary changes or adjustments and a second performance demonstration shall be arranged.
- E. Should a second performance demonstration fail, the contractor agrees to correct the system deficiencies under the supervision of the owner's technical staff at no cost to the owner.
- F. Title 24 acceptance testing shall be performed by a technician licensed by an Acceptance Test Technician Certification Provider.

END OF SECTION

DOCUMENT 27 11 00

COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes material and workmanship requirements for intermediate data frames (IDFs), main data frames (MDFs), and signal and communications terminal backboards (SCTBs) including, but not limited to, cabinets, racks, patch panels, cable terminations, patch cables, and power distribution.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A. Governing Codes and Conflicts: If the requirements of the Construction Documents exceed those of the governing codes and regulations, then the requirements of the Construction Documents shall prevail. Where a conflict exists, the governing codes and ordinances shall supersede all other requirements.
- B. ANSI: American National Standards Institute (ANSI)
- C. CEC: California Electrical Code
- D. Electronic Components Association (ECA)
 - 1. ECA-310-E: Cabinets, Racks, Panels, and Associated Equipment
- E. Institute of Electrical and Electronic Engineers (IEEE)
 - 1. IEEE 802.3: IEEE Standard for Ethernet
 - 2. IEEE 802.3ad: Link Aggregation
 - 3. IEEE 802.3ae: 10 Gigabit Ethernet
 - 4. IEEE 802.3af: Power over Ethernet
 - 5. IEEE 802.3an: 10 Gigabit Ethernet on Twisted Pair Copper Cable (10G Base T)
 - 6. IEEE 802.3aq: 10 Gigabit Ethernet on FDDI-Grade Multimode Fiber (10G Base LRM)
 - 7. IEEE 802.3at: Enhanced Power over Ethernet
- F. Telecommunications Industries Association (TIA)
 - 1. TIA-455: General Requirements for Standard Test Procedures for Optical Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices, and Other Fiber Optic Components

2. TIA-472-0000: Generic Specification for Fiber Optic Cable
 3. TIA-472-C000: Sectional Specification for Fiber Optic Communications Cable for Indoor Use
 4. TIA-472-D000: Sectional Specification for Optical Fiber Outside Plant Communications Cables
 5. TIA-472-E000: Sectional Specification for Indoor-Outdoor Optical Fiber Cable
 6. TIA-472-F000: Sectional Specification for Optical Fiber Drop Cable
 7. TIA-492-0000: Generic Specification for Optical Fibers
 8. TIA-492-AAAD: Detailed Specification for 850-nm, Laser Optimized, 50µm Core Diameter / 125µm Cladding Diameter, Class IA Graded-Index, Multimode Optical Fibers Suitable for Manufacturing OM4 Cabled Optical Fibers
 9. TIA-492-CAAB: Detailed Specification for Class IVA, Dispersion-Unshifted, Single-Mode, Optical Fibers with Low Water Peak
 10. TIA-526: Standard Test Procedures for Fiber Optic Systems
 11. TIA-526-2: Effective Transmitter Output Power Coupled into Single-Mode Fiber Optic Cable
 12. TIA-526-14: Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant
 13. TIA-526-19: Optical Signal-to-Noise Ratio Measurement Procedures for Dense Wavelength – Division Multiplexed Systems
 14. TIA-568-C: Commercial Building Telecommunications Standard
 15. TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises
 16. TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
 17. TIA-568-C.2: Balanced Twisted-Pair Telecommunications Cabling and Components Standards
 18. TIA-568-C.3: Optical Fiber Cabling Components Standard
 19. TIA-568-C.3-1 Addendum 1: Addition of OM4 Cabled Optical Fiber and Array Connectivity
 20. TIA-569-C: Commercial Building Standard for Telecommunications Pathways and Spaces
 21. TIA-604: Fiber Optic Connector Interchangeability Standards
 22. TIA-606-B: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
 23. TIA-607-B: Commercial Building Grounding and Bonding Requirements for Telecommunications
 24. TIA-758-B: Customer Owned Outside Plant Telecommunications Infrastructure Standard
 25. TIA-TSB-36: Technical Systems Bulletin Additional Cable Specifications for Unshielded Twisted-Pair Cables
 26. TIA-TSB-62: Informative Test methods for Fiber-Optic Fibers, Cables, Opto-Electronic Sources and Detectors, Sensors, Connecting and Terminating Devices, and Other Fiber-Optic Components
 27. TIA-TSB-63: Reference Guide for Fiber Optic Test Procedures
 28. TIA-TSB-149: Generic Workmanship Guidelines for Fiber Optic Connector Interoperability
 29. TIA-TSB-4979: Practical Considerations for Implementation of Encircled Flux Launch Conditions in the Field
- G. Underwriters Laboratories, Inc.

1. UL 50: Enclosures for Electrical Equipment, Non-environmental Considerations
2. UL 50E: Enclosures for Electrical Equipment, Environmental Considerations
3. UL 489A: Circuit Breakers for Use in Communications Equipment
4. UL 497: Protectors for Paired-conductor Communications Circuits
5. UL 497A: Secondary Protectors for Communications Circuits
6. UL 497B: Protectors for Data Communications and Fire Alarm Circuits
7. UL 497C: Protectors for Coaxial Communications Circuits
8. UL 497D: Component Secondary Protectors for Communications Circuits Used With Specified Voltage Suppression
9. UL 497E: Protectors for Antenna Lead-In Conductors
10. UL 1449: Surge Protective Devices
11. UL 1651: Standard for Optical Fiber Cable
12. UL 1655: Standard for Community-Antenna Television Cables
13. UL 1690: Standard for Data-Processing Cable
14. UL 1778: Uninterruptible Power Systems
15. UL 1801: Power Distribution Centers for Communications Equipment
16. UL 1863: Communications Circuit Accessories
17. UL 1977: Component Connectors for Use in Data, Signal, Control, and Power Applications
18. UL 2024: Standard for Signaling, Optical Fiber and Communications Raceways and Cable Routing Assemblies
19. UL 2269: Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
20. UL 2416: Audio/Video, Information, and Communication Technology Equipment Cabinet, Enclosure, and Rack Systems
21. UL 2564: Low Voltage Surge Withstand Telecommunications Overcurrent Protector Components
22. UL 2566: Low Voltage Surge Withstand Telecommunications Fuses
23. UL 2567: Low Voltage Surge Withstand Telecommunications Polymer Positive Temperature Coefficient Thermistor (PPTC)
24. UL 2569: Low Voltage Surge Withstand Telecommunications Line Feed Resistor
25. UL 2570: Low Voltage Surge Withstand Telecommunications Electronic Current Limiters
26. UL 60950-1: Information Technology Equipment Safety – Part 1: General Requirements
27. UL 60950-22: Information Technology Equipment - Safety - Part 22: Equipment to be Installed Outdoors
28. UL 62368-1: Audio/video, information and communication technology equipment - Part 1: Safety requirements

1.4 QUALITY ASSURANCE

- A Contractor requirements:
 - 1 The Contractor shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
 - 2 Project Manager
 - a The Project Manager shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.

- b The contractor shall make the project manager available to the Owner/Owner's Representative before the start of this project for an interview. This person must be deemed acceptable by the Owner and/or their Representative before work can begin.
 - c Project Manager will be required to be available for scheduled on site project meetings at no additional cost to the Owner.
 - d Project Manager will be required to be available to meet on site with the Owner/Owner's representative with a minimum of 24 hours notice for non- emergency issues, and a minimum of 4 hours for emergency issues at no additional cost to the Owner.
- 3 The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context 'good quality' means the work shall meet industry technical standards and quality of appearance. The Owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.
- 4 The Contractor shall provide all necessary materials and labor for a complete, functional Telecommunications cabling infrastructure in accordance with all applicable standards and the Construction Documents.
- B Material requirements
 - 1 All material and equipment to be installed on this project will be new and free from defects.
 - 2 Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
 - 3 New material shall meet the following requirements.
 - a Manufactured within one year of the installation date.
 - b Undamaged
 - c Not previously installed
 - d Delivered to jobsite in original packaging
 - e No corrosion or other degradation of material
 - f In factory condition
 - g Unmodified
 - 4 If used material or equipment has been installed on this project the Contractor shall replace said materials and/or equipment with new products at no additional cost to the Owner.
 - 5 Equipment and accessories shall be in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
 - 6 Items of a given type shall be the products of the same manufacturer.
 - 7 Deliver, store and protect products under provisions of Section 016200.
 - 8 Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
 - 9 Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
 - 10 Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.
- C Contractor shall warranty all materials, equipment, and workmanship for a minimum of one (1) year.
 - 1 Warranty shall provide repair/replacement of all defective or improperly installed materials at no additional cost to the Owner (including all costs to repair or replace the item(s)).

- 2 Contractor shall provide a competent service technician and new materials to repair/replace defective items no later than 24 hours after notification.
- D The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context 'good quality' means the work shall meet industry technical standards and quality of appearance. The Owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.
- E The Contractor shall provide all necessary materials and labor for a complete, functional Telecommunications cabling infrastructure in accordance with all applicable standards and the Construction Documents.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 A complete set of drawings for any special items
 - 7 A single line block diagram showing exactly the manner in which the contractor proposes to layout the system.
 - 8 Wiring diagrams
 - 9 Illustrations and scale drawing of the racks, equipment layouts etc.
 - 10 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C Electronic submittals shall be searchable
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
 - 1 Table of contents
 - 2 Manufacturer (including contact information)
 - 3 Model number
 - 4 Programming manual (where applicable)
 - 5 Wiring diagrams
 - 6 Trouble-shooting guidelines (where applicable)
 - 7 Voltage ratings
 - 8 Current ratings
 - 9 Calibrated range (where applicable)
 - 10 List of capabilities

- 11 Environmental ratings
- 12 NEMA enclosure type
- 13 Maintenance instructions and intervals
- 14 Calibration procedures and intervals
- 15 Installation instructions
- 16 Repair instructions (where applicable)
- 17 As-built drawings
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

1.7 DEFINITIONS

- A. Intermediate distribution frame (IDF): An intermediate distribution of horizontal cabling to other cabling (e.g. horizontal, backbone, or equipment).
- B. Main Distribution Frame (MDF): A main distribution for, 1st level backbone cables, entrance cables, and equipment cables. The Main Distribution-frame is often co-located in the building Entrance Facility (EF) and/or Equipment Room (ER) and consisting of riser cable terminals, utility service cables terminals, PBS terminals, and other equipment.

PART 2 – PRODUCTS

2.1 GENERAL

- A. All IDF, MDF, et cetera shall be enclosed unless open racks are called out on the plans.
- B. Top of wall mounted IDFs shall be 18" below ceiling.
- C. Provide all necessary mounting hardware.
- D. All material shall be UL listed for its application.

2.2 ENCLOSURES AND RACKS

- A. Manufacturers
 - 1. APC
 - 2. Black Box
 - 3. Chatsworth Products, Inc.
 - 4. Cooper B-Line
 - 5. Hoffman Enclosures
 - 6. Hubbell Premise Wiring
 - 7. Southwest Data Products
- B. Main Distribution Frames
 - 1. Four posts: Front and rear pairs of 3" deep C-shaped equipment mounting channels, 19" wide
 - 2. Minimum of 42 rack units
 - 3. 2000 pound static load capacity
 - 4. Provisions for anchoring to floor
 - 5. Zone 4 Seismic rated
 - 6. Provide and install a minimum of 6 shelves with the following requirements
 - a. 4 points of attachment
 - b. 200 pound capacity

- c. Vented
 - 7. Mount a backboard on wall behind cabinet or rack
 - a. 48" wide by 96" high by 3/4" deep plywood
 - b. Mounting: 3/8"x2" long wood or self-tapping screw every 12" along wall stud
 - c. Paint with 3 coats of fire resistant paint.
 - 8. Fiber optic cable storage ring: Black Box FOSR24
 - 9. MDFs shall be floor mounted unless otherwise noted.
- C. Intermediate Distribution Frames
 - 1. Four posts
 - 2. Minimum of 24 rack units
 - 3. 300 pound static load capacity
 - 4. Provisions for wall mounting
 - 5. Provide and install a minimum of 3 shelves with the following requirements
 - a. 4 points of attachment
 - b. 60 pound capacity
 - c. Vented
 - 6. 18" DIN rail
 - 7. Mount a backboard inside rear of cabinet (enclosed IDF) or on wall behind rack (open IDF)
 - a. 3/4" plywood
 - b. Mounting: 3/8"x2" long wood or self-tapping screw every 12" along wall stud
 - c. Paint with 3 coats of fire resistant paint.
 - 8. Fiber optic cable storage ring: Black Box FOSR12
 - 9. IDFs shall be wall mounted unless otherwise noted.
- D. Cabinets
 - 1. General
 - a. Material: Steel
 - b. 18" DIN rail
 - c. Wall mounted cabinets shall be composed of three sections:
 - 1) Rear panel mounted to wall
 - 2) Main section shall be hinged on rear panel and include lock to secure in closed position to rear panel.
 - 3) Front door shall be hinged on main section and lockable in the closed position.
 - d. Hinges shall be reversible to allow swing open from the right or left.
 - e. The front door shall have rounded edges and corners.
 - f. Floor mounted cabinets shall have locking front and rear doors.
 - 2. Enclosed rack/cabinet in cooled room
 - a. Top mounted ventilation fan(s)
 - 1) Minimum flow rate of 450 CFM for MDF cabinet
 - 2) Minimum flow rate of 225 CFM for IDF cabinet
 - b. MDF cabinets shall include 250 CFM enclosure blower.
 - c. Ventilation openings in sides or front
 - d. MDF cabinets shall have locking, mesh front and rear doors.
 - e. IDF cabinets shall have a locking front door with smoked poly-methyl-methacrylate window.
 - f. Install temperature switch in cabinet to turn the fan on at 100°F and off at 90°F.
 - 3. Coating

- a. The completed rack or cabinet shall be degreased and cleaned.
- b. After the cleaning process is finished, the rack or cabinet shall be phosphatized.
- c. After the phosphatizing, the rack or cabinet shall receive an electrostatic deposition of polyester powder coating followed by baking to produce a hard durable finish.
 - 1) The minimum thickness of the paint film shall be 2.0 mils.
 - 2) Paint film shall be uniform in color and free from blisters, sags, flaking and peeling
- d. Finish shall conform to UL 50 and UL 50E.
- e. Color shall be black for interior locations and ANSI 61 gray for exterior locations.
- f. Coat underside surfaces of equipment outdoors or in damp locations with a corrosion resistant coating.
- E. Each rack unit space shall be identified on the racks/posts.
- F. The contractor shall calculate space requirements prior to ordering equipment. If the specified enclosure or rack is not large enough, the contractor shall order the size required for the equipment to be installed.

2.3 COPPER PATCH PANELS

- A. 48 Port, Category 6a patch panel: Panduit #CPP48WBLY
- B. Data ports
 - 1. RJ45 design
 - 2. Terminate 26AWG to 22 AWG, stranded or solid, Cat-6A cables without punch-down tool
 - 3. Suppress alien cross-talk
 - 4. Maintain 10GB/S performance in 48 port, 1RU patch panels
 - 5. T568B wiring scheme
 - 6. Meet or exceed Cat-6A requirements of TIA-568-C.2 and IEEE 802.3an.
 - 7. Compatible with IEEE 802.3at POE+
 - 8. Snap in, snap out modular design
 - 9. Conductor retention and strain relief
 - 10. Gold plated contacts
 - 11. Manufacturer and models
 - a. Black: Panduit #CJ6X88TGBL
 - b. Blue: Panduit #CJ6X88TGBU
 - c. Green: Panduit #CJ6X88TGGR
 - d. Purple: Panduit #CJ6X88TGVL
 - e. Red: Panduit #CJ6X88TGRD
 - f. White: Panduit #CJ6X88TGIW
 - g. Yellow: Panduit #CJ6X88TGYL
 - 12. Ports in patch panels shall be grouped by use (data, VOIP, clock/public address, etc.)
- C. Patch cords
 - 1. RJ45 design
 - 2. Four twisted, unshielded, 23 AWG, solid pairs (23 AWG UTP)
 - 3. Suppress alien cross-talk
 - 4. Maintain 10GB/S performance
 - 5. T568B wiring scheme

6. Meet or exceed Cat-6A requirements of TIA-568-C.2 and IEEE 802.3an.
7. SRL, Attenuation and NEXT results shall use Sweep Frequency test per TIA-568-C.
8. Compatible with IEEE 802.3at POE+
9. Snagless latch on plugs
10. Length shall be 12 inches
11. Manufacturer and models
 - a. Black: Panduit #UTP6A1BL
 - b. Blue: Panduit #UTP6A1BU
 - c. Green: Panduit #UTP6A1GR
 - d. Purple: Panduit #UTP6A1VL
 - e. Red: Panduit #UTP6A1RD
 - f. White: Panduit #UTP6A1IW
 - g. Yellow: Panduit #UTP6A1YL
- D. Colors for RJ45 ports and patch cables shall be:
 1. Clocks: Green
 2. Data: Blue
 3. Energy management system: Purple
 4. Power distribution units: Black
 5. Servers: White
 6. Speakers: Green
 7. Surveillance: Red
 8. Uninterruptable power supplies: Black
 9. Wireless access points: Yellow
- E. Quantity: provide and install sufficient patch panels and patch cords to accommodate all devices with:
 1. 48 spare ports for MDFs
 2. 24 spare ports for IDFs
- F. Port identification: Panduit #C061X030FJJ

2.4 FIBER OPTIC PATCH PANELS

- A. Patch panel: Panduit #CFAPPBL1
- B. Fiber adapter panels (FAP)
 1. Multi-mode
 - a. OM4
 - b. 12 Duplex LC adapters per FAP
 - c. Zirconia ceramic, split sleeve ferrules
 - d. Color: Blue
 - e. Manufacturer: Panduit
 2. Single-mode
 - a. OS2
 - b. 12 Duplex LC adapters per FAP
 - c. Zirconia ceramic, split sleeve ferrules
 - d. Color: Green
 - e. Manufacturer: Panduit
- C. Install blank adapter panel in each unused space in the patch panel: Panduit #FAPB
- D. Fiber optic patch cords
 1. Cords shall have duplex LC connectors on one end and SFP connectors on other end.

2. Length shall be 8 inches for patch panel adjacent to switch. Add 1.75 inches to length for each rack unit separating patch panel from switch.
3. Multi-mode patch cords shall be OM4. Single-mode patch cords shall be OS2.
4. Cord and connector colors shall match adapter colors.
- E. Quantity: provide and install sufficient devices to accommodate all backbone cable strands with:
 1. 36 spare terminals for MDFs
 2. 12 spare terminals for IDFs
- F. Port identification: Panduit #C061X030FJJ

2.5 TELCO SPLICE BLOCKS

- A. Where called out on plans provide and install a 50 pair, Type 66 Telco Splice Block; Black Box JP620 or equivalent.
- B. Quantity: provide and install sufficient splice blocks to accommodate 150% of phone lines terminating at MDF.
- C. All terminals shall be screw type.

2.6 POWER SUPPLIES

- A. IDF Uninterruptable Power Supply
 1. UPS shall be APC rack mountable Smart-UPS or Symmetra series.
 2. Refer to plans for size of UPS. If size is not shown on plans, size of UPS shall be 900VA per 48 port LAN switch.
 3. Provide and install APC AP9631 Network Management Card with Environmental Monitoring and APC AP9335TH temperature and humidity sensor.
 4. Provide and install Cat-6A patch cord from UPS to LAN switch.
- B. All UPS feeding data equipment shall have battery packs allowing for 30 minutes of runtime at full load during power outage.
- C. Power Distribution Units
 1. PDUs shall be rack mounted, switched outlet type with sequenced start-up.
 2. PDU(s) shall have a minimum of 8 5-15R and/or 5-20R per 2kVA of UPS capacity. Coordinate receptacle types with equipment being fed by PDU(s).
 3. Quantity of PDUs shall allow usage of full capacity of UPS.
 4. PDUs shall be capable of cycling power to each receptacle via network.
 5. Coordinate input type(s) of PDU(s) with output type(s) of UPS.
 6. Provide and install Cat-6A patch cord from each PDU to LAN switch.
- D. All UPSs and PDUs shall include the following features.
 1. Minimum of one RJ-45 Ethernet port
 2. SNMPv3, SSL, SSH
 3. Password protection
 4. User defined alarms with email alerting
 5. Load display
- E. Provide and install APC InfraStruxure Manager software and license for each UPS and PDU.

2.7 GROUNDING AND BONDING

- A. Grounding Busbar

- 1 Grounding Busbars shall be 4" high by 12" wide by 0.25" thick solid copper bar.
 - 2 The busbar shall be 4" high and 12" long and shall have 18 attachment points (two rows of 9 each) for two-hole grounding lugs.
 - 3 The hole pattern for attaching grounding lugs shall meet the requirements of TIA-607-B and shall accept 30 lugs with 5/8" hole centers and 6 lugs with 1" hole centers.
 - 4 The busbar shall include wall-mount stand-off brackets, assembly screws and insulators.
 - 5 The busbar shall be UL Listed as grounding and bonding equipment.
 - 6 Grounding Busbar shall be Chatsworth Products, Inc. 40153-012, or approved equal.
- B Vertical Rack Busbar
- 1 Vertical, rack-mounted busbar shall be constructed of 1/4" thick by 5/8" wide, hard-drawn copper bar.
 - 2 Busbar shall be designed to mount into the channel of the rack without interfering with mounting of equipment on the rack.
 - 3 Bar shall have eight 6-32 tapped ground mounting holes on 1" intervals and four 0.281" holes for the attachment of two-hole grounding lugs.
 - 4 Busbars shall run entire height of rack.
 - 5 Busbars shall be Chatsworth Products, Inc. 40161-036 and/or 40161-072
- C Antioxidant Joint Compound
- 1 Aluminum to copper: Chatsworth Products, Inc. 40166-xxx
 - 2 Copper to copper: Chatsworth Products, Inc. 40168-xxx

2.8 SURGE SUPPRESSION

- A. Provide and install a 10 GB/S data-line surge suppressor for each data and VOIP cable entering a building: Phoenix Contact #DT-LAN-CAT.6+
- B. Provide and install a telephone line surge suppressor for each analog telephone line entering a building: Black Box #SP365A-R2 or equivalent

PART 3 – EXECUTION

3.1 INSTALLATION

- A Cabinets, racks, and enclosures
 - 1 Mount all cabinets and racks to walls or floors according to the Typical Electrical Details.
 - 2 Rack mount screws not used for installing patch panels and other hardware shall be bagged and left with the rack upon completion of the installation.
- B Cable trays
 - 1 Cable trays must be securely attached to walls, backboards, and racks/cabinets to comply with all Zone 4 seismic requirements.
 - 2 Cable trays shall be installed so that there is a minimum of 8" of unobstructed clearance above rack.
 - 3 Cable trays shall be installed so that there is a minimum of 12" of clearance from all florescent lighting, electrical conduits/circuits, and fire alarm conduits/devices.

- C Rack mounted equipment
 - 1 Securely fasten all rack mounted equipment to each rack rail with a minimum of two screws per rail and according to manufacturers' recommendations.
 - 2 Patch panels shall be mounted to front pair of rack rails.
 - 3 PDUs shall be mounted to rear pair of rack rails.
 - 4 All other equipment shall be mounted to both pairs of rack rails.
 - 5 Alternate patch panels and switches so that each port in the patch panel is adjacent to the corresponding port in the switch.
- D Cable management
 - 1 Install vertical cable management raceways on each post of freestanding racks.
 - 2 Install fiber optic storage ring on backboard behind each IDF/MDF or in rear of IDF cabinet. Loop each fiber optic cable round ring 3 times. Install ID tag on loop of each cable.
- E Grounding and Bonding
 - 1 Each MDF and IDF shall be equipped with a grounding busbar.
 - 2 Each grounding busbar shall be connected to the building electrical grounding facility per plans.
 - 3 All metallic equipment, including but not limited to, each rack, metallic backboard, cable sheath, metallic strength member, splice case, cable tray shall be grounded to its respective grounding busbar using a minimum #6 AWG stranded copper bonding conductor with a green insulation and compression connectors.
 - 4 Wall mounted grounding busbars
 - a Attach busbars to the wall with appropriate hardware according to the manufacturer's installation instructions and Typical Electrical Details.
 - b Conductor connections to the grounding busbar shall be made with two-hole bolt-on compression lugs sized to fit the busbar and the conductors.
 - c Each lug shall be attached with stainless steel hardware after preparing the bond according to manufacturer recommendations and treating the bonding surface on the busbar with antioxidant to help prevent corrosion at the bond.
 - d The wall-mounted busbar shall be bonded to ground as part of the overall Telecommunications Bonding and Grounding System.
 - 5 Rack-Mount Busbars and Ground Bars
 - a Each rack and cabinet shall be equipped with a vertical grounding busbar.
 - b Attach rack-mount busbars and ground bars to racks according to the manufacturer's installation instructions.
 - c Bond the rack-mount grounding busbar to the rack, cabinet, and room's grounding busbar with appropriately sized hardware and conductor.
 - 6 Equipment Ground Jumper Kit
 - a Bond equipment to a vertical rack-mount grounding busbar using ground jumper according to the manufacturer's recommendations.
 - b Clean the surface and use antioxidant between the compression lugs on the jumper and the rack-mount grounding busbar to help prevent corrosion at the bond.

- F Program UPSs, PDUs, and software to set alarms for current overload, temperature out of limits, and humidity out of limits and send email notification of alarm conditions.

3.2 LABELING

- A. The contractor shall follow the Owner's labeling scheme.
- B. Each IDF and MDF shall be labeled.
- C. Each IDF, MDF, patch panel, port, switch, and cable shall have a unique identification.
- D. Label each port on the patch panel and faceplate with its identification.
- E. Label each cable at its beginning and end points no further than 6" behind termination on a section of cable that is easily accessible. Cable labels shall include the ids of both terminations and cable id.
- F. Label the plug end of each power cord with id of equipment it feeds.
- G. Each faceplate shall be machine labeled. The labeling shall be placed on the faceplate so that the individual jack can be clearly identified by its associated label.
- H. All labels shall be machine printed. Handwritten labels are not acceptable.
- I. All labeling information shall be recorded on the as-built drawings and all test documents.

3.3 SYSTEM CLOSEOUT AND AS-BUILT DOCUMENTATION

- A Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Owner's Representative/Engineer for approval. One (1) to be a hardcopy and two (2) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.
- B Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is inclusive of all test results and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 calendar days of the completion of each testing phase. At the request of the Owner's Representative/Engineer, the telecommunications contractor shall provide copies of the original test results.
- C The Owner's Representative/Engineer will request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.
- D Test Results documentation shall be provided in two media, as listed above, one (1) hardcopy and one (1) on disk within three weeks after the completion of the project. The documentation shall be clearly marked on the outside front cover with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results shall include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration

- cycle, a bi-annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment.
- E Printouts generated for each cable by the wire test instrument shall be submitted as part of the documentation package.
 - F When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented.
 - G The As-Built drawings are to include cable routes, outlet locations and the approved labeling identifiers. Their sequential number as defined elsewhere in this document shall identify outlet locations. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD 2008) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
 - H Contractor will provide one laminated 11"x17" drawing at each IDF and MDF that includes the building layout for that IDF or MDF, along with the outlet locations and all of the approved labeling.

END OF SECTION

DOCUMENT 27 13 00

COMMUNICATIONS BACKBONE CABLING

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes material and workmanship requirements for data and telephone backbone cabling.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A. Governing Codes and Conflicts: If the requirements of the Construction Documents exceed those of the governing codes and regulations, then the requirements of the Construction Documents shall prevail. Where a conflict exists, the governing codes and ordinances shall supersede all other requirements.
- B. ANSI: American National Standards Institute (ANSI)
- C. CEC: California Electrical Code
- D. Institute of Electrical and Electronic Engineers (IEEE)
 - 1. IEEE 802.3: IEEE Standard for Ethernet
 - 2. IEEE 802.3ad: Link Aggregation
 - 3. IEEE 802.3ae: 10 Gigabit Ethernet
 - 4. IEEE 802.3aq: 10 Gigabit Ethernet on FDDI-Grade Multimode Fiber (10G Base LRM)
- E. Insulated Cable Engineers Association (ICEA)
 - 1. ICEA S-87-640: Fiber Optic Outside Plant Communications Cable
 - 2. ICEA S-104-696: Indoor-Outdoor Optical Fiber Cable
 - 3. ICEA S-110-717: Optical Fiber Drop Cable
- F. Telecommunications Industries Association (TIA)
 - 1. TIA-440: Fiber Optic Terminology
 - 2. TIA-455: General Requirements for Standard Test Procedures for Optical Fibers, Cables, Transducers, Sensors, Connecting and Terminating Devices, and Other Fiber Optic Components
 - 3. TIA-472-0000: Generic Specification for Fiber Optic Cable

4. TIA-472-C000: Sectional Specification for Fiber Optic Communications Cable for Indoor Use
 5. TIA-472-D000: Sectional Specification for Optical Fiber Outside Plant Communications Cables
 6. TIA-472-E000: Sectional Specification for Indoor-Outdoor Optical Fiber Cable
 7. TIA-472-F000: Sectional Specification for Optical Fiber Drop Cable
 8. TIA-492-0000: Generic Specification for Optical Fibers
 9. TIA-492-AAAD: Detailed Specification for 850-nm, Laser Optimized, 50µm Core Diameter / 125µm Cladding Diameter, Class IA Graded-Index, Multimode Optical Fibers Suitable for Manufacturing OM4 Cabled Optical Fibers
 10. TIA-492-CAAB: Detailed Specification for Class IVA, Dispersion-Unshifted, Single-Mode, Optical Fibers with Low Water Peak
 11. TIA-509: Fiber Optic Terminal Devices
 12. TIA-526: Standard Test Procedures for Fiber Optic Systems
 13. TIA-526-2: Effective Transmitter Output Power Coupled into Single-Mode Fiber Optic Cable
 14. TIA-526-3: Fiber Optic Terminal Equipment Receiver Sensitivity and Maximum Receiver Input
 15. TIA-526-7: Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant
 16. TIA-526-11: Measurement of Single-Reflection Power Penalty for Fiber Optic Terminal Equipment
 17. TIA-526-14: Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant
 18. TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises
 19. TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
 20. TIA-568-C.3: Optical Fiber Cabling Component Standard
 21. TIA-569-C: Commercial Building Standard for Telecommunications Pathways and Spaces
 22. TIA-604: Fiber Optic Connector Intermateability Standards
 23. TIA-604-1: Fiber Optic Connector Intermateability Standard
 24. TIA-604-6: Fiber Optic Connector Intermateability Standard – Type LC
 25. TIA-606-B: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
 26. TIA-758-B: Customer-Owned Outside Plant Telecommunications Cabling Standard
 27. TIA-758-1: Addendum No. 1 to TIA-758, Customer-Owned Outside Plant Telecommunications Cabling Standard
 28. TIA-TSB-62: Informative Test methods for Fiber-Optic Fibers, Cables, Opto-Electronic Sources and Detectors, Sensors, Connecting and Terminating Devices, and Other Fiber-Optic Components
 29. TIA-TSB-63: Reference Guide for Fiber Optic Test Procedures
 30. TIA-TSB-149: Generic Workmanship Guidelines for Fiber Optic Connector Interoperability
- G. Underwriters Laboratories, Inc.
1. UL 444: Communications Cables
 2. UL 1651: Standard for Optical Fiber Cable

3. UL 1666: Standard for Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
4. UL 1690: Standard for Data-Processing Cable
5. UL 1863: Communications Circuit Accessories
6. UL 1977: Component Connectors for Use in Data, Signal, Control, and Power Applications
7. UL 2024: Standard for Signaling, Optical Fiber and Communications Raceways and Cable Routing Assemblies
8. UL 2269: Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
9. UL 62368-1: Audio/video, information and communication technology equipment - Part 1: Safety requirements

1.4 QUALITY ASSURANCE

- A Contractor requirements:
- 1 The Contractor shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
 - 2 Project Manager
 - a The Project Manager shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
 - b The contractor shall make the project manager available to the Owner/Owner's Representative before the start of this project for an interview. This person must be deemed acceptable by the Owner and/or their Representative before work can begin.
 - c Project Manager will be required to be available for scheduled on site project meetings at no additional cost to the Owner.
 - d Project Manager will be required to be available to meet on site with the Owner/Owner's representative with a minimum of 24 hours notice for non- emergency issues, and a minimum of 4 hours for emergency issues at no additional cost to the Owner.
- B Material requirements
- 1 All material and equipment to be installed on this project will be new and free from defects.
 - 2 New material shall meet the following requirements.
 - a Manufactured within one year of the installation date.
 - b Undamaged
 - c Not previously installed
 - d Delivered to jobsite in original packaging
 - e No corrosion or other degradation of material
 - f In factory condition
 - g Unmodified
 - 3 If used material or equipment has been installed on this project the Contractor shall replace said materials and/or equipment with new products at no additional cost to the Owner.
 - 4 Equipment and accessories shall be in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.
 - 5 Items of a given type shall be the products of the same manufacturer.
 - 6 Deliver, store and protect products under provisions of Section 016200.

- 7 Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
 - 8 Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
 - 9 Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.
- C Contractor shall warranty all materials, equipment, and workmanship for a minimum of one (1) year.
- 1 Warranty shall provide repair/replacement of all defective or improperly installed materials at no additional cost to the Owner (including all costs to repair or replace the item(s)).
 - 2 Contractor shall provide a competent service technician and new materials to repair/replace defective items no later than 24 hours after notification.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000. Provide detailed description of items supplied, including specifications, performance characteristics, materials, wiring diagrams and schedules.
- B Submit evidence of compliance with the applicable standards listed under Article 1.3 of this section.
- C Manufacturer's Instructions: Submit manufacturer's installation instructions, testing instructions and field test procedures for engine starting.
- D The following shop drawings including product data sheets and wiring diagrams per requirements in the General Conditions shall be submitted: A complete list of materials with model and part numbers and reference to the specification paragraph number.
- E Submit a complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials.
- 1 A complete set of drawings for special items.
 - 2 A single line block diagram showing exactly the manner in which the contractor proposes to layout the system.
 - 3 Illustrations and scale drawing of the racks, equipment layouts etc.
 - 4 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
 - 5 The contractor shall also submit a copy of his valid state contractor's license and show proof that he is a distributor of the submitted equipment.
- F An operating and service manual shall be submitted at the completion of the installation and shall include all data sheets, spare parts list, trouble shooting guides, complete "as-built" and one line diagrams, circuit diagrams and wiring destination schedules necessary for the proper operation and servicing of the system.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:

- 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Programming manual (where applicable)
 - 4 Wiring diagrams
 - 5 Trouble-shooting guidelines (where applicable)
 - 6 Voltage ratings
 - 7 Current ratings
 - 8 Calibrated range (where applicable)
 - 9 List of capabilities
 - 10 Environmental ratings
 - 11 NEMA enclosure type
 - 12 Maintenance requirements
 - 13 Installation instructions
 - 14 Repair instructions (where applicable)
- C Provide manuals in one of the following formats
- 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 GENERAL

All material shall be UL listed for its application.

2.2 DATA BACKBONE CABLING

- A General
- 1 The Contractor shall provide, install, terminate, dress, and test continuous fiber optic, backbone cable from 'IDF' to 'MDF' utilizing the hardware listed (or approved equivalent) in full compliance with all applicable standards, local and national codes, manufacturers recommendations, and otherwise noted within these specifications. Contractor shall determine cable "link" quantities as shown on the Electrical Construction Documents.
 - 2 Routing shall be via conduit in accordance with electrical drawings, or attached addenda if applicable. The contractor is responsible for determination of actual segment lengths.
 - 3 Provide all termination accessories, dressing accessories, enclosures, and testing for a complete fiber optic distribution system. Refer to Specification Section 271100.
 - 4 Operating temperature range: -40°F to 167°F
 - 5 Maximum load
 - a Installation: 600 pounds
 - b Sustained: 180 pounds
 - 6 Cable shall be rated for installation environment, i.e. plenum, riser, outdoor, underground, etc.
 - 7 Cables, fibers, and all other components shall meet the requirements of standards listed in Section 1.3.
 - 8 Fibers shall be laser optimized glass.
 - 9 Factory testing shall be in accordance with TIA 455 series of standards.

- 10 Cables shall be loose tube with water blocking system.
- B Multimode Fibers
 - 1 Multimode fibers shall be listed to OM4 (TIA-492-AAAD) standards.
 - 2 They shall be compatible with 1000Base-SX, 10GBase-SR, and 10GBase-LRM transceivers.
- C Single-mode Fibers
 - 1 Single-mode fibers shall be listed to OS2 (TIA-492-CAAB) standards.
 - 2 They shall be compatible with 1000Base-LX10 and 10GBase-LR transceivers.
- D Backbone cables shall be 12 strand Berk-Tek or equal.
- E Identification
 - 1 Interior: Panduit #S100X225YAJ self-laminating, polyester label
 - 2 Exterior: Panduit #MT350W17-Q stainless steel tag with rounded edges & corners

PART 3 – EXECUTION

3.1 INSTALLATION

- A Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.
- B Contractor shall use Velcro strip to bundle cables together. Tie Wraps will not be allowed for supporting, bundling, and/or dressing of any cables.
- C Contractor shall provide a three foot service loop for all cables. The service loop will be coiled and secured using Velcro in the accessible ceiling at the conduit stub to the work area outlet box.
- D A 1/8" diameter, nylon pull cord shall be co-installed with all cable installed in any conduit.
- E Cable raceways shall not be filled greater than the TIA-569-C maximum fill for the particular raceway type or 40%.
- F Cables shall be installed in continuous lengths from origin to destination. Splices are not permitted.
- G Do not exceed the manufacturer's minimum bend radius and maximum pulling tension for cables.
- H Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the Owner.
- I Cables shall be dressed and terminated in accordance with the recommendations made in the TIA-568-C standards, manufacturer's recommendations, and best industry practices.
- J The cable jacket shall be maintained to within 1/2 inch of the termination point.
- K Vertical runs of cable shall be supported to messenger strand, cable ladder, or other method to provide proper support for the weight of the cable every 3 feet.
- L Large bundles of cables and/or heavy cables shall be attached using metal clamps and/or metal banding to support the cables.
- M All cables shall be neatly bundled and dressed continuously from the entrance point of the data room or cabinet to their respective panels. Each panel shall be fed by an individual bundle separated and dressed back to the point of

- cable entrance into the rack or frame. Cables in all other rooms shall be concealed.
- N Inside Buildings: Cable and conductors shall be routed in conduit, or surface mounted raceway, run overhead and parallel to the structure.
 - 1 Conduit shall be rigid steel, IMC, or EMT as described elsewhere in these specifications.
 - 2 Plastic conduit shall not be used above grade.
 - 3 Cable may be used behind accessible T-bar ceilings without conduit. Mount cable at the roof joist (or bottom of floor above) on 1" wide 'J-hooks' or 'bridle-rings' at every 5'-0" or less. Support each cable within 1'-0" of its termination point. Run cable parallel and perpendicular to the building structure and provide mechanical support for vertical runs by using Unistrut channel securely fastened in place.
 - 4 Cable and conductors shall not be attached to the support wire of the T-bar ceiling or laid across the ceiling boards.
 - O Between buildings: Cable and conductors shall be routed in conduit run underground.
 - 1 Conduit shall be rigid steel, IMC, or plastic as described elsewhere in these specifications.
 - 2 The use of EMT is not acceptable.
 - P On The Roof: Conduit shown on the drawings as being on the roof of the building or covered walkway shall be installed on 4" by 4" pressure treated wood blocking (sleepers) attached to the structure every 8'-0" or less.
 - 1 Conduit shall be rigid steel or IMC as described elsewhere in these specifications.
 - 2 The use of EMT or plastic conduit is not acceptable.
 - Q Make all underground runs continuous without splices or taps. Use underground boxes for *pulling purposes only*.
 - R Only use pulling grip approved by the cable manufacturer.
 - S Clean conduit with mandrel prior to pulling.
 - T Make all connections and splices in a clean environment.
 - U Follow cable manufacturer's and device manufacturer's instructions for connections to devices.

3.2 LABELING

- A. The contractor shall follow the Owner's labeling scheme.
- B. Label each cable at its beginning and end points no further than 6" behind termination on a section of cable that is easily accessible. Cable labels shall include the ids of both terminations and cable id.
- C. All labels shall be machine printed or embossed. Handwritten labels are not acceptable.
- D. All labeling information shall be recorded on the as-built drawings and all test documents.
- E. Label all cable beginning and terminating points.
- F. Labels for site cables and cables in multiple buildings shall feature the following.
 - 1. Identify origin (MDF or IDF and building), termination (IDF or port identifier), and next pull box.
 - 2. Cables in pull boxes shall have a label at entry into pull box and exit from pull box. Labels shall be stainless steel tags with embossed characters.

3.3 TESTING

- A. General
 - 1. All cables (including each fiber) and termination hardware shall be tested.
 - 2. Testing must comply with TIA standards for testing (refer to Section 1.3), plans, specifications, and manufacturer recommendations.
 - 3. Contractor shall notify the Owner or Owner's Representative 72 hours before commencement of testing.
 - 4. Upon receipt of the test documentation, the Customer reserves the right to have the contractor perform a 20% witnessed "spot testing" of the cabling system to validate test results provided in the test document, at no additional cost. If a significant amount of cables are marginal and/or fail during the "spot test" Contractor will retest the entire cable plant at no additional cost.
- B. Equipment
 - 1. All equipment must be properly calibrated and traceable to NIST.
 - 2. Equipment shall have been recalibrated within the previous 6 month prior to testing.
 - 3. Power meter and light source must be set to same wavelength.
 - 4. Light source shall be equipped with an optical time domain reflectometer (OTDR).
 - 5. Light source tolerances are:
 - a. 850+30nm
 - b. 1300+20nm
 - c. 1310+10nm
 - d. 1550+20nm
- C. Fiber Optic Testing Procedures
 - 1. All cables, equipment, etc. must be cleaned prior to test.
 - 2. Test that the light loss does not exceed acceptable limits and the cable system is within the maximum attenuation specifications.
 - 3. Test procedures shall comply with TIA-526-14, Method B: Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant and TIA-568-C series of standards.
 - 4. Fibers and connectors shall be tested as a complete system.
 - 5. For basic testing the contractor shall use the following equipment: a power meter, an optical source, two (2) test jumpers (of same connector type and fiber core size), and an interconnection sleeve. An OTDR, fault finder, or visual tracer shall be required to determine the exact location of any faults.
 - 6. To comply with TIA-526-14, the light source or OTDR shall operate within the range of 850nm±30nm for multimode fiber and 1310nm±10nm for single-mode fiber.
 - 7. Before testing, make sure all connectors, jumper and sleeves have been properly cleaned.
 - 8. Connect a test jumper from the meter to the optical source, set the meter and source to the same wavelength, turn them on, and record the power reading in decibels (dB). This reading is the 'Reference Reading'.
 - 9. Wavelength settings tested shall be 850nm and 1310nm.

10. Connect a second jumper to the first test jumper, joining them with an interconnection sleeve. Turn the meter and source on, and record the power level shown on the meter. The second reading is the 'Check Reading'.
11. Compare the 'Check Reading' with the initial 'Reference Reading' to make sure the second jumper did not increase attenuation by more than 0.75dB. To do this, subtract the initial Reference Reading from the Check Reading. There should be no more than 0.75dB of loss between the first and second reading. Note that 0.75dB is the TIA-568C threshold, but the contractor may also use the manufacturer-specified Guaranteed Maximum Mated Pair Loss for the specific connector you are using.
12. If the reading is satisfactory, proceed to the end-to-end attenuation test. If not, clean all connectors except the source connection point, and repeat the Check Reading procedure.
13. Leave both jumpers attached to the optical source and power meter, but disconnect them at the interconnection sleeve. Take the meter and its jumper to one end of the cable being tested, and take the source to the other end. Record the reading; this is the official 'Attenuation Test Reading'. Subtract the Reference Reading (recorded earlier) from the test reading you have just taken, to determine the End-to-End Attenuation. Document this reading.
14. The cumulative signal loss, through connectors, jumpers, couplers, and fiber cable, shall be less than 2.0 dB.
15. Attenuation shall be measured and documented in both directions and at both applicable wavelengths (mention in Step 2a). Note that an OTDR must be used to measure attenuation of any fibers that are to be left unterminated. A visual tracer shall be used to confirm continuity.
16. Test results evaluation shall be based on the values set forth in TIA-568-C.1.
17. All installed cables must meet or exceed the defined standards for performance. The Contractor shall take all steps necessary to repair or replace any optic not meeting the standard.
18. The Contractor shall provide an electronic printout for each strand tested with the Power Meter and the OTDR.

3.4 SYSTEM CLOSEOUT AND AS-BUILT DOCUMENTATION

- A Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Owner's Representative/Engineer for approval. One (1) to be a hardcopy and two (2) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.
- B Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is inclusive of all test results and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 calendar days of the completion of each testing phase. At the request of the Owner's Representative/Engineer, the telecommunications contractor shall provide copies of the original test results.

- C The Owner's Representative/Engineer will request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.
- D Test Results documentation shall be provided in two media, as listed above, one (1) hardcopy and one (1) on disk within three weeks after the completion of the project. The documentation shall be clearly marked on the outside front cover with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results shall include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, an bi-annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment.
- E Printouts generated for each cable by the wire test instrument shall be submitted as part of the documentation package.
- F When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented.
- G The As-Built drawings are to include cable routes, outlet locations and the approved labeling identifiers. Their sequential number as defined elsewhere in this document shall identify outlet locations. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD 2008) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
- H Contractor will provide one laminated 11"x17" drawing at each IDF and MDF that includes the building layout for that IDF or MDF, along with the outlet locations and all of the approved labeling.

END OF SECTION

DOCUMENT 27 15 00

COMMUNICATIONS HORIZONTAL CABLING

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section includes material and workmanship requirements for data, telephone (analog and VOIP), IP clocks, and IP speakers horizontal cabling.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A Division 1
 - 1 Section 013000: Administrative Requirements
 - 2 Section 013300: Submittal Procedures
 - 3 Section 014000: Quality Requirements
 - 4 Section 016000: Product Requirements
 - 5 Section 017000: Execution and Closeout Requirements
 - 6 All other included sections under Division 1
- B All included sections under Division 26
- C All included sections under Division 27
- D All included sections under Division 28
- E Plans
- F Manufacturers' manuals, product bulletins, etc.

1.3 REFERENCE STANDARDS AND CODES

- A. Governing Codes and Conflicts: If the requirements of the Construction Documents exceed those of the governing codes and regulations, then the requirements of the Construction Documents shall prevail. Where a conflict exists, the governing codes and ordinances shall supersede all other requirements.
- B. ANSI: American National Standards Institute (ANSI)
- C. CEC: California Electrical Code
- D. Institute of Electrical and Electronic Engineers (IEEE)
 - 1. IEEE 802.3: IEEE Standard for Ethernet
 - 2. IEEE 802.3ad: Link Aggregation
 - 3. IEEE 802.3ae: 10 Gigabit Ethernet
 - 4. IEEE 802.3af: Power over Ethernet
 - 5. IEEE 802.3an: 10 Gigabit Ethernet on Twisted Pair Copper Cable (10G Base T)
 - 6. IEEE 802.3aq: 10 Gigabit Ethernet on FDDI-Grade Multimode Fiber (10G Base LRM)
 - 7. IEEE 802.3at: Enhanced Power over Ethernet
- E. Insulated Cable Engineers Association (ICEA)
 - 1. ICEA S-84-608: Telecommunications Cables, Filled Polyolefin Insulated, Copper Conductor
 - 2. ICEA S-86-634: Buried Distribution and Service Wire, Filled Polyolefin Insulated, Copper Conductor
 - 3. ICEA S-102-700: ICEA Standard for Category 6 Individually Unshielded, Twisted Pair Indoor Cables (With or Without an Overall

- Shield) for Use in Communications Wiring Systems Technical Requirements
- 4. ICEA S-103-701: Riser Cables Technical Requirements
- F. Telecommunications Industries Association (TIA)
 - 1. TIA-568-C: Commercial Building Telecommunications Standard
 - 2. TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises
 - 3. TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
 - 4. TIA-568-C.2: Balanced Twisted-Pair Telecommunications Cabling and Components Standards
 - 5. TIA-569-C: Commercial Building Standard for Telecommunications Pathways and Spaces
 - 6. TIA-606-B: Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
 - 7. TIA-607-B: Commercial Building Grounding and Bonding Requirements for Telecommunications
 - 8. TIA-758-B: Customer Owned Outside Plant Telecommunications Infrastructure Standard
 - 9. TIA-1152: Requirements for Field Test Instruments and Measurements for Balanced Twisted Pair Cabling
 - 10. TIA-1183: Measurement Methods and Test Fixtures for Balun-less Measurement of Balanced Components and Systems
 - 11. TIA-TSB-36: Technical Systems Bulletin Additional Cable Specifications for Unshielded Twisted-Pair Cables
 - 12. TIA-TSB-62: Informative Test methods for Fiber-Optic Fibers, Cables, Opto-Electronic Sources and Detectors, Sensors, Connecting and Terminating Devices, and Other Fiber-Optic Components
 - 13. TIA-TSB-63: Reference Guide for Fiber Optic Test Procedures
 - 14. TIA-TSB-67: TIA Telecommunications Systems Bulletin, Additional Transmission Specifications for Unshielded Twisted-Pair Connecting Hardware
 - 15. TIA-TSB-149: Generic Workmanship Guidelines for Fiber Optic Connector Interoperability
 - 16. TIA-TSB-155: Guidelines for the Assessment and Mitigation of Installed Category 6 Cabling to Support 10GBase-T
 - 17. TIA-TSB-184: Guidelines for Supporting Power Delivery Over Balanced Twisted-Pair Cabling
 - 18. TIA-TSB-1197: Mode Conversion Parameters for Balanced Twisted Pair Cabling
- G. Underwriters Laboratories, Inc.
 - 1. UL 444: Communications Cables
 - 2. UL 1651: Standard for Optical Fiber Cable
 - 3. UL 1655: Standard for Community-Antenna Television Cables
 - 4. UL 1666: Standard for Test for Flame Propagation Height of Electrical and Optical-Fiber Cables Installed Vertically in Shafts
 - 5. UL 1690: Standard for Data-Processing Cable
 - 6. UL 1863: Communications Circuit Accessories
 - 7. UL 1977: Component Connectors for Use in Data, Signal, Control, and Power Applications
 - 8. UL 2024: Standard for Signaling, Optical Fiber and Communications Raceways and Cable Routing Assemblies

9. UL 2269: Optical Fiber/Communications/Signaling/Coaxial Cable Outlet Boxes
10. UL 62368-1: Audio/video, information and communication technology equipment - Part 1: Safety requirements

1.4 QUALITY ASSURANCE

A Contractor requirements:

- 1 The Contractor shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
- 2 Project Manager
 - a The Project Manager shall have successfully completed a minimum of 5 telecommunications projects of the same size and scope.
 - b The contractor shall make the project manager available to the Owner/Owner's Representative before the start of this project for an interview. This person must be deemed acceptable by the Owner and/or their Representative before work can begin.
 - c Project Manager will be required to be available for scheduled on site project meetings at no additional cost to the Owner.
 - d Project Manager will be required to be available to meet on site with the Owner/Owner's representative with a minimum of 24 hours notice for non- emergency issues, and a minimum of 4 hours for emergency issues at no additional cost to the Owner.
- 3 The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context 'good quality' means the work shall meet industry technical standards and quality of appearance. The Owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.
- 4 The Contractor shall provide all necessary materials and labor for a complete, functional Telecommunications cabling infrastructure in accordance with all applicable standards and the Construction Documents.

B Material requirements

- 1 All material and equipment to be installed on this project will be new and free from defects.
- 2 Equipment and accessories shall be the product of a manufacturer regularly engaged in its manufacture.
- 3 New material shall meet the following requirements.
 - a Manufactured within one year of the installation date.
 - b Undamaged
 - c Not previously installed
 - d Delivered to jobsite in original packaging
 - e No corrosion or other degradation of material
 - f In factory condition
 - g Unmodified
- 4 If used material or equipment has been installed on this project the Contractor shall replace said materials and/or equipment with new products at no additional cost to the Owner.
- 5 Equipment and accessories shall be in compliance with the applicable standards listed in Article 1.3 of this section and with applicable national, state and local codes.

- 6 Items of a given type shall be the products of the same manufacturer.
- 7 Deliver, store and protect products under provisions of Section 016200.
- 8 Ship equipment in its original packages, to prevent damaging or entrance of foreign matter. Perform handling and shipping in accordance with manufacturer's recommendations. Provide protective covering during construction.
- 9 Replace at no expense to Owner, equipment or material damaged during storage or handling, as directed by the engineer.
- 10 Tag items with a weatherproof tag identifying equipment by name and purchase order number. Include packing and shipping lists.
- C Contractor shall warranty all materials, equipment, and workmanship for a minimum of one (1) year.
 - 1 Warranty shall provide repair/replacement of all defective or improperly installed materials at no additional cost to the Owner (including all costs to repair or replace the item(s)).
 - 2 Contractor shall provide a competent service technician and new materials to repair/replace defective items no later than 24 hours after notification.
- D The work performed under this specification shall be of good quality and performed in a workmanlike manner. In this context 'good quality' means the work shall meet industry technical standards and quality of appearance. The Owner reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.
- E The Contractor shall provide all necessary materials and labor for a complete, functional Telecommunications cabling infrastructure in accordance with all applicable standards and the Construction Documents.

1.5 SUBMITTALS

- A Submit under provisions of Section 013000 or 013300.
- B Submittals shall include the following:
 - 1 Table of contents
 - 2 A complete set of detailed manufacturer's specifications describing and illustrating all standard and special components and materials
 - 3 Part numbers
 - 4 Evidence of compliance with the applicable standards listed under Article 1.3 of this section
 - 5 Maintenance instructions and intervals
 - 6 A complete set of drawings for any special items
 - 7 A single line block diagram showing exactly the manner in which the contractor proposes to layout the system.
 - 8 Wiring diagrams
 - 9 Drawings shall include designations, dimensions, operating controls, instruments, riser diagrams, routing diagrams etc.
- C Electronic submittals shall be searchable
- D The submittal shall be substantially complete for all items and equipment furnished under this section.
- E Individual drawings and data sheets submitted at random intervals will not be accepted for review.
- F Substitutions: Items of same function and performance shall be submitted in conformance with Division 1.

1.6 OPERATION AND MAINTENANCE MANUALS

- A Submit operation and maintenance manuals in accordance with Section 260000.
- B The manuals shall, at minimum, include the following:
 - 1 Manufacturer (including contact information)
 - 2 Model number
 - 3 Programming manual (where applicable)
 - 4 Wiring diagrams
 - 5 Trouble-shooting guidelines (where applicable)
 - 6 Voltage ratings
 - 7 Current ratings
 - 8 Calibrated range (where applicable)
 - 9 List of capabilities
 - 10 Environmental ratings
 - 11 NEMA enclosure type
 - 12 Maintenance requirements
 - 13 Installation instructions
 - 14 Repair instructions (where applicable)
- C Provide manuals in one of the following formats
 - 1 Three hardcopies
 - 2 PDF

PART 2 – PRODUCTS

2.1 GENERAL

- A. All material shall be UL listed for its application.
- B. Cables shall be rated for its intended use, i.e. plenum, riser, wet location, etc.
- C. Cables, conductors, and all other components shall meet the requirements of standards listed in Section 1.3.

2.2 DATA AND VOIP HORIZONTAL CABLING

- A. Contractor shall provide, install, and test a Cat-6A cable link from each Data/VOIP Outlet directly to the IDF utilizing the hardware listed below (or approved equivalent) in full compliance with all applicable standards, local and national codes, manufacturers' recommendations, and otherwise noted within these specifications.
- B. Specifications:
 - 1. Four twisted, unshielded, 23 AWG, solid copper pairs (23 AWG UTP)
 - 2. Suppress cross-talk
 - 3. Maintain 10GB/S performance
 - 4. Meet or exceed Cat-6A requirements of TIA-568-C.2 and IEEE 802.3an.
 - 5. SRL, Attenuation and NEXT results shall use Sweep Frequency test per TIA-568-C.
 - 6. Have UL verification to Cat-6A specifications.
 - 7. Compatible with IEEE 802.3at POE+
 - 8. Colors for cables shall be:
 - a. Clocks: Green

- b. Data: Blue
 - c. Energy management system: Purple
 - d. Power distribution units: Black
 - e. Servers: White
 - f. Speakers: Green
 - g. Surveillance: Red
 - h. Uninterruptable power supplies: Black
 - i. Wireless access points: Yellow
- 9. Berk-Tek LANmark-10G2 or approved equal
- C. Cables shall be rated for its intended use, i.e. plenum, riser, wet location, etc.
- D. Cables, conductors, and all other components shall meet the requirements of standards listed in Section 1.3.
- E. Provide all termination accessories, dressing accessories, enclosures, and testing for a complete fiber optic distribution system. Refer to Specification Section 271100.
- F. Identification
 - 1. Interior: Panduit S100X225YAJ self-laminating, polyester label
 - 2. Exterior: Panduit MT350W17-Q stainless steel tag with rounded edges & corners
- G. Contractor shall determine cable "link" quantities as shown on the Construction Documents.

2.3 ANALOG TELEPHONE HORIZONTAL CABLING

- A The Contractor shall provide, install, terminate, dress and test Category 5e cable "link" from Telephone Outlet to SCTB utilizing the hardware listed below (or approved equivalent) in full compliance with all applicable standards, local and national codes, manufacturers' recommendations, and otherwise noted within these specifications.
- B Specifications:
 - 1 Type: Category 5e, 24 AWG, 4-pair, plenum rated, UTP: Berk-Tek LANmark-350 or equal
 - 2 Color: Cable shall be gray in color.
 - 3 The cable shall exceed all applicable performance standards required by TIA-568-C compliance
 - 4 Have UL verification to Cat-5e specifications.
 - 5 SRL, Attenuation and NEXT results shall use Sweep Frequency test per TIA-568-C.
- C Identification
 - 1 Interior: Panduit S100X225YAJ self-laminating, polyester label
 - 2 Exterior: Panduit MT350W17-Q stainless steel tag with rounded edges & corners
- D Contractor shall determine cable "link" quantities as shown on the Electrical Construction Documents.

2.4 OUTLET HARDWARE

- A Data and VOIP Ports:
 - 1 Category 6a, RJ45 port: Black Box C6AJA70-##, Panduit CJ6X88TG##, or approved equivalent
 - 2 Colors for cables shall be:
 - a Clocks: Green

- b Data: Blue
 - c Energy management system: Purple
 - d Power distribution units: Black
 - e Servers: White
 - f Speakers: Green
 - g Surveillance: Red
 - h Uninterruptable power supplies: Black
 - i Wireless access points: Yellow
- 3 Terminate 26AWG to 22 AWG, stranded or solid, Cat-6A cables without punch-down tool
- 4 Suppress cross-talk
- 5 Maintain 10GB/S performance in 48 port, 1RU patch panels
- 6 T568B wiring scheme
- 7 Meet or exceed Cat-6A requirements of TIA-568-C.2 and IEEE 802.3an.
- 8 Compatible with IEEE 802.3at POE+
- 9 Snap in, snap out modular design
- 10 Conductor retention and strain relief
- 11 Gold plated contacts
- B Analog Telephone Ports:
 - 1 Category 5e, RJ45 port: Black Box FM923C, Panduit CJ5E88TGIG, or equivalent
 - 2 Color: Port shall be gray in color.
 - 3 Terminate 26AWG to 22 AWG, stranded or solid, Cat-5e cables without punch-down tool
 - 4 T568B wiring scheme
 - 5 Meet or exceed Cat-5e requirements of TIA-568-C.2 and IEEE 802.3.
 - 6 Compatible with IEEE 802.3at POE+
 - 7 Snap in, snap out modular design
 - 8 Conductor retention and strain relief
 - 9 Gold plated contacts
- C Wallplates:
 - 1 Commercial, educational, industrial, and institutional
 - a Material: Satin finish stainless steel
 - b For data or telephone – one module space: Black Box WP370 or equivalent
 - c For data and telephone – two module spaces: Black Box WP371, Panduit CFPL2SY, or equivalent
 - d For data and telephone – two module spaces: Black Box WP373, Panduit CFPL4SY, or equivalent
 - 2 Residential:
 - a Material: Nylon
 - b Color: Wallplate color shall closely match wall color.
 - c For data or telephone – one module space: Panduit NK1FNWH or equivalent
 - d For data and telephone – two module spaces: Panduit NK2FNWH or equivalent
 - e Wallplate Specifications: The wallplate housing shall be a one-piece, single-gang flush mount style that fits standard NEMA openings, on four-square boxes with reducer. It should provide 1-port field-configurable with a variety of simplex snap-in ports/connectors. It must be made of high-impact,

self-extinguishing plastic rated UL 94V-0, and be UL Listed, CSA certified, and compliant with FCC Part 68 and TIA-568-C specifications. Wallplate screws must match wallplate color.

- 3 Provide an install a blank module for each unused opening in the wallplates, Panduit CMBIG-X or equivalent.
- 4 Labels: Panduit C125X030YPT self-adhesive, polyester label
- D Back box: 4 inch square box with one gang plaster

2.5 MISCELLANEOUS MATERIALS

- A Conduits: Refer to Section 260500.
- B Supports: Refer to Section 260529.
- C J-Hooks shall be steel with closure and two bolt holes. Finished part shall be hot dipped galvanized.

2.6 IDENTIFICATION

- A Interior: Panduit #S100X225YAJ self-laminating, polyester label
- B Exterior: Panduit #MT350W17-Q stainless steel tag with rounded edges & corners

PART 3 – EXECUTION

3.1 INSTALLATION

- A Cables
 - 1 Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.
 - 2 Contractor shall use Velcro strip to bundle cables together. Tie Wraps will not be allowed for supporting, bundling, and/or dressing of any cables.
 - 3 Contractor shall provide a three foot service loop for all cables. The service loop will be coiled and secured using Velcro in the accessible ceiling at the conduit stub to the work area outlet box.
 - 4 A 1/8" diameter, nylon pull cord shall be co-installed with all cable installed in any conduit.
 - 5 Cable raceways shall not be filled greater than the TIA-569-C maximum fill for the particular raceway type or 40%.
 - 6 Cables shall be installed in continuous lengths from origin to destination. Splices are not permitted.
 - 7 Do not exceed the manufacturer's minimum bend radius and maximum pulling tension for cables.
 - 8 Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the Owner.
 - 9 Cables shall be dressed and terminated in accordance with the recommendations made in the TIA-568-C standards, manufacturer's recommendations, and best industry practices.
 - 10 The cable jacket shall be maintained to within 1/2 inch of the termination point.

- 11 Vertical runs of cable shall be supported to messenger strand, cable ladder, or other method to provide proper support for the weight of the cable every 3 feet.
 - 12 Large bundles of cables and/or heavy cables shall be attached using metal clamps and/or metal banding to support the cables.
 - 13 All cables shall be neatly bundled and dressed continuously from the entrance point of the data room or cabinet to their respective panels. Each panel shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame. Cables in all other rooms shall be concealed.
 - 14 Inside Buildings: Cable and conductors shall be routed in conduit, or surface mounted raceway, run overhead and parallel to the structure.
 - a Conduit shall be rigid steel, IMC, or EMT as described elsewhere in these specifications.
 - b Plastic conduit shall not be used above grade.
 - c Cable may be used behind accessible T-bar ceilings without conduit. Mount cable at the roof joist (or bottom of floor above) on 1" wide 'J-hooks' or 'bridle-rings' at every 5'-0" or less. Support each cable within 1'-0" of its termination point. Run cable parallel and perpendicular to the building structure and provide mechanical support for vertical runs by using Unistrut channel securely fastened in place.
 - d Cable and conductors shall not be attached to the support wire of the T-bar ceiling or laid across the ceiling boards.
 - 15 Between buildings: Cable and conductors shall be routed in conduit run underground.
 - a Conduit shall be rigid steel, IMC, or plastic as described elsewhere in these specifications.
 - b The use of EMT is not acceptable.
 - 16 On the roof: Conduit shown on the drawings as being on the roof of the building or covered walkway shall be installed on 4" by 4" pressure treated wood blocking (sleepers) attached to the structure every 8'-0" or less.
 - a Conduit shall be rigid steel or IMC as described elsewhere in these specifications.
 - b The use of EMT or plastic conduit is not acceptable.
 - 17 Make all underground runs continuous without splices or taps. Use underground boxes for *pulling purposes only*.
 - 18 Only use pulling grip approved by the cable manufacturer.
 - 19 Clean conduit with mandrel prior to pulling.
 - 20 Make all connections and splices in a clean environment.
 - 21 Follow cable manufacturer's and device manufacturer's instructions for connections to devices.
 - 22 Maximum combined cable length (patch cords and installed cable) from switch to end user equipment shall be 328 feet.
 - 23 Stranded conductors shall be "tinned" with solder before terminations are made.
 - 24 Make all terminations in cabinets and at terminal backboards on terminal blocks and/or Patch Panels as specified above.
- B Outlets Installation
- 1 No more than 12" of cable shall be stored in an outlet box, modular furniture raceway, or insulated walls.

- 2 Data jacks, unless otherwise noted in drawings, shall be located in the top position(s) of each faceplate. Data jacks in horizontally oriented faceplates shall occupy the left-most position(s).
- 3 Voice jacks, unless otherwise noted in drawings, shall occupy the next position(s) below the data on the faceplate. Voice jacks in horizontally oriented faceplates shall occupy the position right of the data jack.
- 4 All faceplates installed shall be level.

3.2 LABELING

- A. The contractor shall follow the Owner's labeling scheme.
- B. Label each cable at its beginning and end points no further than 6" behind termination on a section of cable that is easily accessible. Cable labels shall include the ids of both terminations and cable id.
- C. All labels shall be machine printed or embossed. Handwritten labels are not acceptable.
- D. All labeling information shall be recorded on the as-built drawings and all test documents.
- E. Label all cable beginning and terminating points.
- F. Labels for site cables and cables in multiple buildings shall feature the following.
 1. Identify origin (MDF or IDF and building), termination (IDF or port identifier), and next pull box.
 2. Cables in pull boxes shall have a label at entry into pull box and exit from pull box. Labels shall be stainless steel tags with embossed characters.

3.3 TESTING

- A. General
 1. All cables (including each fiber) and termination hardware shall be tested.
 2. Testing must comply with TIA standards for testing (refer to Section 1.3), plans, specifications, and manufacturer recommendations.
 3. Contractor shall notify the Owner or Owner's Representative 72 hours before commencement of testing.
 4. Upon receipt of the test documentation, the Customer reserves the right to have the contractor perform a 20% witnessed "spot testing" of the cabling system to validate test results provided in the test document, at no additional cost. If a significant amount of cables are marginal and/or fail during the "spot test" Contractor will retest the entire cable plant at no additional cost.
- B. Equipment
 1. All equipment must be properly calibrated and traceable to NIST.
 2. Equipment shall have been recalibrated within the previous 6 month prior to testing.
- C. Data Copper Cables:
 1. Each pair in each cable shall be tested in accordance with TIA-568-C series and TIA-TSB-67 for:
 - a. Opens
 - b. Shorts
 - c. Grounds

- d. Continuity
 - e. Polarity
 - f. DC resistance
 - g. DC resistance unbalance
 - h. Impulse noise
 - i. Signal attenuation
 - j. NEXT
 - k. PS-NEXT
 - l. ELFEXT
 - m. PS-ELFEXT
 - n. Return loss
 - o. Propagation delay
 - p. Delay skew
- 2. Each installed cable link shall be tested for installed length using a TDR type device. Cable lengths shall be recorded, referencing the cable identification number and circuit or pair number.
 - 3. Conductors and connectors shall be tested as a complete system.
 - 4. Testing of all horizontal cable, outlet ports, patch cords, and riser cable pairs shall include end-to-end tests using a Wavetech Lantec 100 or Fluke Network's DXT CableAnalyzer Series scanner.
 - 5. Test cables to check that they meet all IEEE and TIA Cat-6a and 10GB/S performance specifications (refer to Section 1.3).
 - 6. All installed cables must meet or exceed the defined standards for performance. The Contractor shall take all steps necessary to repair or replace any optic not meeting the standard.
 - 7. Test results shall be automatically evaluated by the equipment, using the most up-to-date criteria from the TIA standards.
 - 8. The test equipment shall provide a printed document for each test that is also available in a downloadable file using an application from the test equipment manufacturer. The printed test results shall include a print out of all tests performed, and the individual test results for each cable.

3.4 SYSTEM CLOSEOUT AND AS-BUILT DOCUMENTATION

- A Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Owner's Representative/Engineer for approval. One (1) to be a hardcopy and two (2) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.
- B Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is inclusive of all test results and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 calendar days of the completion of each testing phase. At the request of the Owner's Representative/Engineer, the telecommunications contractor shall provide copies of the original test results.
- C The Owner's Representative/Engineer will request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined

- necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.
- D Test Results documentation shall be provided in two media, as listed above, one (1) hardcopy and one (1) on disk within three weeks after the completion of the project. The documentation shall be clearly marked on the outside front cover with the words "Project Test Documentation", the project name, and the date of completion (month and year). The results shall include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, an bi-annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment.
 - E Printouts generated for each cable by the wire test instrument shall be submitted as part of the documentation package.
 - F When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented.
 - G The As-Built drawings are to include cable routes, outlet locations and the approved labeling identifiers. Their sequential number as defined elsewhere in this document shall identify outlet locations. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD 2008) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
 - H Contractor will provide one laminated 11"x17" drawing at each IDF and MDF that includes the building layout for that IDF or MDF, along with the outlet locations and all of the approved labeling.

END OF SECTION

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

1. Removing existing vegetation.
2. Clearing and grubbing.
3. Stripping and stockpiling topsoil.
4. Removing above- and below-grade rock.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and removing site utilities.
7. Capping existing water wells.
8. Temporary erosion- and sedimentation-control measures.

- B. Related Sections:

1. Section 015000 "Temporary Facilities and Controls" for temporary utility services, construction and support facilities, security and protection facilities, and temporary erosion- and sedimentation-control measures.
2. Section 017300 "Execution" for field engineering and surveying.

1.3 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Use sufficiently detailed photographs or video recordings.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.
- B. Topsoil stripping and stockpiling program.
- C. Rock stockpiling program.
- D. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.
- E. Burning: Documentation of compliance with burning requirements and permitting of authorities having jurisdiction. Identify location(s) and conditions under which burning will be performed.

1.6 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.
- E. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.
- F. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PRODUCTS

1.7 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."

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1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 2 - EXECUTION

2.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 1. Restore damaged improvements to their original condition, as acceptable to Owner.

2.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

2.3 EXISTING UTILITIES

- A. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 1. Notify Architect not less than **two** days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without Architect's written permission.

2.4 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 2. Grind down stumps and remove roots, obstructions, and debris to a depth of below exposed subgrade.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

2.5 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.

- B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.
 - 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 - 1. Limit height of topsoil stockpiles to 72 inches.
 - 2. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
 - 3. Stockpile surplus topsoil to allow for resspreading deeper topsoil.

2.6 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

2.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION - 311000

SECTION 311400 - SOIL MATERIALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Excavated materials and imported materials.

1.2 RELATED SECTIONS

- A. Section 312000 "Earthwork: Excavation, Filling, and Grading"
- B. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications sections, apply to the work of this section.

1.3 SUBMITTALS

- A. Samples: Submit, in air-tight containers, 10 lb. sample of Type B and C fill to the Inspector.
- B. Materials Source: Submit location of imported materials source. Provide materials from same source throughout the work. Change of source requires approval.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Soil Type A: Excavated and reused material, graded, free of roots, lumps greater than one inch, rocks larger than ½ inch, debris, weeds, and foreign matter.
- B. Soil Type B: Imported topsoil, friable loam; reasonably free of roots, rocks larger than ½ inch, debris, weeds, and foreign matter.
- C. Soil Type C: Imported borrow, suitable for purpose intended, free of vegetable matter and other unsatisfactory material, with minimum R value of 10 and required as follows:

IMPORTED FILL

Maximum Plasticity Index	less than 10
Maximum Particle Size (inches)	3"
Percent Passing 3 inch sieve	100%
Percent Passing #4 sieve	60-100%
Percent Passing #200 sieve	20-50%
Minimum "R" Value (pavement area)	min 40
Expansion Index	less than 20
Soluble Sulfates	less than 1,000 ppm

Soluble Chlorides	less than 200 ppm
Minimum Resistivity	greater than 1,000 ohm-cm
pH	6.0 to 8.5
Maximum organic Content	less than 2% by weight

2.2 SOURCE QUALITY CONTROL

- A. Inspection of imported soil will be performed as per Section 014000 "Quality Requirements".

PART 3 - EXECUTION

3.1 STOCKPILING:

- A. Stockpile imported material on site at location designated by project Inspector.

3.2 STOCKPILE CLEANUP:

- A. Remove stockpile, grade site surface to prevent freestanding surface water.

END OF SECTION 311400

SECTION 312000 - EARTHWORK – EXCAVATION, FILLING AND GRADING

PART 1 – GENERAL

1.1 SECTION INCLUDED

- A. Over-excavating soil for building and improvement areas.
- B. Excavating soil and other materials for surface improvements.
- C. Compaction of existing ground.
- D. Placement of fill (if necessary)
- E. Preparation of subgrade for other improvements.
- F. Grading of soil.

1.2 RELATED SECTIONS

- A. Contract General Conditions
- B. Section 311400 “Soil Materials”
- C. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications sections, apply to the work of this section.

1.3 REFERENCES

- A. ASTM D 1557.

1.4 COORDINATION

- A. Coordinate work with Owner personnel.
- B. Verify that the location of existing utilities has been indicated at work site by utility authorities and Owner personnel.

1.5 EXISTING UTILITIES

- A. The Engineer has indicated on the plans the location of all known existing utility facilities within the work area. The location of said facilities shall be considered approximate only, until exposed by the Contractor.
- B. Service laterals have been shown where information was available. The location of said facilities shall be considered approximate only, until exposed by the Contractor.

- C. Contractor shall verify all utilities within the work area, including using hand method. Contractor shall protect all existing utilities not designated to be removed.
- D. Maintain all existing utility mains and service lines in constant service during construction of the work.

1.6 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of utilities encountered, provide as-built information.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Fill in Turf or Other Planting Areas: Type A per Section 311400 “Soil Materials”.
- B. Fill in Non-planting Areas: Type B or C per Section 311400 “Soil Materials”.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify site conditions.

3.2 PREPARATION

- A. Identify required elevation.
- B. Locate, identify, and protect existing above and below grade utilities from damage.
- C. Protect any existing improvement not authorized for removal.
- D. Areas with existing improvements, to be removed, should be excavated to a minimum depth of 12 inches below existing improvements to be removed and the exposed surfaces shall be scarified to a depth of 8 inches, moisture conditioned and compacted as engineering fill.
- E. Within the area of the planned buildings, retaining wall and other structures, over-excavation must extend to a depth of 12 foot below the existing grade elevation, or 2 foot below the footings, whichever is deeper. The over-excavation must extend at least 5 feet laterally outside of the building areas where accessible.
- F. Following the over-excavation of the building areas, the exposed ground surface must be reviewed by the Geotechnical Engineer to evaluate if loose or soft zones are present that will require additional over-excavation.

3.3 EXCAVATION

- A. All areas receiving fill materials shall be scarified 12 inch in depth, moisture conditioned and compacted as engineering fill.
- B. Excavate soil to finish subgrade of improvements or to finish surface grade where no improvements are to be placed thereon.
- C. Conform excavation to the grades and cross-sections shown on the plans.
- D. When excavating through tree roots, perform work by hand and cut the roots, where authorized, with a saw.
- E. Remove and stockpile excess soil not to be use as fill in the Work at the location designated by the School District, all at no additional costs to the Owner.

3.4 FILLING

- A. Clear all debris, vegetable matter and any other material from areas to receive fill.
- B. Compact existing ground to required relative compaction prior to placement of fill.
- C. Place and compact soil to finish subgrade of improvements or to finish surface grade where no improvements are to be placed thereon.
- D. Conform fill to grades and cross-section shown on the plans.
- E. Any fill layers shall not exceed 0.67 foot in un-compacted thickness.
- F. Maintain optimum moisture content of fill materials to attain required compaction density.
- G. Compact fill materials per Section 312000/3.5.
- H. Provide imported soil materials conforming to Soil Type B per 311400 "Soil Materials", as needed to attain finished grades of Work outside the limits of non-vegetative surface improvements.
- I. Provide imported soil materials conforming to Soil Type C per 311400 "Soil Materials", as needed to attain finished subgrade of Work within the limits of non-vegetative surface improvements.
- J. When encountering soft spots (and/or pumping soil), Contractor shall over-excavate the existing soil to a minimum of three feet and allow the soil to air dry for 3 days and recompact. No extra time or additional cost is allowed.

3.5 COMPACTING

- A. Maintain optimum moisture content of materials to attain required compaction density.
- B. Compact in layers not exceeding 0.67 foot in un-compacted thickness.
- C. Obtain minimum 95% relative compaction of soil in areas to receive concrete, asphalt-concrete, aggregate base, or other non-vegetative surface improvements.
- D. Obtain minimum 85% relative compaction of soil in areas to receive replacement sod, other replacement vegetation, or bare ground.

3.6 PREPARATION FOR SUBGRADE FOR SURFACE IMPROVEMENTS (such as concrete, asphalt-concrete, aggregate base, and other non-vegetative surface)

- A. Blade or disk the soil to a depth of 8 inches, and remove and dispose of (off the project site) all unsuitable material over 2.5 inches in size.
- B. Thoroughly mix, water, roll, and compact to a relative compaction of no less than 95%.
- C. Prior to commencing construction of surface improvements make sure no soft or spongy areas require repair.
- D. Repair at no additional cost to the owner, any soft, spongy, or otherwise unstable areas encountered in the subgrade, by removing the material and replacing it with acceptable materials.
- E. Conform finished subgrade, grades shown on the plans.

3.7 FINE GRADING

- A. Fine grade all finished surfaces to grades shown on the plans.
- B. Rake and smooth all finished surfaces not to receive surface improvements.

3.8 TOLERANCES

- A. Plus or minus 0.05 foot from planned elevation.

3.9 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed as per Section 014000 "Quality Requirements".
- B. Compaction testing will be performed in accordance with ASTM D 1557.
- C. If tests indicate work does not meet specified requirements, re-compact, or remove and replace, and retest.

END OF SECTION 312000

SECTION 312300 - TRENCH EXCAVATION BACKFILL

PART 1 - GENERAL

1.1 SECTION INCLUDED

- A. Excavating trenches, holes, and pits for constructing the work.
- B. Backfilling and compaction pipeline or underground structure from bedding to subgrade or finish grade elevations.

1.2 RELATED SECTIONS

- A. Section 311400 "Soil Materials".
- B. Section 312000 "Earthwork: Excavation, Filling, and Grading".
- C. Section 331000 "Site Water Systems".
- D. Section 333000 "Site Sewer Systems".
- C. Section 334000 "Site Storm Drainage Systems".
- D. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications sections, apply to the work of this section.

1.3 REFERENCES

- A. ASTM D 1557.

1.4 COORDINATION

- A. Coordinate work with Owner personnel.
- B. Verify that the location of existing on-site utilities to be indicated at work site by Owner personnel.

1.5 EXISTING UTILITIES

- A. The Engineer has indicated on the plans the location of all known existing utility facilities within the work area. The location of said facilities shall be considered approximate only, until exposed by the Contractor.
- B. Service laterals have been shown where information was available. The location of said facilities shall be considered approximate only, until exposed by the Contractor.
- C. Contractor shall verify all utilities within the work area, including using hand method. Contractor shall protect all existing utilities not designated to be removed.

- D. Maintain all existing utility mains and service lines in constant service during construction of the work.

PART 2 - PRODUCTS

2.1 FILL MATERIALS

- A. Backfill with native, suitable materials.

PART 3 - EXECUTION

3.1 REPARATION

- A. Protect all improvements not authorized for removal.
- B. Maintain and protect above and below grade utilities to remain.
- C. Comply with all provisions of the Construction Safety Orders and General Safety Orders of the California Division of Industrial Safety, as well as all other applicable regulations as they pertain to the protection of workers from the hazard of caving ground in excavations.

3.2 EXCAVATION

- A. Excavate soil required to locate existing utilities and install the work, use hand method as necessary in congested area.
- B. Employ equipment and methods appropriate to the work site.
- C. Cut trenches just wide enough to enable installation and proper backfill and do not interfere with 45 degree bearing splay of foundations. When excavating through tree roots, cut roots by hand.
- D. Excavate trenches to provide the minimum cover required.
- E. Excavate trenches, pits, or holes bottoming in hardpan to a minimum of 6 inches below the grade for the bottom of the pipe and any couplings.
- F. In all trenches or excavation sites where a firm foundation is not encountered, such as soft, spongy, or otherwise unsuitable material, remove the material to a minimum of 12 inches, or to a depth determined by the Engineer, below the bottom of the proposed pipe or structure.
- G. Stockpile excavated material to be returned to trench adjacent thereto in location, which will not be detrimental to existing improvements, or pedestrian or vehicular traffic.

Remove unsuitable or excess materials not being used, from site and legally dispose of material.

3.3 BACKFILLING

- A. Backfill from bottom of the trench to pipe grade with Type B and C soil.
- B. After installation of pipes and appurtenances then backfill of pipe with bedding material.
- C. Backfill trenches above pipe bedding material and to within 6 inches of finish subgrade with Type A, B, & C soils. Compact all soil backfill not exceeding 8 inches in uncompacted thickness. Maintain optimum moisture content of fill materials.
- D. Backfill final 12 inch thickness to finish subgrade in areas to receive concrete, asphalt-concrete, aggregate base, or other non-vegetative surface improvement, with Type B or C soils.
- E. Backfill final 6 inch thickness to finish subgrade in areas to receive sod, other vegetation, or bare soil with Type A soil.
- F. Obtain 90 percent relative compaction of backfill from bottom of backfill to a level of 2 feet below finish subgrade, and obtain minimum of 95 percent relative compaction of backfill in top 2 feet below finish subgrade, in areas to receive concrete, asphalt-concrete, aggregate base, or other non-vegetative surface improvement.
- G. Obtain minimum of 85 percent relative compaction of backfill in areas to receive sod, other vegetation, or bare soil.

3.4 TOLERANCES

- A. Top surface of Backfilling Under Paved or Concrete Areas: Plus or minus 0.05 feet from required elevations.
- B. Top Surface of General Backfilling: As required surface to match adjacent improvements or ground.

3.5 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 014000 "Quality Requirements".
- B. Compaction testing will be performed in accordance with ASTM D 1557.
- C. If tests indicate work does not meet specified requirements, recompact, and retest.

3.6 PROGRESS AND PROSECUTION

- A. Backfill any excavation opened in any day on that same day.

END OF SECTION 312300

SECTION 312500 - STORM WATER POLLUTION PREVENTION PLAN

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Provide all material, labor, equipment and services necessary to implement and inspect the Storm Water Pollution Prevention Plan (SWPPP).
2. Provide all material, labor, equipment and services necessary to comply with the conditions of the Construction General Permit (CGP).
3. Implement the Best Management Practices (BMP) contained within the SWPPP or implement other practices deemed necessary by the Contractor/Qualified SWPPP Practitioner (QSP) to better accomplish the intent of controlling the quality of runoff water from the Project Site.
4. Submit to the Owner/LRP all reports required for the Annual Report prior to September 1 of each year

B. This Section does not include:

1. The Owner's Qualified SWPPP Developer (QSD) will prepare the SWPPP.
2. A Notice of Intent (NOI) to be covered by the CGP will be electronically filed by the Owner/Legally Responsible Person (LRP) with the State Water Resources Control Board (SWRCB). The Owner/LRP will pay the NOI fee and annual fees thereafter when applicable.
3. If applicable, an Erosivity Waiver will be electronically filed by the Owner/LRP with the SWRCB. The Owner/LRP will pay the Erosivity Waiver fee.
4. The Annual Report will be electronically filed by the Owner/LRP with the SWRCB by September 1 of each year.
5. A Notice of Termination (NOT) to terminate the CGP coverage will be electronically filed by the Owner/LRP with the SWRCB at the end of the project upon final stabilization as determined by the owner's QSD.

C. Related Sections: The following Project Manual Sections contain requirements that relate to this section:

1. ALL DIVISION 00 SPECIFICATION SECTIONS.
2. ALL DIVISION 01 SPECIFICATION SECTIONS.
3. ALL SPECIFICATION SECTIONS IN THE FACILITY SERVICES SUBGROUP.

4. ALL SPECIFICATION SECTIONS IN THE SITE AND INFRASTRUCTURE SUBGROUP.

1.2 DEFINITIONS

A. Acronyms:

BMP	Best Management Practices
CARB	California Air Resources Board
CGP	Construction General Permit Order No. 2009-0009-DWQ
CSMP	Construction Site Monitoring Program
EPA	Environmental Protection Agency
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollution Discharge Elimination System
QSD	Qualified SWPPP Developer
QSP	Qualified SWPPP Practitioner
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
RWQCB	Regional Water Quality Control Board

1.3 SUBMITTALS

A. Submit in accordance with Specification Section – 013300.

1. Addenda to the SWPPP.
2. Reports required by the SWPPP.

1.4 QUALITY ASSURANCE

A. Regulatory Requirements:

1. In accordance with Specification Section - REGULATORY REQUIREMENTS, and the following:
 - a. CARB Materials and equipment used for this Project shall comply with the current applicable regulations of the California Air Resources Board (CARB) and the Environmental Protection Agency (EPA), in the area where the project is located.
 - b. EPA Environmental Protection Agency
 - c. SWRCB State Water Resources Control Board
 - d. RWQCB Regional Water Quality Control Board
 - e. SJVAPCD San Joaquin Valley Air Pollution Control District

PART 2 - PRODUCTS

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Pittsburg HS – Stadium Parking Lot
Replacement Project
AME 225-0181

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2.1 SOURCE QUALITY CONTROL

A. Storm Water Pollution Prevention Plan (SWPPP):

1. The Owner shall prepare the SWPPP and obtain the CGP.
2. The intent of the CGP is to protect the quality of receiving waters of the United States by limiting the quantity of pollutants in rainfall runoff from construction sites of one acre or more in area. In order to accomplish this goal, each construction project is required to prepare a SWPPP that will govern construction activities to lessen the probability that pollutants will be present in rainfall runoff from their site.
3. This site will be covered by the CGP by the time construction begins.
 - a. All construction activity must comply with the conditions of the CGP.
 - b. A NOI to be covered by the CGP will be filed by the Owner/LRP with the SWRCB and the fees will be paid by the Owner/LRP. Contractor shall provide all necessary material (SWPPP) to the Owner to be included for CGP applications.
 - c. Copies of the NOI will be provided to the Contractor to place in the appropriate Appendix of the SWPPP when the NOI is available.
4. The BMPs contained in the SWPPP will meet the intent of the CGP.
 - a. The Owner does not have any responsibility for selecting or implementing the BMPs proposed by the Contractor and QSP to adequately control the quality of runoff from the site.
 - b. The Contractor and QSP must provide, implement, and carry out the BMPs that comply with the CGP regardless of the BMPs contained in the SWPPP.
 - c. The Contractor and QSP shall bear full responsibility for reviewing the proposed BMPs, ascertaining their ability to provide adequate controls, and implementing the BMPs or implementing others deemed by the Contractor and QSP to better accomplish the intent of controlling the quality of runoff water from the project site.

PART 3 - EXECUTION

3.1 APPLICATION

A. General Requirements:

1. The Contractor shall comply with the conditions of the CGP. The CGP is available at the following website:

www.waterboards.ca.gov/waterissues/programs/stormwater/constpermits.shtml

2. The SWPPP is an aid to the Contractor in complying with the CGP.

3. Under the terms of this Contract, the Contractor is the Operator/Discharger of the Project Site. It is the Contractor's and QSP's responsibility to faithfully and fully implement the BMPs contained in the SWPPP, and other BMPs as required to effectively control the quality of runoff water from the project site.
4. The Contractor shall fully and completely carry out all provisions of the SWPPP and insure that all of the Contractor's forces, including sub-contractors, on the site do the same. The Contractor shall assume full responsibility for the implementation, maintenance and execution of the SWPPP for the life of this project. The Contractor shall be fully liable for penalties, fines, and clean-up costs resulting from the failure of the Contractor's personnel or subcontractor's personnel to comply with the provisions of the SWPPP, and hold the Owner/LRP harmless from the Contractor's failure to implement the SWPPP as required by the SWRCB, RWQCB, CGP, and the local authority having jurisdiction.
5. The Contractor shall be fully aware of the requirements for the full execution of the SWPPP which are contained in the previously mentioned regulations, the requirements of these specifications for implementing, maintaining, and enforcing the provisions of the SWPPP and the impact that the SWPPP will have on the operation, prosecution and cost of the work. A submittal of a bid on this project will be considered as prima facie evidence that the Contractor fully comprehends these requirements and impacts and has fully allowed for their effect on this project, both in time and cost.

B. Best Management Practices (BMPs):

1. The Contractor's QSP shall conduct inspections weekly and at least once each 24-hour period during extended storm events, to identify and record BMPs that need installation or maintenance to operate effectively. Should the QSP deem the BMPs proposed in the SWPPP are inadequate to meet the requirements of the CGP, or a change occurs in the nature or manner of construction operations not anticipated in the SWPPP, the QSP shall propose alternative BMPs that are equal to or better than those contained in the SWPPP.
2. Should the Contractor implement alternative BMPs, he shall prepare all addenda to the SWPPP required by the CGP and notify the Owner's QSD for review of amendments to the original SWPPP.
3. Failure to implement the BMPs as required to meet the intent of the CGP and the SWPPP is a breach of state and federal laws. Punishment for breaking the law can result in fines and imprisonment.
4. BMPs shall be maintained from the start of construction until final stabilization.

3.2 FIELD QUALITY CONTROL

A. Monitoring of BMPs

1. Monitoring by Contractor's QSP
 - a. Implement the CSMP (weekly, pre-storm, storm event, post-storm, quarterly inspections) as required by the CGP.

- b. Conduct training and testing as required by the CGP.
- c. Prepare and submit all reports to Owner/LRP and SWRCB as required by the SWPPP and the CGP. The Contractor is advised that the electronic filing of the Annual Report with the SWRCB by the Owner/LRP on behalf of the Contractor does not relieve the Contractor of any responsibility due to his failure to conduct proper inspection, testing, and training as required by the CGP. The Contractor shall bear full liability arising out of failure to conduct the required inspections, training, and testing detailed in the CSMP in the SWPPP.

2. Monitoring by Owner

- a. The Owner will monitor the Contractor's implementation and maintenance of the BMPs.
- b. Should the Owner determine that the Contractor's efforts fail to meet the requirements of the CGP, the SWPPP, and SWPPP amendments, the Owner reserves the right to employ any and/or all of the following actions:
 - a. Notify the SWRCB of the perceived failure of the Contractor to comply with the CGP and SWPPP.
 - b. Withhold an amount of money from the Contractor's Payment Request, equal to the Owner's estimate of the value of the work required to implement and maintain the required BMPs, as well as, provide the required inspection, training, and testing forms.
 - c. Hire a separate QSP to perform the work required to implement the CSMP and deduct the costs thereof from the Contractor's Payment.

B. Availability and access to the SWPPP

- 1. The Contractor shall keep a minimum of one copy of the SWPPP and Addenda thereto in the following locations:
 - a. Contractor's Project Site Field Office.
 - b. Contractor's General Business Office.
- 2. The SWPPP shall be available for public inspection at any time during normal business hours.

3.3 CLEANING AND REMOVAL

C. Removal of BMPs

- 1. Completely remove from the Project Site all materials used to construct and maintain the temporary BMPs upon completion and acceptance of the Project.
- 2. Remove all accumulated debris and excess material from the BMPs and surrounding locations, and broom clean all adjacent hardscape surfaces to the satisfaction of the Owner.
- 3. All permanent BMPs shall remain on the Project Site. The Owner will be responsible for ongoing inspection and maintenance after final acceptance.

- D. Under written agreement and with the approval of the Owner, the Contractor may assign maintenance and removal responsibilities of the project BMPs to a subsequent contractor for later work phases at the Project Site.

3.4 RECORD KEEPING

- A. Paper or electronic records of all CSMP inspections, testing, and training reports, including the Annual Report, shall be retained for a period of at least three years. These records shall be available at the project site until construction is completed.

3.5 PAYMENT

- A. Full compensation for all costs involved in implementing, and monitoring the implementation of the SWPPP for this project, including inspections, testing, and training, performing corrective measures as required to better implement the SWPPP, providing all labor, materials, and resources to maintain the SWPPP and all required records of the SWPPP, and being full liable for all failures to fulfill the intent and requirements of the CGP set forth by the SWRCB, shall be included in the cost bid for the various items of work and no additional payment will be made therefore.

END OF SECTION 312500

SECTION 313100 - SOIL STERILIZATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Furnishing and installing soil sterilant under all new asphaltic-concrete pavement.

1.2 RELATED SECTIONS

- A. Section 312000 "Earthwork".
- B. Section 321123 "Aggregate Base Course".
- C. Section 321216 "Asphalt Concrete Paving".
- D. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-01 Specifications sections, apply to the work of this section.

1.3 STANDARDS

- A. In accordance with the following:
 - CCR-T21 California Code of Regulations, Title 21 Public Works.
 - CBC California Building Code, California Code of Regulations, Title 24, Part 2, CCR-T24.
 - USDA United States Department of Agriculture.
 - EPA Environmental Protection Agency.

All applicable Environmental Regulations and Standards.

1.4 QUALITY ASSURANCE

- A. Provide licensed operator to apply soil sterilant.
- B. All products shall comply with the current EPA laws at the time of application.

1.5 SUBMITTALS

- A. Certificates of application.
- B. Certificates of compliance for material use.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Soil Sterilant: Treflan, weed and grass preventer, or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that the site is ready for application.

3.2 PREPARATION

- A. Identify installation locations.
- B. Employ equipment and methods appropriate to the work site.

3.3 APPLICATION

- A. Thoroughly water soak surface to be treated. Avoid excessive water runoff.
- B. Apply sterilant solution over surface to be paved prior to application of asphalt-concrete.
- C. Apply in spray form, at rate as allowable by State of California.

3.4 FIELD QUALITY CONTROL

- A. Field inspection will be performed per Section 014000 "Quality Requirements".

END OF SECTION 313100

SECTION 321123 - AGGREGATE BASE COURSE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Furnishing, spreading, and compacting aggregate base course.

1.2 RELATED SECTIONS

- A. Section 312000 "Earthwork: Excavation, Filling, and Grading"
- B. Section 313100 "Soil Sterilization"
- C. Section 321216 "Asphalt Concrete Paving"
- D. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-01 Specifications sections, apply to the work of this section.

1.3 REFERENCES

- A. SSCDOT – Standard Specifications, Department of Transportation, State of California (Caltrans), latest edition, except for references to method of payment, and references to any state furnished materials.

1.4 QUALITY ASSURANCE

- A. Furnish aggregate materials conforming with SSCDOT.
- B. Perform work in accordance with SSCDOT.

1.5 SUBMITTALS

- A. Submit under provisions of Section 013300 "Submittal Procedures".
- B. Certificates of compliance for materials.
- C. Load tags for delivered material.

1.6 COORDINATION

- A. Coordinate with other work, including subgrade preparation and soil sterilization.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aggregate Base: Class 2, ¾ Inch Maximum per SSCDOT.

PART 3 - EXECUTION

3.1 EXAMINATION OF SUBGRADE

- A. Verify that subgrade has been compacted to minimum of 95 percent relative compaction and is dry.
- B. Verify elevations of subgrade are correct.

3.2 INSTALLATION OF AGGREGATE BASE COURSE

- A. Furnish and install in conformance with SSCDOT Section 26, Aggregate Bases.
- B. Thickness – As shown on construction drawings.
- C. Spreading and Compacting – In accordance with SSCDOT. The relative compaction of each layer of compacted base material shall not be less than 95 percent.

3.3 TOLERANCE

- A. Finished Surface: The surface of the finish aggregate base at any point shall not vary more than 0.03 feet above or below the specified grade at that point. No more than 50% of the finish surface shall be above or below the specific grade for aggregate base.

3.4 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed per Section 014000 “Quality Requirements”.

END OF SECTION

SECTION 321700 - PAINTING AND MARKING SITE SURFACES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Furnishing and installing paint to curb, and parking lot on asphalt concrete surfaces.

1.2 RELATED SECTIONS

- A. Section 321216 "Asphalt Concrete Paving".
- B. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specifications sections, apply to the work of this section.

1.3 REFERENCES

- A. SSCDOT – Standard Specifications, California Department of Transportation (Caltrans), latest edition, except for references to methods of payment and to furnishing of materials by State.

1.4 SUBMITTALS

- A. Submit under provisions of Division 0 – Contract General Conditions.
- B. Certificates of compliance for material.

1.5 COORDINATION

- A. Commence striping or marking of asphalt concrete no sooner than 7 days following any sealing of the asphalt concrete.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Paint: Quick drying, high visibility water soluble acrylic striping paint; Stripe Master, Wikel Mfg. Company, or similar by Sherwin – Williams, J.E. Bauer, or PPG, or approved equal.
- B. Paint shall be of color indicated on the construction plans.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that site is ready for application.

3.2 PREPARATION

- A. Identify installation locations as shown on plan.
- B. Thoroughly clean all surfaces to be painted.
- C. Employ equipment and methods appropriate to the work site.

3.3 INSTALLATION

- A. Apply paint striping and marking as indicated on the plans..
- B. Apply paint uniformly, straight and true, with equipment designed for striping and marking applications.
- C. Apply paint striping and marking per SSCDOT, except supply paint conforming to Section 321700/2.1.
- D. Apply a minimum of 2 coats of paint at all striping and marking locations, including asphalt concrete surfaces.

3.4 FIELD QUALITY CONTROL

- A. Field inspection will be performed by the Inspector.

END OF SECTION 321700

SECTION 32 1720 - PAVEMENT MARKING

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide pavement marking in the types and arrangements shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
 - 1. Crosswalk, striping and graphics.
 - 2. Parking lot striping and graphics.
 - 3. Other lines and graphics as indicated.
- B. Related Sections:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division I of these Specifications.

1.2 SUBMITTALS

- A. General: Submit in accordance with Section 01 3300.
 - 1. Product Data: Submit manufacturer's descriptive literature and product specifications for each product. Include data to indicate compliance with the specified requirements.
 - 2. Installation Procedures: Submit manufacturer's recommended installation procedures.
 - 3. Shop Drawings: Photographs, scale drawings, or other data acceptable to the Architect, showing types of graphics proposed to be used.

PART 2 - PRODUCTS

2.1 MATERIALS GENERAL

- A. Products specified are for establishing the type, design, and quality required. Products of equal or better type, design, and quality produced by other manufacturers will be considered provided the request for substitution is submitted in accordance with Section 01 2500.

2.1 PAVEMENT MARKING PAINT

- A. Provide paint specifically formulated for use as pavement marking in automobile traffic areas, and in the colors selected by the Architect from standard no lead colors of the approved manufacturer.
 - 1. Slip-resistant coefficient of friction ≥ 0.6 ; ADA Standard A4.5.1, for all paint.
 - 2. Blue at accessible parking to be color #15090; Federal Standard 595B or equal.
- B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, the following
 - 1. Zoneline by PPG Architectural Coatings; 100% acrylic.
 - 2. SetFast Acrylic Waterborne Traffic Marking Paint by Sherwin-Williams.
 - 3. Vin-L-Stripe W801 Series by Dunn-Edwards.
 - 4. 506 Traffic Paint by Frazee; 100% acrylic.

2.2 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.
- B. Allow a minimum of 24 hours before applying striping over asphalt paving fog seal.

3.2 APPLICATION

- A. Secure the Architect's approval of graphics design and layout prior to start of application.
- B. Using proper masking, stencils, and application equipment recommended for the purpose by the manufacturer of the approved paint, apply the approved paint in strict accordance with its manufacturer's recommendations.
- C. **Provide 2 coats** of paint material at all markings.

3.3 PROTECTION

- A. Provide traffic cones, barricades, and other devices needed to protect workmen and the paint until it is sufficiently dry to with-stand traffic.

3.4 CLEANUP

- A. When paint is thoroughly dry, visually inspect the entire application, touchup as required to provide clean, straight lines and surfaces throughout.
- B. Using a permanently opaque paint identical in color to the surface on which the paint was applied, block out and eliminate all traces of splashed, tracked, and/or spilled pavement marking paint from the background surfaces.

END OF SECTION 32 1720

SECTION 321216 - ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Asphaltic concrete paving.
- B. Seal Coat.

1.2 RELATED SECTIONS

- A. Section 312000 "Earthwork: Excavation, Filling, and Grading"
- B. Section 321123 "Aggregate Base Course"
- C. Section 313100 "Soil Sterilization"
- D. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-01 Specifications sections, apply to the work of this section.

1.3 REFERENCES

- A. SSCDOT – Standard Specifications, Department of Transportation, State of California (Caltrans), latest edition, except for references to method of payment, and references to any state furnished materials.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with SSCDOT.
- B. Mixing Plant: Conform to SSCDOT.

1.5 SUBMITTALS

- A. Certificates of compliance for materials.
- B. Load tags for delivered material.

1.6 COORDINATION

- A. Coordinate with other work, including subgrade preparation and soil sterilization.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Do not place asphalt-concrete when atmosphere temperature is less than 50 degrees F, or surface is wet or frozen.

PART 2 - PRODUCTS

2.1 MATERIALS

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- A. Paint Binder: In accordance with SSCDOT, Asphaltic Emulsions.
- B. Asphalt – Concrete: Type B in accordance with SSCDOT, ½ inch maximum aggregate (medium). The asphaltic concrete should be compacted to an average relative compaction of 97 percent, with no single test value being below a relative compaction of 95 percent based on a 50 blow Marshall maximum density. Use asphalt binder performance grade PG 64-10. The bitumen ratio shall be no less 3 and no more than 7 pounds of asphalt per 100 pounds of dry aggregate.
- C. Seal Coat: Asphalt based seal coat shall be “Top Coat” as manufactured by Industrial Asphalt, Irwindale, California, or approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that subgrade has been compacted to required relative compaction and is dry.
- B. Verify elevations of base are correct.
- C. Verify the subgrade has been sterilized per 313100.

3.2 BASE

- A. Furnish and install aggregate base course per Section 321123 “Aggregate Base Course”.

3.3 PREPARATION – PAINT BINDER

- A. Apply paint binder to existing asphalt-concrete or concrete surfaces which will be in contact with asphalt concrete surfacing.
- B. Rate of application for all surfaces against which asphalt concrete is to be placed shall be no less than 0.02 and no more than 0.05 gallons per square yard. All vertical concrete surfaces which will be in contact with asphalt concrete surfacing and all areas now in place which will be covered with new surfacing materials and feathering operations shall be coated with a paint binder applied at the rate of 0.05 gallons per square yard.

3.4 INSTALLATION OF ASPHALTIC – CONCRETE

- A. Install in conformance with SSCDOT, Asphalt Concrete.
- B. Thickness – As shown on construction plans: Asphaltic concrete shall be laid to the thickness designated on the Plans. The Contractor shall lay the asphaltic concrete to a depth required to insure that, after compaction, the in place compacted thickness is equal to or greater than the specified plan thickness. The maximum layer of asphalt concrete thickness shall not exceed 3 inches.

- C. Asphalt type: PG 64–10
- D. Compaction Equipment – In accordance with Section 39, SSCDOT.

3.5 INSTALLATION OF SEAL COAT ON NEW PAVEMENT AREA

- A. A minimum of 21 days waiting period is required for new pavement to receive seal coat.
- B. Immediately prior to applying the sealer, the surface shall be cleaned of all loose material which might adversely affect bonding of the sealer.
- C. A prime coat of SS-1 asphalt emulsion diluted with water, to 5 parts water to 1 part asphaltic emulsion, shall be applied to all existing (not new) pavement surfaces at a rate of application of 0.05 to 0.10 gallon of diluted primer per square yard.
- D. Following the prime coat, two coats of asphalt based seal coat shall be applied. The first coat shall have added to it a silica sand mineral filler, which has passed a 50-mesh screen, at a rate of 2 to 3 pounds per 1 gallon of concentrated sealer. When the first coat is dry enough to walk on without picking the material up, a second coat shall be applied without mineral filler. If the manufacturer indicates that the product may be diluted, it may be diluted with no more than 20 percent by volume clean fresh water with the prior approval of the Engineer. The total application rate shall be a minimum of 35 to 45 gallons of undiluted product per 1,000 square feet, as directed by the Engineer. The finished surface shall be smooth and uniform in appearance. If existing depressions are such that aggregate still protrudes after the second coat of asphalt based sealer has been applied, the Contractor shall apply a third coat when so directed by the Engineer.
 - 1. Seal Coat (for new pavement) – a minimum of 20 gallons of undiluted product per 1,000 square feet, as directed by the Engineer.
- E. Protect sealed surface until it is cured.

3.6 INSTALLATION OF SEAL COAT ON EXISTING PAVEMENT AREA

- A. Immediately prior to applying the sealer, use power sweepers and blowers to clean the surface of all loose material which might adversely affect bonding of the sealer.
- B. Apply emulsion primer on the pavement surface that has gasoline, grease, and oil stains.
- C. Fill all small cracks with crack filler in accordance with the manufacturers' recommendations.
- D. Any cracks 1/2 " in depth or/and 1/4" in width, potholes and depressed area, thoroughly clean and place type B(No. 4 Max) Asphalt concrete cold patch primer to sealing.
- E. A prime coat of SS-1 asphalt emulsion diluted with water, to 5 parts water to 1 part asphaltic emulsion, shall be applied to all existing (not new) pavement surfaces at a rate of application of 0.05 to 0.10 gallon of diluted primer per square yard.

- F. Following the prime coat, two coats of asphalt based seal coat shall be applied. The first coat shall have added to it a silica sand mineral filler, which has passed a 50-mesh screen, at a rate of 2 to 3 pounds per 1 gallon of concentrated sealer. When the first coat is dry enough to walk on without picking the material up, a second coat shall be applied without mineral filler. If the manufacturer indicates that the product may be diluted, it may be diluted with no more than 20 percent by volume clean fresh water with the prior approval of the Engineer. The total application rate shall be a minimum of 35 to 45 gallons of undiluted product per 1,000 square feet, as directed by the Engineer. The finished surface shall be smooth and uniform in appearance. If existing depressions are such that aggregate still protrudes after the second coat of asphalt based sealer has been applied, the Contractor shall apply a third coat when so directed by the Engineer
- G. Protect sealed surface until it is cured.

3.7 TOLERANCES

- A. Flatness: Maximum variation of $\frac{1}{4}$ inch measured with 10-foot straight edge.
- B. Scheduled Compacted Thickness: Within $\frac{1}{4}$ inch.
- C. Minimum slip -resistant finish for asphalt shall be at least .6 static coefficient of friction.

3.8 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by Section 014000 "Submittal Procedures".

3.9 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury.

END OF SECTION 321216

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Truncated Domes Detectable Warnings.

1.2 RELATED REQUIREMENTS

- A. 033000 - Cast-in-place Concrete: Concrete for sidewalks and platforms.
- B. 321313 - Concrete Paving: Concrete sidewalks.
- C. 321723 - Pavement Markings: Crosswalk and curb markings.

1.3 SUBMITTALS

- A. Qualification Data: For installer including documentation of approval and training by manufacturer.
- B. Product Data: Provide product criteria, characteristics, and required details.
- C. Manufacturer's Installation Instructions: Indicate special preparation of substrate, installation and attachment methods, and perimeter conditions requiring special attention.
- D. Warranty: Submit warranties upon completion of work and ensure forms have been completed in Owner's name within 10 days of scope completion.
- E. Maintenance Data: For users operation and maintenance of system including:
 - 1. Methods for maintaining system's materials and finishes.
 - 2. Precautions about cleaning materials and methods that could be detrimental to components, finishes, and performance.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Authorized and trained by manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. As required by the manufacturer for a warrantable installation of the installed products to meet the Performance and Design Criteria.
- B. Store in temperature ranges of 25 - 90 degrees F.

1.6 WARRANTY

- A. Installation Warranty: Contractor shall correct defective Work within a 2 year period after Date of Substantial Completion.
- B. Manufacturer Warranty: Provide 5 year warranty for tactile warning surfacing for failing to maintain more than 95% of their surface installation/adhesion, color retention or non skid characteristics.
 - 1. Exception: Where such failures are the result of vehicular traffic, shopping cart trucks or tractors, blade or rotary snow removal or other mechanically abrasive devices.
 - 2. Exception: Where surface coloring agents or sealers have been applied to concrete substrate.

PART 2 - PRODUCTS

2.1 DESCRIPTION

- A. Tactile warning surfacing and non skid coatings for pedestrian traffic.

2.2 PERFORMANCE AND DESIGN CRITERIA

- A. ATBCB PROWAG - Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way; 2011.
- B. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines.

- C. 49 CFR 27, 37, and 38 - Standards for Accessible Transportation Facilities, Final Rule; Department of Transportation; current edition.
- D. ADAAG requirements (Title 49, Part 37.9 Standards for Accessible Transportation Facilities, Appendix A, Section 4.29.2 – Detectable warnings on walking surfaces)
- E. 2022 California Building Code, 11B-705

2.3 MANUFACTURERS

- A. Specification is based on products listed by Vanguard ADA Systems: www.VanguardOnline.com.

2.4 DETECTABLE WARNING

A. Truncated Domes:

1. Basis of Design Product: Detectable Warning (Truncated Dome) by Vanguard ADA Systems. Comparable and substituted products will be judged based on the following performance criteria, features, warranty, and qualifications.
2. Performance Criteria:
 - a. Substrate Requirements:
 - 1) Portland Cement:
 - a) Strength: 3,000 PSI minimum.
 - b) Finish: medium broom finish or coarser profile.
 - c) Cure: 20 day minimum.
 - 2) Asphalt:
 - a) Compaction: 95% minimum.
 - b) Finish: Rolled, compacted, smooth.
 - c) Cure: 20 day minimum.
 - b. Skid Resistance: 0.80 minimum in accordance with ASTM F1679.
 - c. UV Resistance: 99% minimum Fade Resistance and Color Retention in accordance with ASTM G155.
 - d. Chemical Resistance: Tested for 7 days.
 - 1) Road Salts: no effect.
 - 2) Anti-freeze: no effect.
 - 3) Diesel fuel: no effect.
 - 4) Gasoline: no effect.

- 5) Transmission fluid: no effect.
- 6) Motor oil: no effect.
- e. VOC: 25 g/l maximum. Tested in accordance with ASTM D2205.
- f. Water Absorption: Maximum 0.5%. Tested in accordance with ASTM D570.
- g. Smoke Development: Pass. Tested in accordance with EN ISO 9239-1.
- h. Flame Spread: Less than 150 mm. Tested in accordance with EN ISO 11925-2.
- i. Shore Hardness: Shore Durometer, A-1, 80 minimum after 24 hours. Tested in accordance with ASTM D2240.
- j. Tracking: None. Tested for 32 minutes maximum in accordance with ASTM D711.
- k. Viscosity: 6000-12000 cps ASTM D2196 - Brookfield #7 spindle @20 rpm, 77 degF
- l. Color: Yellow and approximate 33538 of SAE AMS-STD-595A
- m. Seamless installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify surface is free of surface applied sealers, coloring agents, or other materials detrimental to surface bond.
- B. Verify existing conditions meet manufacturer's requirements before starting work.
- C. Verify surface temperature is between 35 degrees F and 88 degrees F.

3.2 PREPARATION

- A. Prepare surfaces to receive work in accordance with manufacturer's instructions.
- B. Grind to remove surface applied sealers, coloring agents, or other surface applied materials and provide required surface profile.
- C. Broom or air sweep clean surfaces free of debris, vegetation and material impacting adhesion.
- D. Provide completely dry surface.

3.3 INSTALLATION

- A. General: Install all materials in accordance with manufacturer's instructions based on conditions present.
- B. Truncated Domes:
 - 1. Mask work area.
 - 2. Reducer:
 - a. Mix and catalyze Reducer component in accordance with installation instructions.
 - b. Install Reducer component. Cross roll at 90 degrees to ensure appropriate coverage and penetration.
 - c. Wait minimum 30 minutes for Reducer component to cure.
 - 3. Base/Non skid:
 - a. Mix and catalyze base component in approved color(s) in accordance with installation instructions.
 - b. Fill all surface deformities with manufacture's recommended materials.
 - c. Install Base component and cross roll at 90 degrees to ensure adequate coverage and penetration.
 - d. Remove masking immediately upon completion.
 - e. Wait minimum 45 minutes for base component to cure.
 - 4. Domes:
 - a. Layout dome forms in accordance with contract documents and dimensional allowances.
 - b. Mix and catalyze base component in approved color(s) in accordance with installation instructions.
 - c. Pour catalyzed base component onto mats in coverage rates indicated by manufacturer.
 - d. Squeegee material to ensure adequate coverage and penetration of all apertures.
 - e. Remove excess material
 - f. Remove forms immediately in accordance with manufacturer's instructions.
 - g. Wait minimum 60 minutes for final component to cure.
 - h. When material is tack free, surface is ready for pedestrian traffic.

3.4 CLEANING

- A. Clean as needed with very light pressure wash without the use of soaps, abrasives or rotary tip.

3.5 PROTECTION

- A. Protect installed work areas required by the manufacturer until work is complete to maintain product performance, design criteria and warranty.

3.6 SCHEDULE

A. Curb Cuts.

1. Features:

- a. Product: Truncated Domes.
- b. Color: yellow
- c. Detail: as indicated on sheet A501, Detail 3

2. Locations:

- a. As indicated on drawings.

END OF SECTION

SECTION 323113
CHAIN LINK FENCES, GATES, AND BACKSTOPS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Included in This Section: Provisions of constructing chain link fence at locations shown on the Plans, including but not limited to:
 - 1. Softball backstop.
 - 2. 6' high chain link fence with concrete mowstrip.
 - 3. Double drive gates and walk gates with concrete mowstrip at locations shown on plans.
- B. Related Sections
 - 1. Section 033000 - Cast-in-Place Concrete.
 - 2. Section 312300 - Earthwork, Excavation, Filling and Grading.

1.02 QUALITY ASSURANCE

- A. Qualifications of Installer
 - 1. Throughout the progress of installation of the work of this Section, provide at least one person who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills, and who shall be present at the site and shall direct all work performed under this Section.
 - 2. In actual installation of the work of this Section, use adequate numbers of skilled workmen to insure installation in strict accordance with the contract documents.
 - 3. In acceptance or rejection of work performed under this Section, the Architect will make no allowance for lack of skill on the part of the workmen.

1.03 PRODUCT HANDLING

- A. Protection
 - 1. Use all means necessary to protect the materials of this Section before, during and after installation, and to protect the work of other trades.
- B. Replacements
 - 1. In the event of damage, immediately make all repairs and replacements necessary to the satisfaction of the Architect and at no additional cost to the Owner.

PART 2 - MATERIALS

- 2.01 The materials and fabrication of chain link fabric shall conform to these Specifications, and as shown on the plans and details.
- 2.02 All ferrous materials shall be new and galvanized. Imperfectly galvanized material or material upon which serious abrasions of the galvanizing occur shall not be used.
- 2.03 Height - All fencing and backstops shall stand at the heights shown on the plans.
- 2.04 Fabric - Chain link fabric shall conform to the specifications of ASTM, Designation: A392, Class 1. The wire used in the manufacture of the fabric shall be 9-gauge. All chain link fabric shall be woven into approximately 2 inch mesh. Fabric shall be furnished with knuckling at all selvages. The knuckled selva shall be used along all corners and edges. Fabric shall be GBW, galvanized before weaving.

- 2.05 Posts, braces and gate frames - The base material for the manufacture of steel pipe used for posts and braces shall conform to the specifications of ASTM, Designation: A53, standard weight, Schedule 40, and the base material for the manufacture of other steel sections used for posts and braces shall be good commercial quality weldable steel.
- 2.06 All posts, braces and gate frames shall conform to the size and weight designations shown on the plans.
- 2.07 All posts shall be fitted with rainproof caps designed so as to fit securely over the top of the posts.
- 2.08 All posts shall be of a total length of not less than the depth of the concrete footing as shown on the plans, plus the length required above ground.
- 2.09 Posts and braces shall be galvanized in accordance with specifications of ASTM, Designation: A123.
- 2.10 All horizontal braces shall be attached to posts by approved steel fixtures.
- 2.11 All welding shall conform to the requirements of the Uniform Building Code, UBC, Chapter 22.
- 2.12 Where the galvanized surface has been burned by welding, all surfaces of the welded connections shall be thoroughly cleaned by wire brushing and all traces of the welding flux and loose or cracked galvanizing removed. The damaged area and weld shall then be painted in accordance with the following details.
- 2.13 All galvanized, welded, or damaged surfaces that are to be painted shall first be cleaned by washing with mineral spirit solvent sufficient to remove any oil, grease or other materials foreign to the galvanized coating.
- 2.14 After washing, all areas shall be roughened by abrasive blasting using an abrasive that is no larger than 30 mesh. Galvanizing shall not be removed by this operation.
- 2.15 After preparation, all galvanized surfaces that are to be painted shall be covered with one application of Zinc Dust-Zinc Oxide Primer, Federal Specification TT-P-641, Type II. The Zinc Dust-Zinc Oxide paint shall be applied by spraying to produce a complete covering of the galvanized surface.
- 2.16 After the application of the Zinc Dust-Zinc Oxide paint, one application of Pre-Treatment, Vinyl Wash Primer, Section 91-2.07 of the State Standard Specifications, shall be applied to such surfaces. The Vinyl Wash Primer shall be applied by spraying to produce a uniform wet film on the surface.
- 2.17 Such surfaces shall then be covered with two separate applications of White Tint Base Vinyl Finish Coat, Section 91-2.22 of the State Standard Specifications, sufficient to completely cover the preceding color. Paint for the first application shall be tinted with a compatible coloring agent to slightly contrast with the color of the second application. After drying for 24 hours, one application of Aluminum Paint, Finish Coat, Section 91-2.08 of the State Standard Specifications, shall be painted on the welded areas.
- 2.18 Stretcher bars and other required fittings and hardware shall be steel and shall be galvanized in accordance with the specifications of ASTM, Designation: A153.
- 2.19 All swinging gates and walk gates to be installed with a gate holdback in the concrete mowstrip, unless otherwise noted.

- 2.20 Concrete mowstrip shall be in accordance with Section 033000.
- 2.21 Backstop shall be as shown on the detail drawing.
- 2.22 Drive gate and walk gate shall be constructed as per detailed drawings.

PART 3 - EXECUTION

- 3.01 All posts shall be set in concrete footings as shown on the plans to within 3 inches of bottom.
- 3.02 All vertical line and end posts shall be braced to the nearest adjacent vertical post with galvanized horizontal braces as shown on the plans.
- 3.03 Perimeter fencing chain link fabric shall be fastened to the outside of the fence.
- 3.04 All fabric shall be stretched and securely fastened to the posts, as follows:

The fabric shall be fastened to end, corner and gate posts with 3/16 inch by 5/8 inch stretcher bars and not less than 1/8 inch by 3/4 inch stretcher bar bands spaced at one foot intervals for whatever widths of fabric are supplied. The fabric shall be fastened to line posts with tie wires or post clips. Tie wires shall be at least 9-gauge (0.148" diameter) steel. Post clips shall be at least 6-gauge (0.192" diameter) steel. The wire or clip fasteners shall be spaced at approximately 14 inches on line posts, with a minimum of 5 fasteners per 6 foot high post. Top and bottom edges of the fabric shall be secured to each horizontal brace with tie wires or fastened to tension wire with hog rings spaced at 15 inch maximum intervals. Hog rings shall be at least 9-gauge (0.148 inch diameter) steel. Wire ties shall be given at least one complete turn. Hog rings shall be closed with ends overlapping. The distance from the selvage to the braces or top rails shall be 2 inch maximum and shall be fastened to the brace or rail by wire fasteners spaced at approximately 14 inches with a minimum of 8 fasteners per each 10 foot horizontal span.

- 3.05 Construct concrete mowstrip at the width as shown on the plans. Construct double drive gate and walk gate per detailed drawing with accessories.
- 3.06 Construct backstop per detail drawing.

END OF SECTION 323113

SECTION 32 86 50 - PARKING LOT FURNITURE

PART 1:GENERAL

1-01 SECTION INCLUDES:

- A. Furnishing and installing traffic control signs and sign posts.
- B. Furnishing and installing new concrete wheelstops.

1-02 RELATED SECTIONS:

- A. Section 311100 – Clearing and Demolition.
- B. Section 321123 – Asphalt Concrete Paving.
- C. Section 033000 – Sitework Concrete
- D. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division -01 Specifications sections, apply to the work of this section.

1-03 REFERENCES:

- A. SSCDOT – Standard Specifications, California Department of Transportation (Caltrans), latest edition, except for references to methods of payment and to furnishing of materials by State.
- B. MUTCD -- Manual on Uniform Traffic Control Devices, latest edition, Federal Highway Administration.

1-04 SUBMITTALS:

- A. Submit under provisions of Section 013300 - Submittals.

1-05 COORDINATION:

- A. Coordinate the work with other site work.

PART 2:PRODUCTS

2-01 MATERIALS:

- A. Signs: Shall meet MUTCD and as indicated on the construction plans.
- B. Sign Posts: 2 inch diameter schedule 40 galvanized steel pipe.
- C. Concrete Sign Post Footing: Section 033000 – Sitework Concrete.
- D. Concrete Wheelstops: Precast concrete to the dimensions shown on the construction plans.

PART 3:EXECUTION

3-01 EXAMINATION:

- A. Verify that site is ready for application.

3-02 PREPARATION:

- A. Identify installation locations as shown on plans.
- B. Locate, identify and protect existing below grade utilities from damage.
- C. Employ equipment and methods appropriate to the work site.

3-03 INSTALLATION:

- A. Install parking lot furniture as indicated on the construction plans and in accordance with the manufacturer's recommendations.
- B. Install sign posts straight and plumb in concrete footings to the dimensions shown on the construction plans.
- C. Secure signs to posts with vandal resistant galvanized hardware furnished by the Contractor.
- D. Orient the direction of the signs as indicated on the construction plans and as directed by the Project Inspector.
- E. Where indicated on the construction plans, relocate signs and concrete wheelstops as follow:
 - 1. Remove existing signs and concrete wheelstops.
 - 2. Store salvaged materials for reinstallation.
 - 3. Reinstall salvaged signs and concrete wheelstops as indicated on the construction plans.
 - 4. Furnish and install new signs and concrete wheelstops to replace existing signs and concrete wheelstops that are damaged and is unsuitable for reinstallation. Unsalvageable materials to be determined by the Engineer. Contractor to dispose of unsalvageable materials.

3-04 FIELD QUALITY CONTROL:

- A. Field inspection will be performed by the inspector.

END OF SECTION

SECTION 334000 -- STORM DRAINAGE SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDED

- A. Furnishing and installing storm drainage facilities, including pipe, cleanout, manhole structures, inlet structures and pump station.

1.2 RELATED SECTIONS

- A. Division 00 – Contract General Conditions.
- B. Section 311400 “Soil Materials”
- C. Section 312300 “Trench Excavation and Backfill”
- D. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specifications sections, apply to the work of this section.

1.3 REFERENCES

- A. ANSI/ASTM C76 – Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
- B. ANSI/ASTM C443 – Joints for Circular Concrete Sewer and Culvert Pipe, using rubber gaskets.
- C. ANSI/ASTM C478 – Precast Reinforced Concrete Manhole Sections.
- D. California Test Method No. 216 (Dry Method).

1.4 SUBMITTALS

- A. Submit under provisions of Division 00 – Contract General Conditions.
- B. Certificates of compliance for material.
- C. Product Data: Provide data indicating pipe, accessories, and associated equipment to be furnished.
- D. Manufacturer’s Installation Instructions: Indicate special procedures required to install products supplied.

1.5 COORDINATION

- A. Coordinate work with Owner personnel.

- B. Verify that the location of existing utilities have been indicated at work site by utility authorities and Owner personnel.

1.6 EXISTING UTILITIES

- A. The Engineer has indicated on the plans the location of all known existing utility facilities within the work area. The location of said facilities shall be considered approximate only, until exposed by the Contractor.
- B. Service laterals have been shown where information was available. The location of said facilities shall be considered approximate only, until exposed by the Contractor.
- C. Contractor shall verify all utilities within the work area, including using hand method. Contractor shall protect all existing utilities not designated to be removed.
- D. Maintain all existing utility mains and service lines in constant service during construction of the work.

1.7 PROJECT RECORD DOCUMENTS

- A. Submit under provisions of Section 013300 "Submittal Procedures".
- B. Accurately record actual locations of utilities encountered.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Reinforced Concrete Pipe for pipe larger than 12": ANSI/ASTM C76, Class 4, with rubber gasket joints per ANSI/ASTM C443.
- B. Storm drainage pipelines shall be polyvinyl chloride (PVC) pipe for storm sewer conforming to ASTM designation 3034, SDR 35 for pipe 12" or less.
- D. Cast in Place Concrete: Per Section 033000.
- E. Reinforcement: Per Section 032000 (if applicable).
- F. Mortar: Composed of one part, by weight, Portland cement (Type II low alkali per ASTM C150), 2 parts, by weight, sand, and water.
- G. Storm drain inlets shall be per detailed drawings.
- H. Soil Fill for Concrete Pipe Bedding Envelope: Type B or C per Section 311400 "Soil Material".
- I. Cleanout shall be constructed as per detail drawing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify site conditions. Locate, identify, and protect existing above and below grade utilities from damage.

3.2 PREPARATION

- A. Protect all improvements not authorized for removal.
- B. Employ equipment and methods appropriate to the work site.
- C. Identify location of proposed storm drainage facilities to be constructed. Expose connection points to existing system.
- D. Protect excavated areas from drainage inflow, and provide drainage to all excavated areas. Dewater as necessary.
- E. Comply with safety requirements as they pertain to excavations, per Section 312300/3.1C.

3.3 EXCAVATION

- A. Excavate soil required to locate existing utilities and install the work, use hand method as necessary in congested area.
- B. Employ equipment and methods appropriate to the work site.
- C. Cut trenches just wide enough to enable installation and proper backfill and do not interfere with 45 degree bearing splay of foundations. When excavating through tree roots, cut roots by hand.
- D. Excavate trenches to provide the minimum cover required.
- E. Excavate trenches, pits, or holes bottoming in hardpan to a minimum of 6 inches below the grade for the bottom of the pipe and any couplings.
- F. In all trenches or excavation sites where a firm foundation is not encountered, such as soft, spongy, or otherwise unsuitable material, remove the material to a minimum of 12 inches, or to a depth determined by the Engineer, below the bottom of the proposed pipe or structure.
- G. Stockpile excavated material to be returned to trench adjacent thereto in location, which will not be detrimental to existing improvements, or pedestrian or vehicular traffic. Remove unsuitable or excess materials not being used, from site.

3.4 INSTALLATION AND BEDDING OF STORM DRAIN PIPE

- A. Install the pipe and fittings to the lines and grades shown on the construction plans.
- B. Install pipe and fittings in accordance with the manufacturer's recommendations.
- C. Lay all pipe with bell end of pipe upgrade from structure to structure.
- D. Excavate suitable bell holes in the bedding material, so that the bells do not bear on the subgrade or bedding.
- E. Ensure that all joints are watertight.
- F. Bed concrete pipe in Type B or C soil envelope, and compact to a minimum of 85 percent relative compaction. Place and compact the bedding material under, around and over the pipe, filling the trench cavity and extending from the bottom of the trench (4 inches below the outside bottom of the pipe barrel) to a level 12 inches above the outside top of the pipe barrel.

3.5 INSTALLATION OF STORM DRAINAGE STRUCTURES AND APPURTENANCES

- A. Install storm drainage structures as indicated on the construction plans, in accordance with the manufacturer's recommendations, and as specified herein.
- B. Construct cast-in-place concrete per Section 033000.
- C. Key top of poured-in-place concrete bases for structures to receive the tongue of precast riser sections.
- D. Joint precast manhole and structure riser sections with a minimum thickness of ½ inch of mortar per Section 334000/2.1F to make a watertight joint. Neatly point the inside and outside of the joint. Set sections plumb.
- E. Construct cleanout per detail drawing.

3.6 BACKFILLING TO FINISH GRADE AND FINISH GRADING

- A. Backfill from bottom of the trench to pipe grade with Type B and C soil.
- B. After installation of pipes and appurtenances and backfill of pipe bedding material.
- C. Backfill trenches above pipe bedding material and to within 6 inches of finish subgrade with Type A, B, & C soils. Compact all soil backfill not exceeding 8 inches in uncompacted thickness. Maintain optimum moisture content of fill materials.

- D. Backfill final 6 inch thickness to finish subgrade in areas to receive concrete, asphalt-concrete, aggregate base, or other non-vegetative surface improvement, with Type B or C soils.
- E. Backfill final 6 inch thickness to finish subgrade in areas to receive sod, other vegetation, or bare soil with Type A soil.
- F. Obtain 85 percent relative compaction of backfill from bottom of backfill to a level of 2 feet below finish subgrade, and obtain minimum of 95 percent relative compaction of backfill in top 2 feet below finish subgrade, in areas to receive concrete, asphalt-concrete, aggregate base, or other non-vegetative surface improvement.
- G. Obtain minimum of 85 percent relative compaction of backfill in areas to receive sod, other vegetation, or bare soil.

3.7 TOLERANCES

- A. Pipe laying tolerances:
 - 1. Above grade: Not to exceed 1/4 inch above planned grade.
 - 2. Below grade: Not to exceed 1/2 inch below planned grade.
 - 3. Alignment: Not to exceed 2 inches from planned alignment, if gradual and regular over a distance of 20 feet.
- B. Structure finish grade tolerance: Within 1/4 inch of planned grade, but must match adjacent improvements.

3.8 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed as per Section 014000 "Quality Requirements".
- B. Compaction testing of bedding and backfill will be performed in accordance with ASTM D 1557.
- C. If tests indicate work does not meet specified requirements, re-compact, or remove and replace, and retest.

END OF SECTION 334000