BID DOCUMENTS COVER SHEET

CONTRACT DOCUMENTS

FOR

D-4009 Replacement of Main Electrical Switchgear

AT

Diablo Valley College

321 Golf Club Road
Pleasant Hill, CA 94523

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

Consist of the following:

Specifications:
Division 0 thru 33

DSA File # 7-C1, DSA Application # 01-117152
YEI Engineers, Inc.
7700 Edgewater Drive, Suite 128
Oakland, CA 94621

January 2018
# SECTION 00010
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SECTION 00015
PROJECT DIRECTORY

ENGINEER OF RECORD: YEI Engineers, Inc.
Doug Yung, P.E.
7700 Edgewater Drive, Suite 128
Oakland, CA 94621
(510) 957-1603
dyung@yeiengineers.com

CIVIL ENGINEER: Baseline Designs, Inc.
Vincent Wu, P.E.
1700 Oak Street
Alameda, CA 94501
(510) 865-4623
vince@baselinealameda.com

STRUCTURAL ENGINEER: Baseline Designs, Inc.
Min Lung Kuo, S.E.
1700 Oak Street
Alameda, CA 94501
(510) 865-4623
min@baselinealameda.com

GEOTECHNICAL ENGINEER: RMA Group, Inc.
Josh Summers, P.E.
3150 Fitzgerald Road
Rancho Cordova, CA 95742
(916) 631-7194
jsummers@rmacompanies.com

OWNER: Contra Costa Community College District
500 Court Street
Martinez, CA 94553
(925) 229-1000

FACILITIES PLANNING: Project Manager / Construction Manager
Critical Solutions, Inc.
1801 Oakland Boulevard, Suite 300
Walnut Creek, CA 94596
(925) 944-5060

Ray Pyle, Chief Facilities Planner
(925) 229-1000, Ext. 1270

Ben Azarnoush, District Design Director
(925) 229-1000, Ext. 1280

DVC – BUILDINGS & GROUNDS: James Buchanan, Director of Maintenance and Operations
(925) 969-4275

END OF SECTION 00015
NOTICE IS HEREBY GIVEN that the Governing Board of the Contra Costa Community College District (District), Martinez, California, will receive sealed bid proposals for the furnishing of all labor, materials, equipment, transportation and services for the construction of the project entitled D-4009 Replacement of Main Electrical Switchgear.

Construction Cost Estimate (Range): $1,500,000.00 to $2,000,000.00;
License Required: B-General Building Contractor

In general, the Work consists of the following:

Replace the existing indoor 5kV metal-clad switchgear metal-with new standard outdoor (non-walk-in) metal clad switchgear located in an outdoor equipment pad adjacent to the Engineering Technology building. Related electrical work includes, but not limited to, new outdoor pad mounted oil filled transformer, underground electrical ductbanks, manholes with sump pumps, cables, splices, terminations, grounding system, testing and related miscellaneous incidentals. Also, disconnect and removal of cables and related materials in existing manholes. Civil site work includes, but not limited to, excavation, concrete equipment pad, equipment anchoring, trenching, storm drain line, pavement repair and landscape restoration. Furnish, install and test required equipment, materials and incidentals for a fully operating and functioning electrical distribution system.

The District does not provide hardcopies of bid documents or reimburse cost of printing, delivery, or any expenses related to the bidding process.

For information directly from the District, you may also log in to the District Website: http://www.4cd.edu/webapps/PurchasingViewBids/default.aspx. Project documents available include but are not limited to plans, specifications, addenda, bidders lists, bid results, etc., and can be viewed on this District webpage.

All questions related to this project must be in writing and are directed to:
Jovan Esprit – Contracts Manager
Contra Costa Community College District
500 Court St., Martinez, CA 94553
Email: jesprit@4cd.edu;

Each bid shall be made on the bid form, which is included in the Bid Documents and when submitted, shall be accompanied by a Bid Bond or Certified Cashier’s Check in the amount of 10% of bid (made payable to the Contra Costa Community College District). The District reserves the right to forfeit Bid Bond submitted for failure of the successful bidder to secure Payment & Performance Bonds.
Important Information:
Pre-Bid Meeting and Job Walk, Date / Time: March 5, 2018 (Tuesday) at 2:00 PM (MANDATORY)
Pre-Bid Meeting and Job Walk, Location: Construction Mgt. Trailer – Engineering Technology Bldg.
Diablo Valley College
321 Golf Club Road
Pleasant Hill, CA 94523

Last Date / Time for Bidder Questions:
March 19, 2018 (Monday) prior to 5:00 PM

Last Day to Issue Addendum:
March 26, 2018 (Monday)

Bids Due No Later Than, Date / Time:
Contra Costa Community College District (Lobby)
500 Court St, Martinez, CA 94553
April 2, 2018 (Monday) prior to 2:00 PM

Attn: Jovan Esprit – Contracts Manager (CCCCCD)

This project is a public works project and is subject to prevailing wage rate laws. A copy of the prevailing rates of wages is on file with the Contracts & Purchasing Office of the Contra Costa Community College District. Said rates of wages shall be included in the contract for the work by this reference. Attention is directed to Labor Code Section 1725.5 regarding Department of Industrial Relations (DIR) contractor registration process including registration criteria and implementation of DIR registration requirements. Labor Code Section 1771.7 establishes contractor’s obligation to submit Certified Pay Roll (CPR) to the Department of Labor and Standards Enforcement (DLSE) and public works monitoring and enforcement. Labor Code Section 1773.3 requires the District to submit a PWC-100 to DIR for all public works contract awarded effective January 1, 2015.

Attention is directed to Section 4100 through 4113 of the Public Contract Code concerning subcontractors.

Attention is directed to Agreement Form, Article 5, and GENERAL CONDITIONS, Article 8, paragraphs 8.4.1 and 8.4.2, regarding liquidated damages. Liquidated Damages shall be set for One Thousand Dollars ($1,000.00) for each calendar day the work is delayed beyond Substantial Completion and Five Hundred Dollars ($500.00) for each calendar day beyond Final Completion. The Governing Board of the Contra Costa Community College District reserves the right to reject any and all bids and/or waive any informality or irregularity in any bid received. No bidder may withdraw their Bid for a period of ninety (90) days after the date set for opening thereof.

END OF SECTION 00100
SECTION 00200
INSTRUCTIONS TO BIDDERS

1.1 ISSUING OF DOCUMENTS
A. Bidding Documents may be examined at the Contra Costa Community College District, 500 Court Street, Martinez, CA 94553. By Appointment: Georgette Stewart, Facilities Department, phone: (925) 229-6847.

1.2 QUALIFICATIONS OF BIDDERS
A. Bidders may be required to furnish evidence satisfactory to the District and the Architect that he has sufficient means and has had sufficient experience in the class of work called for to enable him to complete the Contract in a satisfactory manner.
B. Bidders shall be Contractors properly licensed in accordance with the laws of the State of California.
C. The successful Bidder shall furnish satisfactory Certificates of Insurance coverage as specified in the Contract Documents.

1.3 RECEIPT AND OPENING OF BIDS
A. Contra Costa Community College District hereinafter referred to as the District, will receive Bids at the same time and place specified in the Notice inviting Bids.
B. Complete the Bid Form included in the Project Manual.
C. The envelopes containing the Bids shall be sealed, addressed to the District, and designated as “D-4009 Replacement of Main Electrical Switchgear- Contra Costa Community College District”. The envelope shall contain the name and address of the Bidder.
D. Bids that are mailed shall have the previously described envelope placed inside an envelope addressed to: CONTRA COSTA COMMUNITY COLLEGE DISTRICT, 500 Court Street, Martinez, CA 94553 ATTENTION: JOVAN ESPRIT, Contracts Manager. Bids should be mailed in time to be received prior to the time set forth in the Advertisement for Bids.
E. Bids which are conditional (or which make alterations, omissions, or reservations to the terms of the Bidding Documents) may be rejected as non-responsive.
F. All monetary figures are required, both in writing and in numerals. In event of conflict between written quotations and numerical quotations, written quotations shall govern.
G. Type or print all bid data legibly in ink except signatures which shall be in script. Mistakes may be crossed out and corrections inserted, if each is initialed in ink by signer of Bid.
H. Bidder’s business address and signature shall be on the Bid. A Bid by a partnership shall furnish the full names of partners and be signed in the partnership name by one member of the partnership, or by authorized representative, followed by the signature and designation of the person signing. Bids by corporations, with corporate seal affixed, shall be signed with the legal name of the corporation followed by the name of the state of incorporation and by the signature and designation of the person authorized to bind it to the matter. The name of
each person signing shall also be typed or printed below the respective signatures. When required by the District, satisfactory evidence of authority of the office signing in behalf of the corporation shall be furnished.

I. No Bids will be received after the date and time set forth in the Notice Inviting Bids.

1.4 BID SECURITY
   A. Submit with the Bid a Bid Security in the amount of 10 percent (10%) of the Bid.
   B. The District reserves the right to forfeit the Bid Bond submitted for failure of the successful bidder to secure Payment & Performance Bonds.

1.5 SURETY BONDS
   A. The successful Bidder shall furnish a Labor and Material Payment Bond in the amount equal to one hundred percent (100%) of the Contract Price and a faithful Performance Bond in the amount equal to 100 percent (100%) of the Contract Price as security for the successful performance of the work and payment of persons performing labor and furnishing materials. The Bonds shall be executed by a surety company or companies acceptable to the District and authorized to execute such in the State in which the Project is located and shall be furnished within 10 days after Notice of Acceptance of said Bid. Surety shall be made in favor of the District and shall cover the guarantee periods as well as the construction period.

1.6 WITHDRAWAL OR REVISIONS OF BID
   A. This Bid may be withdrawn or revised prior to the scheduled time for receipt. Bids not withdrawn prior to the scheduled time for receipt may not be withdrawn for a period of 90 days.

1.7 BID PROTESTS
   A. Inquiries or questions based on alleged patent ambiguity of the plans, specifications or estimate must be communicated as a bidder inquiry prior to bid opening. Any such inquiries or questions, submitted after bid opening, will not be treated as a bid protest.
   B. Bidder may file a protest with the District against the Bid of other Bidder or Bidders ("Bid Protest") subject to the provisions of this Article. The procedures and time limits set forth in this Article are mandatory and are a Bidder’s sole and exclusive remedy in protesting other Bidders’ bids. Failure to comply with these procedures shall constitute a waiver of any right to pursue a Bid Protest, or to contest the District’s award of the contract for the work that is the subject of the Bid, in any legal proceeding before any authority with jurisdiction.
   C. Bid Protests and Responses shall be governed by the following time limitations:
      1. Bidder must deliver any Bid Protest to the District in writing before 2:00PM five (5) working days after the date of bid opening. The District will reject any Bid Protest not received by the District by this deadline. Bidder must concurrently deliver a copy of its Bid Protest to all Bidders against whose Bids the Bid Protest is directed. The Bidder must include with its Bid Protest written proof to the District’s satisfaction that Bidder has
delivered a copy of its Bid Protest to the other Bidder whose bid is the subject of the Bid Protest.

2. A Bidder whose Bid is the subject of a Bid Protest must deliver its written response, if any, ("Response") to the District, before 2:00PM ten (10) working days after the date of bid opening. The District will reject any Response not received by the District by this deadline.

D. Delivery of Bid Protest or Response:
1. Bidder may deliver a Bid Protest to the District by personal delivery or electronic transmission such as by facsimile. Bidder is solely responsible for ensuring that the District receives any Bid Protest or Response by the deadlines set forth herein.
2. The District will not consider Bid Protests or Responses by telephone conversation or any other non-written communication.
3. Bidder shall submit any Bid Protest or Response to:

   David Wetmore  
   Director of Purchasing & Contracts  
   Contra Costa Community College District  
   500 Court Street, Martinez, CA 94553  
   dwetmore@4cd.edu

E. Content of Bid Protest:
1. A Bid Protest must state the basis for the protest and provide supporting evidence.
2. A Bid Protest must refer to the specific portion of the Bid that forms the basis of the protest.
3. A Bid Protest must include the name, address, and telephone number of the person representing the protesting Bidder.
4. A Bid Protest must be clearly identified as a Bid Protest.

1.8 AWARD AND REJECTION OF BIDS
A. In awarding or rejecting Bids, the District reserves the following rights:
1. Identification of successful Bidder will not be determined at time of opening Bids.
2. To obtain opinion of counsel on legality and sufficiency of bids.
3. To reject all Bids, to re-bid, or waive irregularities or informalities in a Bid, and to accept or reject alternates.
4. Request proof that the successful Bidder can provide performance and payment bonds as required.
1.9 EXAMINE DOCUMENTS AND VISIT SITE

A. Before submitting a Bid, the Bidder shall examine the Bidding Documents, visit the site of the work, attend the required site visit arranged by the District and obtain Certification of Attendance signed by the District, ascertain existing conditions and limitations, including those of labor, and include in the Bid a sum to cover the cost of all items described in the Contract Documents.

B. No consideration will be granted for alleged misunderstanding of the materials to be furnished or work to be done. The tender of a Bid carries with it the agreement to terms and conditions referred to in the Contract Documents.

1.10 DISCREPANCIES, AMBIGUITIES, OR CONFLICTS

A. If the Bidder is in doubt as to the true meaning of any part of the Contract Documents; finds discrepancies, errors or omissions therein; or finds variances in any of the Contract Documents with applicable rules, regulations, ordinances and/or laws, a written request for an interpretation or correction thereof must be submitted to the District’s Contract Manager. Bidders are solely responsible for submitting to District’s Contract Manager such request. Ambiguities or inconsistencies arising as a result of separation of sections or portions of the drawings or specifications by or for subcontractor bidding shall not relieve the Contractor for providing the complete Work without increase to or adjustment in the Contract Price or the Time for performance. Interpretations or corrections of the Contract Documents will be by written addendum issued by the Architect. No person is authorized to render an oral interpretation or correction of any portion of the Contract Documents to any Bidder, and no Bidder is authorized to rely on any such oral interpretation or correction. Failure to request interpretation or clarification of any portion of the Contract Documents pursuant to the foregoing is a waiver of any discrepancy, defect or conflict therein.

1.11 ADDENDA

A. Cost for work included in any Addenda issued during the time of bidding shall be included in the Bid, and will become a part of the Contract. List Addenda received as indicated on the Bid Form.

1.12 FORM OF AGREEMENT

A. The form of agreement to be used for the Contract is provided by the District and is included in the Project Manual.

1.13 AWARD OF CONTRACT

A. The District will be allowed a period of ninety (90) days after Bid Opening Date for evaluating the Bids.

B. Bidders of record will be notified of the results of the District’s evaluation of bids and Award of Contract, if any.

C. The contractor shall begin work within ten (10) calendar days of receipt of Notice to Proceed.
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SECTION 00210
INFORMATION AVAILABLE TO BIDDERS

PART 1 - REPORT AND INFORMATION

1.1 Existence of reports, record drawings, and utility surveys: Contra Costa Community College District, its consultants, and prior contractors may have collected documents providing a general description of the site and conditions of the work. These documents may consist of geotechnical reports for and around the site, record drawings, utility drawings, and information regarding underground utilities. These reports, documents and other information are not part of the Contract Documents and do not show new work to be constructed, rather, they show existing conditions that Contractor may have to address as part of its construction planning.

1.2 Available Documentation: The following existing documentation is available for review through District office for this project:

A. As-Built Drawings as available
B. Campus Utilities Maps
C. Topographic Survey prepared by LCC Engineering & Surveying, Inc. dated November 22, 2016

1.3 Contractor shall acknowledge and accept that the documents are not a part of the Contract Documents and are made available to bidders for reference only. The District and its representatives are not responsible for any and all discrepancies between the documents and the existing and actual as-built conditions, and do not guarantee the accuracy of the documents.

1.4 The District and Architect assume no responsibility for the completeness or accuracy of the documents or the records compiled there from and the interpretations made from the documents. There is no express or implied guarantee that the conditions indicated in the documents are representative of those existing throughout the building and/or site. Conditions differing substantially from those indicated may be encountered.

END OF SECTION 00210
SECTION 00300
BID PROPOSAL FORM

PROJECT NUMBER / NAME: D-4009 Replacement of Main Electrical Switchgear

CAMPUS / LOCATION: Diablo Valley College, 321 Golf Club Road, CA 94523

DISTRICT: CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court St, Martinez, CA 94553

Herein Referred to as "District"

1. INTRODUCTION

A. The Bidder proposes to perform the Work for the Contract Sum and within the proposed Contract Time, based upon an examination of the site and the Bid and Contract Documents.

B. The Bidder certifies this Bid is submitted in good faith.

C. The Bidder agrees that the Contract Sum and other proposed terms will be considered in evaluating Bids and may be negotiated and adjusted before awarding of Contract.

D. The signed copy of the Certification of the Visit to the Site shall be attached to the Bid Form Submittal.

E. A fully executed Statement of Bidder’s Qualifications signed by an authorized officer of the Bidder submitting the Bid shall be attached to the Bid Form.

F. A fully executed Non-Collusion Affidavit signed by an authorized officer of the Bidder submitting Bid shall be attached to the Bid Form.

G. The District shall award the contract to the lowest responsive and responsible Bidder. The evaluation of the low bid shall be based on the total of Item 2.A Base Bid.

H. The District reserves the right to award the other Additive/Deductive Alternates through change orders as budget allows within thirty (30) calendar days after the Award of Contract.

Attention is directed to Labor Code Section 1725.5 regarding Department of Industrial Relations (DIR) contractor registration process; registration criteria and implementation of DIR registration requirements. Labor Code Section 1771.7 establishes contractor’s obligation to submit Certified Payroll (CPR) to the Department of Labor and Standards Enforcement (DLSE) and public works monitoring and enforcement. Labor Code Section 1773.3 requires the District to submit a PWC-100 to DIR for all public works contract awarded effective January 1, 2015.

2. CONTRACT SUM
A. BASE BID (No Alternates included.)

For labor, materials, bonds, fixtures, equipment, tools, transportation, services, sales taxes and other costs necessary to complete the general construction in accordance with the Contract Documents, for a stipulated Contract Sum in the amount of:

_________________ Dollars ($____________)

3. ADDITIVE ALTERNATES

NOT APPLICABLE

4. COMPLETION TIME

A. For establishing the Date of Final Completion the contract time for the Base Bids and Alternates shall be 270 calendar days after date of the Notice To Proceed. This time may be subject to modification to facilitate the work as mutually agreed upon at a later date.

B. The Bidder certifies that the Bid is based on the Contract Time for completion as stated above and in the Contract Documents. Bidder further certifies that the Base Bid amount is sufficient to cover all labor, materials, central office and construction site overhead, profit, and all other costs related to the completion of the Project for the entire Project construction time for both the General Contractor and all Subcontractors, as stated above in paragraphs 2 and 3.

5. ADDENDA

A. The Bidder acknowledges receipt of the following Addenda, and certifies the Bid has provided for all modifications and considerations required therein.

None [ ]

Addendum No.: ________ dated ________________

Addendum No.: ________ dated ________________

Addendum No.: ________ dated ________________

Addendum No.: ________ dated ________________

Addendum No.: ________ dated ________________

B. List of Additional Addenda Attached: Yes [ ] No. [ ].

6. DESIGNATION OF SUBCONTRACTORS
A. The Bidder has set forth a complete list indicating the type of work, name, and business address of each Subcontractor who will perform work in excess of one-half of one percent of the Contract Sum.

B. Any portion of the work in excess of the specified amount having no designated Subcontractor shall be performed by the Bidder.

C. Substitution of listed Subcontractors will not be permitted unless approved in advance by the District.

D. Prior to signing the Contract, the District reserves the right to reject any listed Subcontractor.

   | Type of Work | Subcontractor’s Business Address | License # |
--- | --- | --- | --- |
(1) | | | |
(2) | | | |
(3) | | | |
(4) | | | |
(5) | | | |

E. Complete list of Subcontractors is attached: Yes [ ] No [ ]

F. Continuation list of Subcontractors is attached: Yes [ ] No [ ]

7. ACCEPTANCE AND AWARD

A. The District reserves the right to reject this Bid and to negotiate changes before or after execution of the Contract. This Bid shall remain open and shall not be withdrawn for a period of 90 days after Bid Opening date.

B. If written notice of acceptance of this Bid is mailed or delivered to the Bidder within 90 days after the date set for the receipt of this Bid, or other time before it is withdrawn, the Bidder will execute and deliver to the District a Contract prepared by District with the required Surety Bonds and Certificates of Insurance, within 10 days after personal delivery or deposit in the mail of the notification of acceptance.

C. Notice of acceptance or request for additional information may be addressed to the Bidder at the address provided.
8. **BID SECURITY**

A. The required 10 percent (10%) Bid Security for this Bid is attached in the form of:

   ( ) Bid Bond Issued By: ____________________________

   ( ) Certified or Cashier's Check No. ___________________
       Issued by: ____________________________

9. **BIDDER'S BUSINESS INFORMATION**

A. **Individual [ ]:**

   Personal Name: ____________________________

   Business Name: ____________________________

   Address: ____________________________
           Zip Code: ____________

   Telephone: ____________________________

   Fax Number: ____________________________

B. **Partnership [ ]:**

   Co-partners' Names: ____________________________

   Business Name: ____________________________

   Address: ____________________________
           Zip Code: ____________________________

   Telephone: ____________________________

   Fax Number: ____________________________

C. **Corporation [ ]:**

   Firm Name: ____________________________
Address: ____________________________

                      Zip Code __________________

Telephone: ____________________________

Fax Number: ____________________________

State of Incorporation: ____________________________

President: ____________________________

Secretary: ____________________________

Treasurer: ____________________________

Manager: ____________________________

D. Power of Attorney: 

Name: ____________________________

Title: ____________________________

E. Contractor License No. ___________ State of ___________

F. Bidder is submitting this proposal on behalf of a Joint Venture. Names, license numbers, and relevant information are given on a separate attachment:

   Yes [ ] No [ ].

G. Upon request, furnish appropriate documentation to substantiate and/or support the data given.

10. The undersigned hereby certifies under penalty of perjury under the laws of the State of California that all the information submitted by the Bidder in connection with this Bid and all the representations herein made are true and correct.

   Executed this day of ____________________________

__________________________________
Contractor’s License No.                Expiration Date

__________________________________
Firm Name

__________________________________
Signature

Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear
By (Print or Type Name)

Title

End of Section 00300
Section 00350

NONCOLLUSION AFFIDAVIT
(TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID)

State of California
County of Contra Costa

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

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

Date: ____________________ Signature: _____________________

State of California
County of Contra Costa

On ____________________, before me, ____________________, Notary Public personally appeared
_____________________, personally known to me (or proved to me on the basis of
satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me
that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the
instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing is true and correct.

WITNESS my hand and official seal.

Date: ____________________ Signature: _____________________

[SEAL] END OF SECTION 00350

Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear

Section 00350 - Page 1 of 1
Non Collusion Affidavit
THIS PAGE WAS INTENTIONALLY LEFT BLANK
Contra Costa Community College District (District), in accordance with Public Contract Code Section 20651.5, requires each prospective bidder for a contract, as described under Section 20651, to complete and submit to the district a standardized questionnaire and financial statement in a form specified by the district, including a complete statement of the prospective bidder’s financial ability and experience in performing public works. The questionnaire and financial statement shall be verified under oath by the bidder in the manner in which civil pleadings in civil actions are verified. The questionnaire responses of prospective bidders and their financial statements shall not be deemed public records and shall not be open to public inspection. All information requested must be provided and be current as of the date of the Bid.

I, _____________________ being first duly sworn, depose and say:

(Name)

I am the _________________________ of __________________________

(Title) (Company / Entity)

Firm Name: _________________ Check One:

(as it appears on license)

[ ] Corporation
[ ] Partnership
[ ] Sole Proprietor
[ ] Joint Venture

Contact Person: __________________________

Address: __________________________

Phone: __________________ Fax: __________________

Email: __________________ Tax ID No.: __________________

If firm is a sole proprietor or partnership:

Owner(s) of Company __________________________

Contractor’s License Number(s): (California State License Board Classification)

____________________________

____________________________

____________________________
For Bidders That Are Corporations:

1a. Date incorporated: ________________________________

1b. Under the laws of what state: _____________________

1c. Provide all the following information for each person who is either (a) an officer of the corporation (president, vice president, secretary, treasurer), or (b) the owner of at least ten per cent of the corporation’s stock.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Years with Co.</th>
<th>% Ownership</th>
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</table>

1d. Identify every construction firm that any person listed above has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years.

NOTE: For this question, “owner” and “partner” refer to ownership of ten per cent or more of the business, or 10 per cent or more of its stock, if the business is a corporation.

<table>
<thead>
<tr>
<th>Person’s Name</th>
<th>Construction Firm</th>
<th>Dates of Person’s Participation with Firm</th>
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</table>
For Bidders That Are Partnerships:

1a. Date of formation: 

1b. Under the laws of what state: 

1c. Provide all the following information for each partner who owns 10 per cent or more of the firm.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Years with Partnership</th>
<th>% Ownership</th>
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1d. Identify every construction company that any partner has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years.

NOTE: For this question, “owner” and “partner” refer to ownership of ten per cent or more of the business, or ten per cent or more of its stock, if the business is a corporation.

<table>
<thead>
<tr>
<th>Person’s Name</th>
<th>Construction Company</th>
<th>Dates of Person’s Participation with Company</th>
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Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear
**For Bidders That Are Sole Proprietorships:**

1a. Date of commencement of business. ___________________________

1b. Tax ID number of company owner ___________________________

1c. Identify every construction firm that the business owner has been associated with (as owner, general partner, limited partner or officer) at any time during the last five years.

**NOTE:** For this question, "owner" and "partner" refer to ownership of ten per cent or more of the business, or ten per cent or more of its stock, if the business is a corporation.

<table>
<thead>
<tr>
<th>Person's Name</th>
<th>Construction Company</th>
<th>Dates of Person's Participation with Company</th>
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**For Bidders That Intend to Make a Bid as Part of a Joint Venture:**

1a. Date of commencement of joint venture. ___________________________

1b. Provide all of the following information for each firm that is a member of the joint venture that expects to bid on one or more projects:

<table>
<thead>
<tr>
<th>Name of Firm</th>
<th>% Ownership of Joint Venture</th>
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Contra Costa Community College District  
Diablo Valley College  
D-4009 Replacement of Main Electrical Switchgear  

Section 00400 - Page 4 of 10  
Statement of Bidder's Qualifications
For All Bidders

2. Has there been any change in ownership of the firm at any time during the last five years?
   NOTE: A corporation whose shares are publicly traded is not required to answer this question.
   □ Yes □ No
   If “yes,” explain on a separate signed page (referring to this question).

3. Is the firm a subsidiary, parent, holding company or affiliate of another construction firm?
   NOTE: Include information about other firms if one firm owns 50 per cent or more of another, or if an owner, partner, or officer of your firm holds a similar position in another firm.
   □ Yes □ No
   If “yes,” explain on a separate signed page (referring to this question).

4. Are any corporate officers, partners or owners connected to any other construction firms?
   NOTE: Include information about other firms if an owner, partner, or officer of your firm holds a similar position in another firm.
   □ Yes □ No
   If “yes,” explain on a separate signed page (referring to this question).

5. List all California construction license numbers, classifications and expiration dates of the California contractor licenses held by your firm:

   If more space is needed add a separate signed page (referring to this question).

6. If any of your firm's license(s) are held in the name of a corporation or partnership, list below the names of the qualifying individual(s) listed on the CSLB records who meet(s) the experience and examination requirements for each license.

   If more space is needed add a separate signed page (referring to this question).

7. Has your firm changed names or license number in the past five (5) years?
   □ Yes □ No
   If “yes,” explain on a separate signed page, including the reason for the change, and all former names under which the firm has conducted business.

8. Has any owner, partner or (for corporations) officer of your firm operated another construction firm under any other name in the last five (5) years?
   □ Yes □ No
   If “yes,” explain on a separate signed page (referring to this question), including the reason for the change.
9. Have you attached your latest copy of a REVIEWED OR AUDITED financial statement with accompanying notes and supplemental information?

☐ Yes ☐ No

NOTE: A financial statement that is not either reviewed or audited is not acceptable. A letter verifying availability of a line of credit may also be attached; however, it will be considered as supplemental information only, and is not a substitute for the required financial statement.

10. Is the attached Financial Statement for the identical organization of the Bidder?

☐ Yes ☐ No

If "no", explain the relationship and financial responsibility of the organization whose financial statement is provided (i.e., parent/subsidiary, etc.)

If more space is needed add a separate signed page (referring to this question).

11. Contractor possesses a VALID AND CURRENT California Contractor’s license for the project or projects for which it intends to submit a bid.

☐ Yes ☐ No

12. List the categories of work your firm typically performs with its own forces, and check the adjacent boxes of those categories of work that will be self-performed on this project.

☐ --------------------------------- ☐ ---------------------------------

☐ --------------------------------- ☐ ---------------------------------

☐ --------------------------------- ☐ ---------------------------------

13. On a separate signed page (referring to this question), list all construction projects your organization has in progress and for each project listed, state; (i) a general description of the work performed or to be performed by your organization; (ii) the owner’s name, name of the owner’s representative, the owner’s address and telephone number; (iii) the project architect, address and telephone number; (iv) percent presently completed and (v) the scheduled completion date.

14. On a separate signed page (referring to this question), list all construction projects completed by your organization in the past three years, and for each project, state: (i) a general description of the work performed by your organization on the project; (ii) the owner’s name, name of the owner’s representative, the owner’s address and telephone number; (iii) the initial and final contract amount; (iv) the initial and final dates of completion; and (v) whether the project was completed within contract time and contract budget.
15. Has a claim or other demand ever been made against your organization’s California Contractors License Bond?
☐ Yes ☐ No
If yes, on a separate signed page (referring to this question), state the following: (i) the name, address and telephone number of each person or entity making claim or demand; (ii) the date of each claim or demand; (iii) the circumstances giving rise to each such claim or demand; and (iv) the disposition of each such claim or demand.

16. Has a complaint ever been filed against your organization’s California Contractors License with the California Contractors State License Board (CSLB)?
☐ Yes ☐ No
If yes, on a separate signed page (referring to this question), state the following for each complaint: (i) the name, address and telephone number of each person or entity making the complaint; (ii) the date of each complaint; (iii) the circumstances giving rise to each such complaint; and (iv) the disposition of each such complaint, including without limitation, any disciplinary or other action imposed or taken by the California Contractors State License Board as a result of any such complaint.

17. Have any lawsuits or other proceedings ever been brought against your organization or any of its principals or officers in connection with any construction contract or construction project?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) describe the circumstances, the amount or relief sought and the disposition of each such lawsuit or other proceeding.

18. Has your organization ever filed a lawsuit or initiated other proceedings in connection with any construction contract or construction project?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) describe the circumstances, the amount or relief sought and the disposition of each such lawsuit or other proceeding.

19. Are there any judgments, orders or arbitration awards pending, outstanding or by which your organization or any of its officers or principals are bound by?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) describe each such judgment, order or arbitration award and the present status of the satisfaction or discharge thereof.

20. Has any California State License Board (CSLB) license held by your firm, or its Responsible Managing Employee (RME) or Responsible Managing Officer (RMO) been suspended or revoked within the last five (5) years?
☐ Yes ☐ No

21. Has your organization ever failed to complete a construction contract?
☐ Yes ☐ No
If “yes,” on a separate signed page (referring to this question) state the following; (i) describe each such contract; (ii) the owner’s name, address and telephone number; (iii) a description of the project; and (iv) the circumstances of the failure to complete.
relating to any scheme or work of improvement herein above described; nor by any rescission or attempted rescission of the contract, agreement or bond; nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond; nor by any fraud practiced by any person other than the claimant seeking to recover on the bond; and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given; and under no circumstances shall the Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the Obligee and the Contractor or on the part of any obligee named in such bond; that the sole condition of recovery shall be that the claimant is a person described in California Civil Code Sections 9100, and who has not been paid the full amount of his or her claim; and that the Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this ____________ day of ____________, 20__. 

PRINCIPAL/CONTRACTOR:

______________________________

By: ____________________________

SURETY:

______________________________

By: ____________________________

Attorney-in-Fact
22. Has your organization ever been declared in default of a construction contract?
   - Yes  - No
   If “yes,” on a separate signed page (referring to this question) state the following: (i) describe each such contract; (ii) the owner’s name, address and telephone number; (iii) a description of the project; and (iv) the circumstances of the declaration of default.

23. Has a claim or other demand ever been asserted against any Bid Bond, Performance Bond or Labor and Material Payment Bond posted by your organization in connection with any construction contract or your submittal of a bid or proposal on a construction contract?
   - Yes  - No
   If “yes,” on a separate signed page (referring to this question) state the following: (i) state the name, address and telephone number of each such claimant; (ii) the date of the claim; and (iii) the disposition thereof.

24. At the time of submitting this qualification form, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either Labor Code section 1777.1 or Labor Code section 1777.7?
   - Yes  - No

25. At any time during the last five (5) years, has your firm, or any of its owners, officers, or partners been convicted of a crime involving the awarding of a contract of a government or Public construction project, or the bidding or performance of a government or Public contract?
   - Yes  - No

26. Has your firm or any of its owners, officers, or partners ever been convicted of a crime involving any federal, state, or local law related to bidding, awarding, or performance of any construction contract?
   - Yes  - No

27. Has your firm or any of its owners, officers or partners ever been found liable in a civil suit or found guilty in a criminal action for making any false claim or material misrepresentation to any public agency or entity in any way related to any construction contract?
   - Yes  - No

28. Is your firm CURRENTLY the debtor in a bankruptcy case?
   - Yes  - No

29. In the last twelve (12) months has your firm, or any firm with which any of your company’s owners, officers or partners was associated, been debarred, disqualified, removed or otherwise prevented from bidding on, or completing, any government agency or public works project for any reason?
   NOTE: “Associated with” refers to another construction firm in which an owner, partner or officer of your firm held a similar position.
   - Yes  - No
   If YES, on a separate signed page (referring to this question) state the following: (i) describe each such project; (ii) the owner’s name, address and telephone number; (iii) the circumstances and specific reason given for being prevented from bidding on or completing the project.
30. Has your organization ever refused to sign a contract awarded to it?
   □ Yes □ No
   If YES, on a separate signed page (referring to this question) state the following: (i) describe each such contract; (ii) the owner's name, address and telephone number; (iii) a description of the project; and (iv) the circumstances of the refusal to sign the contract.

31. In the last twelve (12) months has your firm been denied an award of a public works contract based on a finding by a public agency that your company was NOT a responsible bidder?
   □ Yes □ No
   If YES, on a separate signed page (referring to this question) state the following: (i) describe each such contract; (ii) the owner's name, address and telephone number; (iii) a description of the project; and (iv) the circumstances of the determination.

32. Contractor has CURRENT workers' compensation insurance policy as required by the Labor Code or is legally self-insured pursuant to Labor Code section 3700 et. seq.
   □ Yes □ No
   □ Contractor is exempt from this requirement, because it has no employees

33. Within the last two (2) years has there ever been a period when your firm had employees but was without Workers' Compensation insurance or state-approved self-insurance?
   □ Yes □ No

34. Attach to this statement true and correct copies of the following:

   34.1 Your organization's California Contractor's License (the copy must clearly and legibly show: (i) the licensee name; (ii) the expiration date; and (iii) the classification(s) of licensure).

   34.2 The Contractor's License Bond posted by your organization in connection with your organization's California Contractor's License pursuant to California Business & Professions Code 7071.5 and 7071.6 (the copy must clearly and legibly show; (i) the Bond number or other information sufficient for identification; (ii) the name, address and telephone number of the Surety on the Bond; (iii) the signature of the individual executing the Bond on behalf of the Surety and if such individual's authority is conferred by a power of attorney or by such individual's authority is conferred by a power of attorney or by such individual's designation as an attorney in fact on behalf of the Surety, include a clear and legible copy of such power of attorney or attorney in fact designation; (iv) the principal on such Bond; and (v) the expiration date of such Bond).

   34.3 If your organization's California Contractor's License is issued by virtue of the qualification of a responsible managing employee or responsible managing officer of your organization, the Qualifier's Bond, if required pursuant to California business & Professions Code 7071.9 (the copy must clearly and legibly show; (i) the bond number or other information sufficient for identification; (ii) the name, address and telephone number of the Surety on the Bond; (iii) the signature of the individual executing the Bond on behalf of the Surety and if such individual's authority is conferred by a power of attorney or by such individual's designation as an attorney in fact on behalf of the Surety, include a clear and legible copy of such power of attorney or attorney in fact designation; (iv) the principal on such Bond; and (v) the expiration date of such Bond).
legible copy of such power of attorney or attorney in fact designation; (iv) the principal on
such Bond; and (v) the expiration date of such Bond.

35. Certification

The responses to each and all of the foregoing are complete and accurate; there are no omissions
of material fact or information such that would render any of the foregoing false or misleading;
there are no misstatements of fact in any of the foregoing.

I, the undersigned, certify and declare that I have read all the foregoing answers to this Section
and know their contents. The matters stated in the above answers are true of my own
knowledge and belief, except as to those matters stated on information and belief, and as to
those matters I believe them to be true. I declare under penalty of perjury under the laws of the
State of California, that the foregoing is correct.

Dated: ________________

(Printed Name)

(Signature)

NOTARY PUBLIC

ACKNOWLEDGEMENT (By Corporation, Partnership or Individual)

STATE OF CALIFORNIA )
) ss.
COUNTY OF CONTRA COSTA )

On ___________, before me, ______________________________, Notary Public,
personally appeared ______________________________, personally known to me (or proved to me on the basis
of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and
acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by
his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted,
executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing is true and
correct.

Witness my hand and official seal.

Notary Public

[SEAL]

END OF SECTION 00400
SECTION 00450

CERTIFICATION OF SITE VISIT

The Governing Board of the
Contra Costa Community College District
500 Court Street
Martinez, California 94553

Gentlemen/Ladies:

I visited the ___________________________ job site,
on _________________ at ___________ A.M. P.M (Circle one)

to inspect the proposed work, which would be turned over to me in its present condition, with a
representative of the Contra Costa Community College District in order to acquaint myself with the proposed
work so that I might fully understand the facilities, difficulties, and restrictions attending the execution of the
work under the contract, and acknowledge I had the opportunity to check the Record Drawing as-built
drawings and/or previous Contract Documents, site conditions and Bid Documents with the authorized
representative of the District.

Owner Representative:

Project Manager – CCCCD Facilities
or
Manager – Buildings & Grounds

Bidder:

Name of Firm or Company

Authorized Signatory

Address

Phone Number Fax Number

NOTE: Any bidder who fails to return this CERTIFICATION, fully executed, including signature of
company representative AND a Contra Costa Community College District representative, with the
proposal form, may have their bid rejected as non-responsive.

END OF SECTION 00450

Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear

Section 00450 - Page 1 of 1
Certification of Site Visit
PAYMENT BOND
(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, the Contra Costa Community College District (sometimes referred to hereinafter as “Obligee”) has awarded to ______________________ (hereinafter designated as the “Principal” or “Contractor”), an agreement for the work described as follows: ______________________ (hereinafter referred to as the “Public Work”); and

WHEREAS, said Contractor is required to furnish a bond in connection with said Contract, and pursuant to California Civil Code Section 9550;

NOW, THEREFORE, We, _______________ the undersigned Contractor, as Principal; and _______________ , a corporation organized and existing under the laws of the State of __________, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the Contra Costa Community College District and to any and all persons, companies, or corporations entitled by law to file stop notices under California Civil Code Section 9100, or any person, company, or corporation entitled to make a claim on this bond, in the sum of ______________ Dollars ($ __________), said sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which payment will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, its heirs, executors, administrators, successors, or assigns, or subcontractor, shall fail to pay any person or persons named in Civil Code Section 9100; or fail to pay for any 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 due under the Unemployment Insurance Code, with respect to work or labor thereon of any kind; or shall fail to deduct, withhold, and pay over to the Employment Development Department, any amounts required to be deducted, withheld, and paid over by Unemployment Insurance Code Section 13020 with respect to work and labor thereon of any kind, then said Surety will pay for the same, in an amount not exceeding the amount herein above set forth, and in the event suit is brought upon this bond, also will pay such reasonable attorneys’ fees as shall be fixed by the court, awarded and taxed as provided in California Civil Code Sections 9550 et seq.

This bond shall inure to the benefit of any person named in Civil Code Section 9100 giving such person or his/her assigns a right of action in any suit brought upon this bond.

It is further stipulated and agreed that the Surety of this bond shall not be exonerated or released from the obligation of the bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, or specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described; or pertaining or relating to the furnishing of labor, materials, or equipment therefor; nor by any change or modification of any terms of payment or extension of time for payment pertaining or
IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code Section 105, and if the work or project is financed, in whole or in part, with federal, grant or loan funds, Surety's name must also appear on the Treasury Department's most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)  (Name and Address of agent or representative for service for service of process in California)

Telephone: ___________________  Telephone: ___________________

STATE OF CALIFORNIA  )
COUNTY OF  ) ss.

On ______________________ before me, ______________________ (insert name and title of the officer), a Notary Public in and for said State, personally appeared ______________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument as the Attorney-in-Fact of the ______________________ (Surety) and acknowledged to me that he/she/they subscribed the name of the ______________________ (Surety) thereto and his own name as Attorney-in-Fact on the executed instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

____________________________ (SEAL)

Notary Public in and for said State

Commission expires: ______________

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.
CONTRACT PERFORMANCE BOND
(CALIFORNIA PUBLIC WORK)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, Contra Costa Community College District (sometimes referred to hereinafter as “Obligee”) has awarded to __________________ (hereinafter designated as the “Principal” or “Contractor”), an agreement for the work described as follows: _________________ (hereinafter referred to as the “Public Work”); and

WHEREAS, the work to be performed by the Contractor is more particularly set forth in that certain contract for said Public Work dated ------(hereinafter referred to as the “Contract”), which Contract is incorporated herein by this reference; and

WHEREAS, the Contractor is required by said Contract to perform the terms thereof and to provide a bond both for the performance and guaranty thereof.

NOW, THEREFORE, we, _______________ the undersigned Contractor, as Principal, and _______________ , a corporation organized and existing under the laws of the State of _______ , and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto the Contra Costa Community College District in the sum of _______________ Dollars ($ ___________), said sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the bounded Contractor, his or her 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 said Contract and any alteration thereof made as therein provided, on his or her part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill guarantees of all materials and workmanship; and indemnify, defend and save harmless the Obligee, its officers and agents, as stipulated in said Contract, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration or pro tanto) by any change, extension of time, alteration in or addition to the terms of the contract or to the work to be performed there under or the specifications accompanying the same, nor by any change or modification to any terms of payment or extension of time for any payment pertaining or relating to any scheme of work of improvement under the contract. Surety also stipulates and agrees that it shall not be exonerated or released from the obligation of this bond (either by total exoneration or pro tanto) by any overpayment or underpayment by the Obligee that is based upon estimates
approved by the Architect. The Surety stipulates and agrees that none of the aforementioned changes, modifications, alterations, additions, extension of time or actions shall in any way affect its obligation on this bond, and it does hereby waive notice of any such changes, modifications, alterations, additions or extension of time to the terms of the contract, or to the work, or the specifications as well notice of any other actions that result in the foregoing.

Whenever Principal shall be, and is declared by the Obligee to be, in default under the Contract, the Surety shall promptly either remedy the default, or shall promptly complete the Contract through its agents or independent contractors, subject to acceptance and approval of such agents or independent contractors by Obligee as hereinafter set forth, in accordance with its terms and conditions and to pay and perform all obligations of Principal under the Contract, including, without limitation, all obligations with respect to warranties, guarantees and the payment of liquidated damages; or, at Obligee’s sole discretion and election, Surety shall obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Obligee of the lowest responsible bidder, arrange for a contract between such bidder and the Obligee and make available as Work progresses (even though there should be a default or succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the “balance of the Contract price” (as hereinafter defined), and to pay and perform all obligations of Principal 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 Obligee under the Contract and any modifications thereto, less the amount previously paid by the Obligee to the Principal, less any withholdings by the Obligee allowed under the Contract.

Surety expressly agrees that the Obligee may reject any agent or contractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Principal. Unless otherwise agreed by Obligee, in its sole discretion, Surety shall not utilize Principal in completing the Contract nor shall Surety accept a bid from Principal for completion of the work in the event of default by the Principal.

No final settlement between the Obligee and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

The Contractor and Surety shall remain responsible and liable for all patent and latent defects that arise out of or are related to the Contractor’s failure and/or inability to properly complete the Public Work as required by the Contract and the Contract Documents. The obligation of the Surety hereunder shall continue so long as any obligation of the Contractor remains.

Contractor and Surety agree that if the Obligee is required to engage the services of an attorney in connection with enforcement of the bond, Contractor and Surety shall pay Obligee’s reasonable attorneys’ fees incurred, with or without suit, in addition to the above sum.

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 reasonable attorneys’ fees to be fixed by the Court.
IN WITNESS WHEREOF, we have hereunto set our hands and seals this ____ day of
____________, 2010.

PRINCIPAL/CONTRACTOR:

By: __________________________________________

SURETY:

By: __________________________________________

Attorney-in-Fact

The rate of premium on this bond is __________________________ per thousand.

The total amount of premium charged: $________________________ (This must be
filled in by a corporate surety).

IMPORTANT: THIS IS A REQUIRED FORM.

Surety companies executing bonds must possess a certificate of authority from the California
Insurance Commissioner authorizing them to write surety insurance defined in California
Insurance Code Section 105, and if the work or project is financed, in whole or in part, with
federal, grant or loan funds, Surety’s name must also appear on the Treasury Department’s most
current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety) (Name and Address of agent or representative
for service for service of process in California)

___________________________________________  ________________________________

___________________________________________  ________________________________

Telephone: ___________________________ Telephone: ___________________________
STATE OF CALIFORNIA

COUNTY OF

On ___________________ before me, ______________________________________ (insert name and title of the officer)

On ___________________, before me, ___________________________________, a Notary Public in and for said State, personally appeared ________________________________, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument as the Attorney-in-Fact of the ___________________ (Surety) and acknowledged to me that he/she/they subscribed the name of the ___________________ (Surety) thereto and his own name as Attorney-in-Fact on the executed instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

_________________________________________ (SEAL)
Notary Public in and for said State

Commission expires: ________________________

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.
SECTION 00510

NOTICE OF AWARD

DATE: ___________________

TO: ________________________________

ADDRESS: ________________________________

PROJECT: ________________________________

The Contract Sum of your contract is ________________________________ Dollars, ($ ________________).

You must comply with the following conditions within ten (10) calendar days of the date of this Notice of Award, that is, by ________________.

1. You must deliver to the District two fully executed counterparts of Section 00600, “Construction Agreement.”

2. You must deliver to the District the “Contract Performance Bond,” and “Payment Bond,” executed by you and your surety, which are included in Section 00500.

3. You must deliver to District the insurance certificates required in Section 00700, for insurance required in Section 00600, Construction Agreement.

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. Within ten (10) calendar days after you comply with these conditions, the District will return to you one fully signed counterpart of the Construction Agreement.

Contra Costa Community College District

By: ________________________________

Title: ________________________________

END OF DOCUMENT
SECTION 00600

CONSTRUCTION AGREEMENT

CONTRACT NO. ______________

(Construction Agreement)

This Agreement shall not be enforceable until ratified and approved by the Contra Costa Community College District’s Governing Board. The estimated board meeting date is April 25, 2018.

(§1.1) Parties: (Public Agency) CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court St, Martinez, CA 94553

(Contractor) ___________________________________________________________
Address: ____________________________________________________________

(§1.2) Effective Date: _______________________

(§1.3) The Work: D-4009 Replacement of Main Electrical Switchgear

(§1.4) Completion Time: 270 Calendar Days from the Notice to Proceed.

(§1.5.1) Liquidated Damages, Substantial Completion $1,000.00 / per calendar day Work is delayed

(§1.5.2) Liquidated Damages, Remaining Work, and Final Completion: $500 / per calendar day Remaining Work is delayed

(§1.6) Public Agency’s Agent: CONTRA COSTA COMMUNITY COLLEGE DISTRICT (“District”)

(§1.7) Contract Sum: __________ MILLION __________ THOUSAND, __________ HUNDRED DOLLARS and NO CENTS ($00,000,000.00)

2. SCOPE OF WORK:

Replace the existing indoor 5kV metal-clad switchgear metal-with new standard outdoor (non-walk-in) metal clad switchgear located in an outdoor equipment pad adjacent to the Engineering Technology building. Related electrical work includes, but not limited to, new outdoor pad mounted oil filled transformer, underground electrical ductbanks, manholes with sump pumps, cables, splices, terminations, grounding system, testing and related miscellaneous incidentals. Also, disconnect and removal of cables and related materials in existing manholes. Civil site work includes, but not limited to, excavation, concrete equipment pad, equipment anchoring, trenching, storm drain line, pavement repair and landscape restoration. Furnish, install and test required equipment, materials and incidentals for a fully operating and functioning electrical distribution system.

3. WORK CONTRACT, CHANGES

(a) By their signatures below, effective on the above date, these parties promise and agree as set forth in this Agreement, incorporating by these references labor and materials contained in Section 2, Scope of Work.
(b) Contractor shall, at Contractor's own cost and expense, and in a workmanlike manner, fully and faithfully perform and complete the work; and will furnish all materials, labor, services, equipment, and transportation necessary, convenient and proper in order fairly to perform the requirements of this contract, all strictly in accordance with the Public Agency's plans, drawings and specifications.

(c) The work can be changed only with Public Agency's prior written order specifying such change and its cost agreed to by the parties; and the Public Agency shall never have to pay more than specified in Section 1.7 without such an order.

4. TIME: NOTICE TO PROCEED AND ACCEPTANCE

(a) Contractor shall start this work as directed in the specifications or the Notice to Proceed and shall complete it as specified in Section 1, Completion Time.

(b) Remaining Work after Substantial Completion. If the Architect or District determines that the work required by the Contract is Substantially Complete during any inspection conducted pursuant to this Agreement or Specification Section 01770, Contract Closeout Procedures, the Contractor shall be notified of that determination and the District shall determine if there is Remaining Work. A list of Remaining Work shall be issued only by the District or the Architect and only after the District has certified Substantial Completion. The District or Architect shall give the Contractor the necessary instructions for correction or completion of the Remaining Work, and the Contractor shall immediately comply with and execute such instructions within the Contract Time. Upon completion of the Remaining Work, another inspection shall be made that shall constitute the Final Inspection, provided the Remaining Work has been completed to the satisfaction of the District. If the remaining work has been completed to the satisfaction of the District, the District shall make the final acceptance and notify the Contractor in writing of this acceptance as of the date of Final Inspection.

(c) Final Acceptance – Upon due notice from the Contractor of completion of the entire project, the District shall make an inspection. If all construction provided for and contemplated by the contract is found to be completed to the District's satisfaction then that inspection shall constitute the Final Inspection and the District shall notify the Contractor in writing of final acceptance effective as of the date of the Final Inspection.

(d) Default for failure to Complete Remaining Work In the event the Contract Time expires before the Remaining Work is completed to the satisfaction of the District, the District may provide notice to the Contractor that the Remaining Work shall be completed by Contractor to the satisfaction of the District within ten consecutive calendar days from the date of such notice. The failure of the Contractor to satisfactorily complete the Remaining Work within the ten days shall entitle to District to declare Contractor in default and thereafter terminate the Contract. The ten-day notice provided under this paragraph shall not be construed as adding any time to the Contract Time and is a time period solely for the purposes of providing notice of default.

(e) Application for Final Payment. After the Contractor has completed all Remaining Work to the satisfaction of the District and delivered all maintenance and operating instructions, schedules, guarantees, warranties, bonds, certificates of inspection, marked-up record documents and other documents as required by the Contract, and after the District or Architect has indicated that the work is acceptable, Contractor may make application for final payment following the Payments Procedures for progress payments. The final application for payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the District) of all liens arising out of or filed in connection with the work on the project.
(f) Final Payment and Acceptance. If the Architect determines that the work has been completed and the Contractor’s other obligations under the Contract have been fulfilled, the Architect shall, within ten working days after receipt of the final application for payment, indicate in writing the Architect’s recommendation of payment and present the application to District for payment. Thereupon the Architect shall prepare a Certificate of Final Completion. Otherwise, Architect shall return the application to Contractor indicating in writing the reasons for refusing to recommend final payment. Contractor shall make the corrections identified in the Architect’s refusal to recommend final payment. Thirty days after presentation to District of the application and accompanying documentation, with the Architect’s recommendation and notice of acceptability of the work, the amount recommended by Architect shall be come due and payable by District to Contractor.

5. LIQUIDATED DAMAGES

5.1 LIQUIDATED DAMAGES - SUBSTANTIAL COMPLETION

If the Contractor fails to complete this contract and this Work within the time fixed therefore, allowance being made for contingencies as provided herein, Contractor becomes liable to the Public Agency for all its loss and damage therefrom; and because, from the nature of the case, it is and will be impracticable and extremely difficult to ascertain and fix the Public Agency’s actual damage from any delay in performance hereof, it is agreed that Contractor will pay as liquidated damages to the Public Agency the reasonable sum specified in Section 1, the result of the parties’ reasonable endeavor to estimate fair average compensation therefore, for each calendar day’s delay in finishing said Work or Phase of Work; and if the same be not paid, Public Agency may, in addition to its other remedies, deduct the same from any money due or to become due Contractor under this Contract. If the Public Agency for any cause authorizes or contributes to a delay, suspension of work or extension of time, its duration shall be added to the time allowed for completion, but it shall not be deemed a waiver nor be used to defeat any right of the Agency to damages for non-completion or delay hereunder. Pursuant to Government Code Section 4215, the Contractor shall not be assessed liquidated damages for delay in completion of the work, when such delay was caused by the failure of the Public Agency or the owner of a utility to provide for removal or relocation of existing utility facilities.

5.2 LIQUIDATED DAMAGES-THE REMAINING WORK

The Remaining Work, as such work is determined by the Public Agency or Public Agency’s Representative, shall be completed within the Contract Time or any proper extension thereof granted by Public Agency. If the Contractor shall neglect, fail or refuse to complete the Remaining Work within the Contract Time or any proper extension thereof granted by the Public Agency, then the Contractor does hereby agree, as part consideration for the awarding of this Contract, to pay to the Public Agency the amount specified in the Contract, not as a penalty but as liquidated damages for the Remaining Work for each such breach of Contract set forth herein for each and every consecutive calendar day that the Contractor shall be in default after expiration of the Contract Time.

6. INTEGRATED DOCUMENTS

The plans, drawings and specifications and special provisions of the Public Agency’s Notice Inviting Bids, and Contractor’s accepted bid for this work are hereby incorporated into this Contract; and they are intended to cooperate, so that anything exhibited in the plans or drawings and not mentioned in the specifications or special provisions, or vice versa, is to be executed as if exhibited, mentioned and set forth in both, to the true intent and meaning thereof when taken all together; and differences of opinion concerning these shall be finally determined by the Public Agency.
7. **PAYMENT**

(a) For strict and literal fulfillment of these promises and conditions, and full compensation for all this work, the Public Agency shall pay the Contractor the sum specified in Section 1, except that in unit price contracts the payment shall be for finished quantities at unit bid prices.

(b) On or about the first day of each calendar month, the Contractor shall submit to the Public Agency a verified application for payment, supported by a statement showing all materials actually installed during the preceding month, the labor expended thereon, and the cost thereof; whereupon, after checking, the Public Agency shall issue to Contractor a certificate for the amount determined to be due, minus five (5%) percent thereof pursuant to the Public Agency’s General Terms and Conditions, but not until defective work and materials have been removed, replaced and made good.

8. **PAYMENTS WITHHELD**

(a) The Public Agency or its agent may withhold any payment, or because of later discovered evidence nullify all or any certificate for payment, to such extent and period of time only as may be necessary to protect the Public Agency from loss because of:

1. Defective work not remedied, or work not completed, or
2. Claims filed or reasonable evidence indicating probable filing, or
3. Failure to properly pay subcontractors or for material or labor, or
4. Reasonable doubt that the work can be completed for the balance then unpaid, or
5. Damage to another contractor, or
6. Damage to the Public Agency, other than damage due to delays.

(b) The Public Agency shall use reasonable diligence to discover and report to the Contractor, as the work progresses, the materials and labor which are not satisfactory to it, so as to avoid unnecessary trouble or cost to the Contractor in making good any defective work or parts.

(c) Thirty-five (35) calendar days after Public Agency files its notice of completion of the entire work, it shall issue a certificate to the Contractor and pay the balance of the contract price after deducting all amounts withheld under this contract, provided the Contractor shows that all claims for labor and materials have been paid, no claims have been presented to the Public Agency based on acts or omissions of the Contractor, and no liens or withhold notices have been filed against the work or site, and provided there are not reasonable indications of defective or missing work or of late-recorded notices of liens or claims against Contractor.

9. **INSURANCE**

Before the commencement of the Work, the Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in California as admitted carriers with a financial rating of at least A status as rated in the most recent edition of Best’s Insurance Reports or as amended by the Supplementary General Conditions, such insurance as will protect the Public Agency from claims set forth below, which may arise out of or result from the Contractor’s operations under the Contract and for which the Contractor may be legally liable, whether such operations are by the Contractor, by a Subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

a. Claims for damages because of bodily injury, sickness, disease, or death of any person District would require indemnification and coverage for employee claim;

b. Claims for damages insured by usual personal injury liability coverage, which are sustained by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor or by another person;
c. Claims for damages because of injury or destruction of tangible property, including loss of use resulting therefrom, arising from operations under the Contract Documents;
d. Claims for damages because of bodily injury, death of a person, or property damage arising out of the ownership, maintenance, or use of a motor vehicle, all mobile equipment, and vehicles moving under their own power and engaged in the Work;
e. Claims involving contractual liability applicable to the Contractor's obligations under the Contract Documents, including liability assumed by and the indemnity and defense obligations of the Contractor and the Subcontractors; and
f. Claims involving Completed Operations, Independent Contractors' coverage, and Broad Form property damage, without any exclusions for collapse, explosion, demolition, underground coverage, and excavating.

Additional Insured Endorsement Requirement: The Contractor shall name, on any policy of insurance, the District, Architect, Inspector, the State of California, their officers, employees, agents and independent contractors as Additional Insured. Subcontractors shall name the Contractor, the District, Architect, Inspector, Project / Construction Manager, the State of California, their officers, employees, agents and independent contractors as Additional Insured.

The Additional Insured Endorsement included on all such insurance policies shall state that coverage is afforded the additional insured with respect to claims arising out of operations performed by or on behalf of the insured. If the Additional Insured have other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The insurance provided by the Contractor must be designated in the policy as primary to any insurance obtained by the Public Agency. The amount of the insurer's liability shall not be reduced by the existence of such other insurance.

Specific Insurance Requirement: Contractor shall take out and maintain and shall require all subcontractors, if any, whether primary or secondary, to take out and maintain:

a) Comprehensive General Liability Insurance with an aggregate of not less than $[2,000,000.00]; Per occurrence, $[1,000,000.00]
b) Automotive (any auto) where operated in amounts $[1,000,000.00]
c) Workers' Compensation Insurance: $[1,000,000.00]; Contractor is aware of and complies with Labor Code Section 3700 and the Worker's Compensation Law.

10. BONDS

Bond Requirements: Prior to commencing any portion of the Work, the Contractor shall furnish separate payment and performance bonds for its portion of the Work which shall cover 100% faithful performance of and payment of all obligations arising under the Contract Documents and/or guaranteeing the payment in full of all claims for labor performed and materials supplied for the Work. All bonds shall be provided by a corporate surety authorized and admitted to transact business in California as sureties.

To the extent, if any, that the Contract Price is increased in accordance with the Contract Documents, the Contractor shall, upon request of the Public Agency, cause the amount of the bonds to be increased accordingly and shall promptly deliver satisfactory evidence of such increase to the Public Agency. To the extent available, the bonds shall further provide that no change or alteration of the Contract Documents (including, without limitation, an increase in the Contract Price, as referred to above), extensions of time, or modifications of the time, terms, or conditions of payment to the Contractor will release the surety. If the Contractor fails to furnish the required bonds, the Public Agency may terminate the Contract for cause.

On signing this contract, Contractor shall deliver to Public Agency for approval good and sufficient bonds with sureties, in amount(s), specified in the specifications or special provisions, guaranteeing faithful performance of this contract and payment for all labor and materials hereunder.
11. FAILURE TO PERFORM

If the Contractor at any time refuses or neglects, without fault of the Public Agency or its agent(s), to supply sufficient materials or workers to complete this agreement and work as provided herein, for a period of ten days or more after written notice thereof by the Public Agency, the Public Agency may furnish same and deduct the reasonable expenses thereof from the contract price.

12. LAWS APPLY: General

Both parties recognize the applicability of various federal, state and local laws and regulations, especially Chapter 1 of Part 7 of the California Labor Code (beginning with Section 1720, and including Sections 1735, 1775.5, 1777.6, forbidding discrimination) and intend that this agreement complies therewith. The parties specifically stipulate that the relevant penalties and forfeitures provided in the Labor Code, especially in Sections 1775, 1776, and 1813, concerning prevailing wages and hours, shall apply to this agreement as though fully stipulated herein.

13. SUBCONTRACTORS

Public Contract Code Sections 4100-4113 are incorporated herein.

14. WAGE RATES

(a) Pursuant to Labor Code Section 1773, the Director of the Department of Industrial Relations has ascertained the general prevailing rates of wages per diem, and for holiday and overtime work, in the locality in which this work is to be performed, for each craft, specified in the call for bids for this work and are on file with the Public Agency, and are hereby incorporated herein.

(b) This schedule of wages is based on a working day of eight (8) hours unless otherwise specified; and the daily rate is the hourly rate multiplied by the number of hours constituting the working day. When less than that number of hours are worked, the daily wage rate is proportionately reduced, but the hourly rate remains as stated.

(c) The Contractor, and all subcontractors, must pay at least these rates to all persons on this work, including all travel, subsistence, and fringe benefit payments provided for by applicable collective bargaining agreements. All skilled labor not listed above must be paid at least the wage scale established by collective bargaining agreement for such labor in the locality where such work is being performed. If it becomes necessary for the Contractor or any subcontractor to employ any person in a craft, classification or type of work (except executive, supervisory, administrative, clerical or other non-manual workers as such) for which no minimum wage rate is specified, the contractor shall immediately notify the Public Agency which shall promptly determine the prevailing wage rate therefore and furnish the Contractor with the minimum rate based thereon, which shall apply from the time of the initial employment of the person affected and during the continuance of such employment.

15. HOURS OF LABOR

Eight hours of labor in one calendar day constitutes a legal day's work, and no worker employed at any time on this work by the Contractor or by any subcontractor shall be required or permitted to work longer thereon except as provided in Labor Code Sections 1810-1815.

16. APPRENTICES

Properly indentured apprentices may be employed on this work in accordance with Labor Code Sections 1777.5 and 1777.6, forbidding discrimination.
17. PREFERENCE FOR MATERIALS

The Public Agency desires to promote the industries and economy of Contra Costa County, and the Contractor therefore promises to use the products, workers, laborers and mechanics of this County in every case where the price, fitness and quality are at least equal.

18. ASSIGNMENT

This agreement binds the heirs, successors, assigns, and representatives of the Contractor; but Contractor cannot assign it in whole or in part, nor any monies due or to become due under it, without the prior written consent of the Public Agency and the Contractor's surety or sureties, unless they have waived notice of assignment.

19. NO WAIVER BY PUBLIC AGENCY

Inspection of the work and/or materials, or approval of work and/or materials inspected, or statement by any officer, agent or employee of the Public Agency indicating the work or any part thereof complies with the requirements of this contract, or acceptance of the whole or any part of said work and/or materials, or payments therefore, or any combination of these acts, shall not relieve the Contractor of Contractor's obligation to fulfill this contract as prescribed; nor shall the Public Agency be thereby stopped from bringing any action for damages or enforcement arising from the failure to comply with any of the terms and conditions hereof.

20. HOLD HARMLESS AND INDEMNITY

(a) Contractor promises to and shall hold harmless and indemnify from the liabilities as defined in this section.
(b) The indemnities benefited and protected by this promise are the Public Agency and its elective and appointive boards, commissions, officers, agents and employees.
(c) The liabilities protected against are any liability or claim for damage of any kind allegedly suffered, incurred or threatened because of actions defined below, including personal injury, death, property damage, inverse condemnation, or any combination of these, regardless of whether or not such liability, claim or damage was unforeseeable at any time before the Public Agency approved the improvement plan or accepted the improvements as completed, and including the defense of any suit(s) or action(s) at law or equity concerning these.
(d) The actions causing liability are any act or omission (negligent or non-negligent) in connection with the matters covered by this contract and attributable to the contractor, subcontractor(s), or any officer(s), agent(s), or employee(s) of one or more of them.
(e) Non-conditions: The promise and agreement in this section is not conditioned or dependent on whether or not any Indemnities has prepared, supplied, or approved any plan(s), drawing(s), specifications(s) or special provision(s) in connection with this work, has insurance or other indemnification covering any of these matters, or that the alleged damage resulted partly from any negligent or willful misconduct of any Indemnities.

21. EXCAVATION

Contractor shall comply with the provisions of Labor Code Section 6705, if applicable, by submitting to Public Agency a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during trench excavation.

22. GOVERNMENT CODE SECTION 10532

Contractor shall be subject to the examination and audit of the Auditor General for a period of three years after final payment under the contract.
23. WARRANTY

(a) In addition to any other warranties or guaranties in the Contract Documents, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the Work, unless otherwise provided or extended in the Contract Documents. If the District takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the District takes possession.

(c) The Contractor shall remedy at the Contractor’s expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor’s expense any damage to District-owned or controlled real or personal property, when that damage is the result of—

(1) The Contractor’s failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor’s warranty with respect to work repaired or replaced will run for 1 year or as otherwise provided or extended from the date of repair or replacement.

(e) The District shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the District shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor’s expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall—

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the District, if directed by the District; and

(3) Enforce all warranties for the benefit of the District, if directed by the District.

(h) In the event the Contractor’s warranty under paragraph (b) of this clause has expired, the District may bring suit at its expense to enforce a subcontractor’s, manufacturer’s, or supplier’s warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the District nor for the repair of any damage that results from any defect in District-furnished material or design.

(j) This warranty shall not limit the District’s rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.
24. CONSEQUENTIAL DAMAGES

The Contractor and Public Agency waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

(a) Damages incurred by the Public Agency for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

(b) Damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination. Nothing contained in this subparagraph shall be deemed to preclude an award of liquidated direct damages, when applicable, in accordance with the requirements of the Contract Documents.

25. HAZARDOUS MATERIALS

(a) If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos, lead or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Public Agency in writing.

(b) The Public Agency shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. The Public Agency shall furnish in writing to the Contractor the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written notification from the Public Agency and Contractor. The Contract Time shall be extended appropriately.

26. SAFETY

a. Safety Programs. In addition to and as required by other Sections of the Contract Documents, the Contractor shall be solely responsible for initiating, maintaining and supervising all safety programs required by applicable law, ordinance, regulation or governmental orders in connection with the performance of the Contract, or otherwise required by the type or nature of the Work. The Contractor's safety program shall include all actions and programs necessary for compliance with California or federally statutorily mandated workplace safety programs, including without limitation, compliance with the California Drug Free Workplace Act of 1990 (California Government Code §§8350 et seq.). Without limiting or relieving the Contractor of its obligations hereunder, the Contractor shall require that its Subcontractors similarly initiate and maintain all appropriate or required safety programs. Prior to commencement of Work, the Contractor shall meet with the campus Buildings and Grounds Manager, Project Manager, and Construction Manager to review Contractor's safety precautions and implementation of safety programs during the Work.

b. Safety Precautions. In addition to and as required by other Sections of the Contract Documents, the Contractor shall be solely responsible for initiating and maintaining reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to: (i) employees on the Work and other
persons who may be affected thereby; (ii) the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and (iii) other property or items at the site of the Work, or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction. The Contractor shall take adequate precautions and measures to protect existing roads, sidewalks, curbs, pavement, utilities, adjoining property and improvements thereon (including without limitation, protection from settlement or loss of lateral support) and to avoid damage thereto. Without adjustment of the Contract Price or the Contract Time, the Contractor shall repair, replace or restore any damage or destruction of the foregoing items as a result of performance or installation of the Work.

c. **Safety Signs, Barricades.** In addition to and as required by other Sections of the Contract Documents, the Contractor shall erect and maintain, as required by existing conditions and conditions resulting from performance of the Contract, reasonable safeguards for safety and protection of property and persons, including, without limitation, posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Districts and users of adjacent sites and utilities.

d. **Safety Notices.** In addition to and as required by other Sections of the Contract Documents, the Contractor shall give or post all notices required by applicable law and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.
27. **SIGNATURES AND ACKNOWLEDGEMENT**

**Public Agency**, By: __________________________________________
David Wetmore, Director of Purchasing and Contracts

**Note to Contractor**: (1) Execute acknowledgement form below, and (2) if a corporation, affix Corporate Seal.

**Contractor**, hereby also acknowledging awareness of and compliance with Labor Code S1861 concerning Worker's Compensation Law.

**Contractor:**
By: _______________________________ (CORPORATE SEAL)
(Designate Official Capacity – COMPANY NAME)

Print NAME and TITLE _______________________________

License Number __________________ Federal ID Number __________________

**NOTARY PUBLIC**

============================================================================
State of California               ss.            ACKNOWLEDGEMENT (By Corporation, Partnership or Individual)
County of Contra Costa           )

The person(s) signing above for Contractor, known to me in individual and business capacity as stated, personally appeared before me today and acknowledged that he/she/they executed it and that the corporation or partnership named above executed it.

Dated: ______________

(NOTARIAL SEAL)

END OF SECTION 00600
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SECTION 00650

NOTICE TO PROCEED

Date: __________________________

TO: ____________________________

ADDRESS: __________________________

PROJECT: ____________________________

You are notified that the Contract Time under the above contract will commence to run on _____________. By that date, you are to start performing your obligations under the Contract Documents. In accordance with Section 00600, Construction Agreement, the date of Substantial Completion is ________________, and the date for Final Completion is ________________.

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

By: ____________________________

Ray Pyle

Title: Chief Facilities Planner

END OF DOCUMENT
# SECTION 00700
## GENERAL CONDITIONS

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ARTICLE 1

GENERAL CONDITIONS

1.1 BASIC DEFINITIONS

1.1.1 Action of the Governing Board is a vote of a majority of the District’s governing board.

1.1.2 Approval for a Contract, Agreement, or Change Order means written authorization through action of the governing board unless specific delegation of approval authority is delegated to a District representative.

1.1.3 Approved. The term “approved,” when used to convey Architect’s action on Contractor’s submittals, applications, and requests, is limited to Architect’s duties and responsibilities as stated in the Conditions of the Contract.

1.1.4 Architect means the architect, engineer, or other design professional engaged by the District to design and perform general observation of the work of construction and interpret the drawings and specifications for the Project.

1.1.5 As shown, as indicated, as detailed refer to drawings accompanying this specification.

1.1.6 Bid/Bidders. The term Bid and Proposal have the same meaning, and the same is true for Bidders and Proposers.

1.1.7 Contract or Agreement. When the terms are used in these General Conditions shall be references to the Contract Documents as defined herein.

1.1.8 Contract Time. Contract Time means the number of consecutive calendar days specified in the contract immediately after the date to commence work issued by Owner in the Notice to Proceed and includes both the time allowed for completion of the work required to achieve Substantial Completion and the time allowed to complete the Remaining Work.

1.1.9 Contractor. Whenever the term “Contractor” is used in the Contract or elsewhere in the Contract Documents, it refers to a person or entity that has an agreement directly with the District to perform any of the work for the Project. The term Contractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Contractor or his authorized representative. The term Contractor does not include any contractors under separate and direct contract with the District. A Subcontractor is a person or entity that has a direct or indirect contract with the Contractor to perform any of the Work at the site.

1.1.10 Contractor’s Construction Schedule. The document prepared by the Contractor, which details the events of construction and establishes completion dates for the various stages of the Work and the entire project.

1.1.11 The Contract Documents. The Contract Documents consist of the Agreement between District and Contractor (hereinafter the Agreement or Contract), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to bid, instructions to bidders, notice to bidders, and the requirements contained in the Bid Documents, other documents...
listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is a written amendment to the Contract signed by parties, a Change Order, a Construction Change Directive, or a written order for a minor change in the Work issued by the Architect. The Contract Documents collectively form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Architect and Contractor, between the District and any Subcontractor or Sub-subcontractor, or between any persons or entities other than the District and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect’s duties.

1.1.12 Contractor, District, and Architect are those mentioned as such in the Agreement. They are treated throughout the Contract Documents as if they are of singular number and neuter gender. Any reference to “Owner” shall mean “District.”

1.1.13 Construction Manager. Whenever the term “Construction Manager” or “CM” is used in the contract or elsewhere in the Contract Documents, it refers to the District assigned Construction Manager, or the District Project Manager if no CM is assigned.

1.1.14 Days means calendar days, unless otherwise noted as working days.

1.1.15 Directed. Terms such as “directed,” “requested,” “authorized,” “selected,” “approved,” “required,” and “permitted” mean directed by the Architect or the District, requested by the Architect or District, and similar phrases.

1.1.16 District. Whenever the term “District” is used in the Contract Documents, it refers to the Contra Costa Community College District or those persons designated by the District to act in/on its behalf.

1.1.17 The Drawings are graphic and pictorial portions of the Contract Documents prepared for the Project and approved changes thereto, wherever located and whenever issued, showing the design, location, and scope of the Work, generally including plans, elevations, sections, details, schedules, and diagrams as drawn or approved by the Architect.

1.1.18 Emergency shall be defined as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

1.1.19 Exposed. Whenever this term is used it shall be understood to mean any item or surface, exterior, or interior, which can be seen by a person outside the building, or seen by a person inside any usable space within the building during normal activity. Mechanical and electrical rooms, utility and service tunnels, air handling rooms, and penthouses or platforms shall be considered to have exposed surfaces, as shall the mechanical and electrical construction within them. The interior of closets and alcoves shall be considered exposed surfaces, and shall be finished to match the finish of the adjoining room or space, unless another finish is shown. The interiors of cabinets shall be considered exposed, but a finish different from that of the exterior may be permitted or specified. Spaces which are not normally occupied or used by occupants or building staff, such as shafts, hoistways, ceiling plenums,
attics and crawl spaces shall be considered “concealed” spaces, unless finishes are shown or specified for their surfaces.

1.1.20 Final Completion. The date when all Work for the total project has been completed in accordance with the terms of the Contract Documents and has been inspected following completion of Work identified in the Punchlist Inspection and accepted by the Architect and the District.

1.1.21 Furnish. Whenever this term is used it shall be understood to mean “purchase and deliver to the project site” ready for unloading, unpacking, assembly, installation, and similar operations.

1.1.22 Governing Dictionary. The definitions of words used in these Specifications, which are not defined, The General Conditions, or in referenced standards, are as given in “The American Heritage Dictionary of the English Language”.

1.1.23 Indicated. The term “indicated” refers to graphic representations, notes, or schedules on Drawings or to other paragraphs or schedules in Specifications and similar requirements in the Contract Documents. Terms such as “shown,” “noted,” “scheduled,” and “specified” are used to help the user locate the reference.

1.1.24 Inspector of Record is the individual retained by the District in accordance with titles 21 and 24 of the California Code of Regulations and who will be assigned to the Project. May also be referred to as the Project Inspector.

1.1.25 Install. Whenever this term is used it shall be understood to mean “receive, unload, inventory, store and be responsible for at the project site, transport from point of receipt to final destination, protect, unpack, erect, install in place, anchor, connect, apply, and place in operation or finish, cleaning, complete for intended use.”

1.1.26 Installer. An installer is the Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations. Using a term such as “carpentry” does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as “carpenter.” It also does not imply that requirements specified apply exclusively to trades people of the corresponding generic name.

1.1.27 Locality in which the work is performed means the county in which the Project is located.

1.1.28 Option. Whenever this term is used it shall be understood to mean a choice from among the specified products or procedures which shall be made by the Contractor. The choice is not “whether” the work is to be performed, but “which” product or “which” procedure is to be used. The product or procedure chosen by the Contractor shall be provided at no increase in the cost to the District with no lessening of the Contractor’s responsibility for its performance. All or any options selected or proposed are still subject to all requirements for submittals and for approval of same.

1.1.29 Or Equal and Or Approved Equal. The terms “or equal” and “or approved equal” shall mean “or equal as approved in writing by the Architect”.

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General Conditions
1.1.30 **The Project** is the complete construction of the Work performed in accordance with the Contract Documents.

1.1.31 **The Project Manual.** The Project Manual is the volume assembled for the Work which may include, without limitation, the bidding requirements, sample forms, Conditions of the Contract, and Specifications.

1.1.32 **The Project Site.** Project site is the space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.1.33 **Provide** shall include “provide complete in place,” that is “furnish and install.” Complete and ready for the intended use.

1.1.34 **Punch List Inspection.** The inspection performed by the Construction Manager, Architect and the District upon written notification by the Contractor that the Work is substantially complete.

1.1.35 **Regulations.** The term “regulations” includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

1.1.36 **Remaining Work.** Remaining Work means the work required by the Contract, but not required for Substantial Completion, that the District or Architect determines has not been satisfactorily completed at the time of Substantial Completion, deferred commissioning requirements, deferred and seasonal testing, and all maintenance and operating instructions, schedules, reports, guaranties, warranties, bonds, certificates of inspection, marked-up As-Built documents, prevailing wage compliance reports and all other documents as required by the Contract Documents. Remaining Work may also be referred to as Punch List work.

1.1.37 **Safety Orders** are those issued by any cognizant city, county, state or federal agency.

1.1.38 **Site** refers to the grounds of the Project as defined in the Contract Documents and such adjacent lands as may be directly affected by the performance of the Work.

1.1.39 **The Specifications.** The Specifications are that portion of the Contract Documents consisting of the written requirements for material, equipment, construction systems, instructions, quality assurance standards, workmanship, and performance of related services.

1.1.40 **Specification Language.** These Specifications are written in the imperative mood, as defined in the Construction Specifications Institute’s Manual of Practice. Imperative language is directed to the Contractor. The indicative mood is employed on occasion when such sentence structure is necessary to convey the intended meaning in a more accurate or understandable form. The text is streamlined, with the colon (:) employed as a symbol for the words “shall be”, “shall have”, “shall conform with”, “shall comply with”, or “shall meet the requirements of”. The colon is also used to separate a paragraph title or heading from the text that follows.
1.1.41 Standards, Rules, and Regulations referred to are recognized printed standards and shall be considered as one and a part of these specifications within limits specified. Federal, state and local regulations are incorporated into the Contract Documents by reference.

1.1.42 Subcontractor, as used herein, includes those having direct or indirect contracts with Contractor and ones who furnished labor, material or services for a special design according to drawings and specifications of this Work, but does not include ones who merely furnish material not so worked.

1.1.43 Substantial Completion. The date on which the Work or designated portion thereof, as certified by the District Project Manager and Architect, is sufficiently complete, in accordance with the Contract Documents, so the District, may occupy or utilize the Work or designated portion thereof for the use for which it is intended.

1.1.44 Surety is the person, firm, or corporation that executes as surety the Contractor's Performance Bond and Payment Bond.

1.1.45 Work of the Contractor or Subcontractor shall include all labor, materials and equipment necessary for the Contractor to fulfill all of its obligations pursuant to the Contract Documents. It shall include the initial obligation of any Contractor or Subcontractor who performs any portion of the Work, to visit the Site of the proposed Work (a continuing obligation after the commencement of the Work), to fully acquaint and familiarize itself with the conditions as they exist and the character of the operations to be carried out under the Contract Documents, and make such investigation as it may see fit so that it shall fully understand the facilities, physical conditions, and restrictions attending the Work under the Contract Documents. Each such Contractor or Subcontractor shall also thoroughly examine and become familiar with the Drawings, Specifications, and associated bid documents before preparing and submitting any bid.

1.1.46 Workers includes laborers, workers, and mechanics.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 Correlation and Intent

1.2.1.1 Documents Complementary and Inclusive. The Contract Documents are complementary; what is required by one shall be as binding as if required by all. The Contract Documents will be construed in accordance with the laws of the State of California and applicable building codes and statutes of the City and/or County where the Project is located. The intent of the Contract Documents is to describe and provide for a functionally complete and operational Project (or part thereof) to be constructed in accordance with the Contract Documents. All Work, materials, and equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as necessary to properly execute and complete the Work to conform to the requirements of the Contract Documents and provide for a functionally complete and operational Project shall be provided by Contractor with no change in the Contract Sum or Contract Time. A typical or representative detail on the Drawings shall constitute the standard for workmanship and material throughout corresponding parts of the Work. Where necessary, and where reasonably inferable from the Drawings, Contractor shall adapt such representative detail for application to such corresponding parts of the Work with no change in the Contract Sum or Contract Time. The details of such adaptation
shall be submitted to the City for approval. Repetitive features shown in outline on the Drawings shall be in exact accordance with corresponding features completely shown. All Contract Documents form the Contractor's contract with the District. Any item of Work mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be provided by Contractor as if shown or mentioned in both. Ambiguities or inconsistencies arising as a result of separation of sections or portions of the drawings or specifications by or for subcontractor bidding shall not relieve the Contractor for providing the complete Work at the Contract Price and within the Contract Time.

1.2.1.2 Coverage of the Drawings and Specifications. The Drawings and Specifications generally describe the Work to be performed by Contractor. Generally, the Specifications describe Work which cannot be readily indicated on the Drawings and indicate types, qualities, and methods of installation of the various materials and equipment required for the Work. It is not intended to mention every item of Work in the Specifications, which can be adequately shown on the Drawings, or to show on the Drawings all items of Work described or required by the Specifications even if they are of such nature that they could have been shown. All materials or labor for Work, which is shown on either the Drawings or the Specifications (or is reasonably inferable therefrom as being necessary to complete the Work), shall be provided by the Contractor to provide a complete project. It is intended that the Work be of sound, quality construction, and the Contractor shall be responsible for the inclusion of adequate amounts to cover installation of all items indicated, described, or implied in the portion of the Work to be performed by them.

1.2.1.3 Conflicts. In the event there is a discrepancy between the various Contract Documents, the more stringent, higher quality, and greater quantity of Work shall apply.

1.2.1.4 Conformance with Laws. Each and every provision of law required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein, even if through mistake or otherwise any such provision is not inserted, or is not correctly inserted. Before commencing any portion of the Work, Contractor shall check and review the Drawings and Specifications for such portion for conformance and compliance with all laws, ordinances, codes, rules and regulations of all governmental authorities and public and municipal utilities affecting the construction and operation of the physical plant of the Project, all quasi-governmental and other regulations affecting the construction and operation of the physical plant of the Project, and other special requirements, if any, designated in the Contract Documents. Such checking shall include Title 21 and Title 24 of the California Code of Regulations, California Building Code, local utility, local water connection, local grading and all other applicable agencies. In the event Contractor observes any violation of any law, ordinance, code, rule or regulation, or inconsistency with the Contract Documents, Contractor shall, within five (5) days, notify Architect and District in writing of same and shall ensure that any such violation or inconsistency shall be corrected in the manner provided hereunder prior to the construction of that portion of the Project. The Contractor shall bear all expenses of correcting Work done contrary to said laws, ordinances, rules, and regulations if the Contractor performed same (1).
without first consulting the Architect for further instructions regarding said Work or (2) disregarded the Architect’s instructions regarding said work.

1.2.1.5 Ambiguity and Inconsistency. Before commencing any portion of the Work, Contractor shall carefully examine all Drawings and Specifications and other information given to Contractor as to materials and methods of construction and other Project requirements. Contractor shall, within five (5) days, notify Architect and District in writing of any perceived or alleged error, inconsistency, conflict, ambiguity, or lack of detail or explanation in the Drawings and Specifications in the manner provided herein. If the Contractor or its Subcontractors, material or equipment suppliers, or any of their officers, agents, and employees performs, permits, or causes the performance of any Work under the Contract Documents, which it knows or should have known to be in error, inconsistent, or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all costs arising therefrom including, without limitation, the cost of correction thereof without increase or adjustment to the Contract Price or the time for performance. If Contractor performs, permits, or causes the performance of any Work under the Contract Documents prepared by or on behalf of Contractor which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all resulting costs, including, without limitation, the cost of correction, without increase to or adjustment in the Contract Price or the Time for performance. Ambiguities or inconsistencies arising as a result of separation of sections or portions of the drawings or specifications by or for subcontractor bidding shall not relieve the Contractor for providing the complete Work without increase to or adjustment in the Contract Price or the Time for performance.

1.2.2 Addenda and Deferred Approvals

1.2.2.1 Addenda are the changes in specifications, drawings, and contract documents, which have been authorized in writing by the District or Architect prior to receipt of bids, and which alter, explain, or clarify the contract documents. Addenda shall govern over all other Contract Documents. Subsequent addenda issued shall govern over prior addenda unless otherwise specified in the addenda.

1.2.2.2 Deferred Approvals. Contract Documents which require deferred approval items are meant to be for illustration purposes only. Contractor is responsible for all deferred approval requirements set forth in the Contract Documents. Contractor is responsible to comply with all laws, building codes, and regulations necessary to obtain all necessary approvals, including those required from the Division of the State Architect ("DSA") and the State Fire Marshall. Contractor shall not be granted an extension of time for failure to obtain necessary approvals due to failure to comply with laws, building codes, and other regulations (including Title 24 of the California Code of Regulations). Contractor shall schedule all deferred approval items in its progress schedule pursuant to Article 3. If Contractor fails to include deferred-approval items in its schedule which results in a critical path delay, then Contractor shall be subject to the assessment of liquidated damages.

1.2.2.3 Deferred Approval Requirements. Deferred approvals shall be submitted and processed pursuant to the requirements of Division 1 of the Specifications. All deferred approvals shall be prepared by Contractor or Contractor's agent early enough so as to not delay the Project. Contractor is aware that Title 21
California Code of Regulations Section 17(g) and Title 24 California Code of Regulations Section 4-317 have specific requirements for deferred approval as to governing agencies and as to the Architect and Engineer for the Project. As a result, any delay associated with the time for approval by applicable agencies or by the Architect or Architect's consultants shall be Contractor’s.

1.2.3 Specification Interpretation

1.2.3.1 Titles. The Specifications are separated into titled sections for convenience only and not to dictate or determine the trade or craft involved.

1.2.3.2 As Shown, Etc. Where “as shown,” “as indicated,” “as detailed,” or words of similar import are used, reference is made to the Drawings accompanying the Specifications unless otherwise stated. Where “as directed,” “as required,” “as permitted,” “as authorized,” “as accepted,” “as selected,” or words of similar import are used, the direction, requirement, permission, authorization, approval, acceptance, or selection by Architect is intended unless otherwise stated.

1.2.3.3 General Conditions. The General Conditions and supplementary general conditions are a part of each and every section of the Specifications.

1.2.3.4 Abbreviations. In the interest of brevity, the Specifications are written in an abbreviated form and may not include complete sentences. Omission of words or phrases such as “Contractor shall,” “shall be,” etc., are intentional. Nevertheless, the requirements of the Specifications are mandatory. Omitted words or phrases shall be supplied by inference in the same manner as they are when a “note” occurs on the Drawings. In the interest of brevity, the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.2.3.5 Plural. Words in the singular shall include the plural whenever applicable or the context so indicates.

1.2.3.6 Metric. The Specifications may indicate metric units of measurement as a supplement to U.S. customary units. When indicated thus: 1” (25 mm), the U. S. customary unit is specific, and the metric unit is nonspecific. When not shown with parentheses, the unit is specific. The metric units correspond to the “International System of Units” (SI) and generally follow ASTM E 380, “Standard for Metric Practice.”

1.2.3.7 Standard Specifications. Any reference to standard specifications of any society, institute, association, or governmental authority is a reference to the organization’s standard specifications, which are in effect at the date of the Contractor’s proposal unless directed otherwise. If applicable specifications are revised prior to completion of any part of the Work, the Contractor may, if acceptable to Architect, perform such Work in accordance with the revised specifications. The standard specifications, except as modified in the Specifications for the Project, shall have full force and effect as though printed in the Specifications. Architect will furnish, upon request, information as to how copies of the standard specifications referred to may be obtained.
1.2.4  **Rules of Document Interpretation**

1.2.4.1 In the event of conflict within the drawings, the following rules shall apply:

(a) General Notes, when identified as such, shall be incorporated into other portions of Drawings.

(b) Schedules, when identified as such, are complementary with other notes and other portions of Drawings including those identified as General Notes.

(c) Larger scale drawings shall take precedence over smaller scale drawings.

(d) At no time shall the Contractor base construction on scaled drawings.

1.2.4.2 Specifications shall govern as to materials, workmanship, and installation procedures.

1.2.4.3 If Contractor observes that drawings and specifications are in conflict, Contractor shall, within five (5) days, notify the Architect in writing for the purposes of obtaining an interpretation of the Contact Documents.

1.2.4.4 In the case of conflict or inconsistencies, the order of precedence shall be as follows:

(a) General Conditions take precedence over Drawings and Specifications.

(b) Special Conditions take precedence over General Conditions.

(c) The Agreement shall take precedent over the Special Conditions.

(d) In the case of disagreement or conflict between or within standards, specifications, and drawings, the more stringent, higher quality, and greater quantity of Work shall apply.

1.3  **OWNERSHIP AND USE OF ARCHITECT’S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS**

The Drawings, Specifications, and other contract documents for the Project are the property of the District and/or Architect pursuant to Education Code § 17316. The Contractor may retain one contract record set. 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. All copies except the Contractor’s record set, shall be returned or properly accounted for upon completion of the Work. The Drawings, Specifications, and other documents prepared by the Architect, and copies thereof furnished to the Contractor are not to be used by the Contractor or any Subcontractor, Sub-subcontractor, or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work. The District and/or Architect hereby grants the Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings, Specifications, and other documents prepared for the Project in the execution of their Work under the Contract Documents. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the District’s property interest or other reserved right.
ARTICLE 2

DISTRICT

2.1 INFORMATION AND SERVICES REQUIRED OF THE DISTRICT

2.1.1 Site Survey.

If applicable, the District will furnish, at its expense, a legal description of the Site and a land survey showing the boundaries of the Site. Contractor shall be responsible for all surveys regarding location of construction, grading and site work.

2.1.2 Soils.

When required by the scope of the Project, the District will furnish, at its expense, the services of geotechnical engineers or consultants when reasonably required and deemed necessary by the Architect or as required by local or state codes. Such services, with written reports and appropriate written professional recommendations, may include test boring, test pits, soil bearing values, percolation tests, air and water pollution tests, and ground corrosion and resistivity tests, including necessary operations for determining subsoil, air, and water conditions.

2.1.3 Contractor Reliance.

If appropriate to the Work, a soils investigation report has been obtained from test holes at the Site, and such report is available for the Contractor’s use in preparing its bid and Work under this Contract. The soils report is provided for review. Any information obtained from such report or any other information given on drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only. If, during the course of Work under this Contract, Contractor encounters subsurface conditions which differ materially from those indicated in the soils investigation report, then Contractor shall notify the District within five (5) calendar days of discovery of the condition, and changes to the contract price may be made in accordance with Article 7 entitled “Changes in the Work.” Contractor agrees that no claim against District will be made by Contractor for damages and hereby waives any rights to damages in the event the Contractor fails to notify District within the five-day period mentioned above.

WARNING: DISTRICT DOES NOT WARRANT THE SOILS AT THE PROJECT SITE. SOILS INVESTIGATION REPORT IS PROVIDED FOR CONTRACTORS INFORMATION ONLY. CONTRACTOR HAS CONDUCTED AN INDEPENDENT INVESTIGATION OF THE PROJECT SITE AND THE SOILS CONDITIONS OF THE SITE. DISTRICT DOES NOT WARRANT THE SOILS CONDITIONS OF THE SITE AND CONTRACTOR IS FULLY RESPONSIBLE TO ASCERTAIN SITE CONDITIONS FOR THE PURPOSES OF DETERMINING CONSTRUCTION MEANS AND METHODS PRIOR TO COMMENCING CONSTRUCTION. THE SOILS INVESTIGATION REPORT IS NOT A CONTRACT DOCUMENT.

2.1.4 Utilities.

2.1.4.1 Regional Notification Center. Contractor, except in an emergency, shall contact the appropriate regional notification center at least two working days prior to commencing any excavation if the excavation will be conducted in an area or in a private
easement which 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 carried out by the Contractor unless such an inquiry identification number has been assigned to the Contractor or any subcontractor of the Contractor and the District has been given the identification number by the Contractor. Any damages arising from failure to make appropriate regional notification shall be at the sole risk of Contractor. Any delays caused by failure to make appropriate regional notification shall be at the sole risk of Contractor and shall not be considered for extension of time pursuant to Paragraph 8.4.

2.1.4.2 Utilities – Removal and Restoration

The District has endeavored to determine the existence of utilities at the Site of the Work from the records of the District of known utilities in the vicinity of the Work. The positions of these utilities as derived from such records are shown in the Contract Documents.

No excavations were made to verify the locations shown for underground utilities. The service connections to these utilities may not be shown on the drawings. It shall be the responsibility of the Contractor to determine the exact location of all service connections. The Contractor shall make its own investigations, including exploratory excavations, to determine the locations and type of service connections, prior to commencing work which could result in damage to such utilities. The Contractor shall immediately notify the District’s representative as to any utility discovered by Contractor in a different position than shown in the Contract Documents or which is not shown on the Contract Documents.

Contractor shall coordinate its Work with all utilities, including, but not limited to electricity, water, gas and telephone and meet with said utilities prior to the start of any work.

2.1.4.3 Other Utilities.

In case it should be necessary to remove, relocate, or temporarily maintain a utility because of interference with the Work, the work on the utility shall be performed and paid for as follows:

When it is necessary to remove, relocate or temporarily maintain a service connection, the cost of which is not required to be borne by the owner thereof, the Contractor shall bear all expenses incidental to the work on the service connection. The work on the service connection shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the service connection has the option of doing such work with his own forces or permitting the work to be done by the Contractor.

When it is necessary to remove, relocate, or temporarily maintain a utility which is in the position shown on the drawings, the cost of which is not required to be borne by the owner thereof, the Contractor shall bear all expenses incidental to the work on the utility. The work on the utility shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the utility has the option of doing such work with his own forces or permitting the work to be done by the Contractor.

When it is necessary to remove, relocate, or temporarily maintain a utility which is not shown on the drawings or is in a position different from that shown on the drawings and were it in the position shown on the drawings would not need to be removed, relocated, or temporarily maintained, and the
cost of which is not required to be borne by the owner thereof, the District will make arrangements with the owner of the utility for such work to be done at no cost to the Contractor, or will require the Contractor to do such work in accordance with Article 7 or will make changes in the alignment and grade of the Work to obviate the necessity to remove, relocate, or temporarily maintain the utility. Changes in alignment and grade will be ordered in accordance with Article 7 herein.

No representations are made that the obligations to move or temporarily maintain any utility and to pay the cost thereof is or is not required to be borne by the owner of such utility, and it shall be the responsibility of the Contractor to investigate to find out whether said cost is required to be borne by the owner of the utility.

The right is reserved to governmental agencies and to owners of utilities to enter at any time upon any street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work and for the purpose of maintaining and making repairs to their property.

2.1.5 Existing Utility Lines; Removal, Relocation.

2.1.5.1 Main or Trunkline Facilities

If the Contractor while performing the contract discovers utility facilities not identified by the District in the Contract Documents, Contractor shall, within five (5) days, notify the District and utility in writing.

The District has the responsibility to identify, with reasonable accuracy, main or trunkline facilities on the drawings and specifications. In the event that main or trunkline utility facilities are not identified with reasonable accuracy in the drawings and specifications, District shall assume the responsibility for their timely removal, relocation, or protection.

The owner of the public utility shall have the sole discretion to perform repairs or relocation work or permit the Contractor to do such repairs or relocation work at a reasonable price.

The Contractor shall exercise reasonable care and shall be compensated by the District for the actual verified field costs of locating, and removing, relocating, protecting or temporarily maintaining such main or trunkline utility facilities not indicated with reasonable accuracy in the drawings and specifications, and for equipment in use on the project necessarily idled during such work. This work shall be performed in accordance with Article 7 of these General Conditions.

Alternatively, District may make changes in the alignment and grade of the work to obviate the need to remove, relocate, or temporarily maintain the utility, in accordance with Article 7 or District may make arrangements with the owner of the utility for such work to be done at no cost to the Contractor.

The Contractor shall not be assessed a forfeiture for delay in completion of the Project when such delay is caused by the failure of the District or the owner of the utility to provide for the removal, relocation, protection or temporary maintenance of all such main or trunkline facilities not indicated with reasonable accuracy.

Nothing herein shall preclude the District from pursuing any appropriate remedy against the utility for delays which are the responsibility of the utility.
Nothing herein shall be construed to relieve the utility from any obligation as required either by law or by contract to pay the cost of removal or relocation of existing utility facilities.

2.1.5.2 Assessment. These subparagraphs shall not be construed to preclude assessment against the Contractor for any other delays in completion of the Work. Nothing in these subparagraphs shall be deemed to require the District to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Site can be inferred from the presence of other visible facilities, such as buildings, or meter junction boxes on or adjacent to the Site.

2.1.5.3 Notification. If the Contractor, while performing Work under this Contract, discovers utility facilities not identified by the District in the Contract Documents, Contractor shall, within five (5) days, notify the District and the utility in writing. If Contractor fails to notify the District within five (5) days after discovery of any utility facilities not identified by District in the Contract Documents, Contractor waives all rights to be compensated for any extra Work or damages resulting from such discovered utilities.

2.1.6 Easements.

District shall secure and pay for easements for permanent structures or permanent changes in existing facilities, if any, unless otherwise specified in the Contract Documents.

2.2 DISTRICT’S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, including, but not limited to:

1. Failure to supply adequate workers on the entire Project or any part thereof;
2. Failure to supply a sufficient quantity of materials;
3. Failure to perform any provision of this Contract;
4. Failure to comply with safety requirements, or due to Contractor is creation of an unsafe condition;
5. In the case of bona fide emergency;
6. Failure to order materials in a timely manner;
7. Failure to prepare deferred-approval items or shop drawings in a timely manner;
8. Failure to comply with Contractor’s schedule which would result in a delay to the critical path;

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails (within a five-day period after receipt of written notice or a shorter time period expressly stated in the written notice from the District in an emergency situation) to commence and continue correction of such default with diligence and promptness, the District may correct such deficiencies without prejudice to other remedies the District may have, including those set forth in Article 14 after providing five-day written notice to Contractor and Surety. If during this five (5) day period, Surety personally delivers notice to District that it intends to perform such work, District shall allow Surety seven (7) days to perform. In an emergency situation, the District may correct such
deficiencies without prejudice to other remedies the District may have, including those set forth in Article 14 after providing 48 hours' notice to the Contractor. In either case, the Contractor will be invoiced the cost of correcting such deficiencies, including compensation for additional services and expenses made necessary by such default, or neglect. The invoice amount shall be deducted from the next payment due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the District.

ARTICLE 3

THE CONTRACTOR

3.1 SUPERVISION AND CONSTRUCTION PROCEDURES

3.1.1 Contractor.

The Contractor shall continually supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures; and shall coordinate all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. The Contractor shall not perform the Work without utilizing the Contract Documents or, where required, approved shop drawings, product data, or samples for any such portion of the work. If any of the Work is performed by contractors retained directly by the District, Contractor shall be responsible for the coordination and sequencing of the work of those other contractors so as to avoid any impact on the project schedule pursuant to the requirements of Article 6 and Article 8. Specific duties of the Contractor shall include those set out in Section 43 of Title 21 of the California Code of Regulations and Section 4-343 of Title 24 of the California Code of Regulations. These duties include, but are not limited to the following:

(a) Responsibilities. It is the duty of the Contractor to complete the Work covered by his or her contract in accordance with the approved drawings and specifications. The Contractor in no way is relieved of any responsibility by the activities of the Architect, Engineer, Inspector or DSA in the performance of their duties.

(b) Performance of the work. The Contractor shall carefully study the approved drawings and specifications and shall plan its schedule of operations well ahead of time. If at any time it is discovered that work is being done which is not in accordance with the approved drawings and specifications, the contractor shall correct the work immediately.

All inconsistencies or times which appear to be in error in the drawings and specifications shall promptly be called to the attention of the Architect or, Engineer, for interpretation or correction. Local conditions which may affect the structure shall be brought to the Architect's attention at once. In no case, shall the instruction of the Architect be construed to cause work to be done which is not in conformity with the approved drawings, specifications, change orders, construction change directives, and as required by law.
The Contractor shall not carry on Work except with the knowledge of the Inspector of Record.

(c) Verified Reports. The Contractor shall make and submit to the District from time to time, verified reports as required in Section 36 of Title 21 and Section 4-366 of Title 24.

Contractor shall fully comply with any and all reporting requirements of Education Code Sections 81147, et seq., in the manner prescribed by Title 24, as applicable.

3.1.2 Contractor Responsibility.

The Contractor shall be responsible to the District for acts and omissions of the Contractor’s employees, Subcontractors, material and equipment suppliers, and their agents, employees, invitees, and other persons performing portions of the Work under direct or indirect contract with the Contractor or any of its Subcontractors.

3.1.3 Obligations not Changed by Architect’s Actions.

The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect’s administration of the Contract or by tests, inspections, or approvals required or performed by persons other than the Contractor.

3.1.4 Acceptance/Approval of Work.

The Contractor shall be responsible to determine when any completed portions of the Work already performed under this Contract or provided pursuant to Article 6 are suitable to receive subsequent Work thereon.

3.1.5 Performance of Work With Own Force.

Contractor shall perform at least 15% of the Work, exclusive of supervisory and clerical work without the services of any subcontractor. Contractor shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills as may be necessary to perform the Work in accordance with the Contract Documents.

3.2 SUPERVISION

3.2.1 Full Time Supervision.

Unless personally present on the Project site where the Work is being performed, the Contractor shall keep on the Work at all times during its progress a competent construction Superintendent satisfactory to the District. The Superintendent shall be present on a full-time basis, shall be dedicated exclusively to the Project and shall not share superintendence duties with another project or job. The Superintendent shall not be replaced except with written consent of the District. The Superintendent shall represent the Contractor in its absence and shall be fully authorized to receive and fulfill any instruction from the Architect, the Inspector, the District or any other District representative. All Requests for Information shall be originated by the Superintendent and responses
thereto shall be given to the Superintendent. No Work shall begin on any day by any Subcontractor or other person on the Project site until the Superintendent has arrived, or shall any Work continue during the day after the Superintendent has departed from the Project site. The Superintendent shall have authority to bind Contractor through the Superintendent's acts. The Superintendent shall represent the Contractor, and communications given to the Superintendent shall be binding on the Contractor. Before commencing the Work, Contractor shall give written notice to District and Architect of the name and a Statement of Qualifications of such superintendent for District approval. Superintendent shall not be changed except with written consent of District, unless a superintendent proves to be unsatisfactory to Contractor and ceases to be in its employ, in which case, Contractor shall notify District and Architect in writing. Contractor shall provide a replacement superintendent approved by the District prior to performing additional work.

3.2.2 Staff.

Notwithstanding other requirements of the contract documents, the Contractor and each Subcontractor shall: (1) furnish a competent and adequate staff as necessary for the proper administration, coordination, supervision, and superintendence of its portion of the Work; (2) organize the procurement of all materials and equipment so that the materials and equipment will be available at the time they are needed for the Work; and (3) keep an adequate force of skilled and fit workers on the job to complete the Work in accordance with all requirements of the Contract Documents.

3.2.3 Right to Remove.

District shall have the right, but not the obligation, to require the removal from the Project of any superintendent, staff member, agent, or employee of any Contractor, Subcontractor, material or equipment supplier.

3.3 LABOR AND MATERIALS

3.3.1 Contractor to Provide.

Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, material, equipment, tools, construction equipment and machinery, water, heat, air conditioning, utilities, transportation, and other facilities, services and permits necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.3.2 Quality.

Unless otherwise specified, all materials and equipment to be permanently installed in the Project shall be new and shall be of the highest quality or as specifically stated in the Contract Documents. The Contractor shall, if requested, furnish satisfactory evidence as to kind and quality of all materials and equipment within ten (10) days of a written request by the District, including furnishing the District with bona fide copies of invoices for materials or services provided on the Project. All labor shall be performed by workers skilled in their respective trades, and shall be of the same or higher quality as with the standards of other school construction.
3.3.3 Replacement.

Any work, materials, or equipment, which do not conform to these requirements or the standards set forth in the Contract Documents, may be disapproved by the District, in which case, they shall be removed and replaced by the Contractor at no additional cost or extension of time to the District.

3.3.4 Discipline.

The Contractor shall enforce strict discipline and good order among the Contractor’s and Subcontractor’s employees, and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. As used in this subsection, “unfit” includes any person who the District concludes is improperly skilled for the task assigned to that person, who fails to comply with the requirements of this article, or who creates safety hazards which jeopardize other persons and/or property.

3.3.5 Noise, Drugs, Tobacco, and Alcohol.

Contractor shall take all steps necessary to insure that employees of Contractor or any of its subcontractors’ employees do not use, consume, or work under the influence of any alcohol, tobacco or illegal drugs while on the project. Contractor shall further prevent any of its employees or its subcontractor employees from playing any recorded music devices or radios or wearing any radio headphone devices for entertainment while working on the project. Likewise, Contractor shall prevent its employees or subcontractor’s employees from bringing any animal onto the project. Contractors shall not violate any written school policies.

3.3.6 Delivery of Material.

Contractor shall place orders for materials or equipment so that the Work may be completed in accordance with the Construction schedule for the Work as set forth in Article 8 of this Agreement. Contractor shall, upon demand from the Architect, furnish to the Architect documentary evidence including, but not limited to purchase orders, invoices, bills of materials, work orders and bills of lading, showing that orders have been placed.

3.3.7 Liens and Other Security Interests of Subcontractors and Material Suppliers.

No material, supplies, or equipment for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver premises, together with all improvements and appurtenances constructed or placed thereon by it, to District free from any claims, security interests, 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 this Contract shall have any right to place a lien upon the premises or any improvement or appurtenance thereof, except that Contractor may install metering devices or other equipment of a utility company or political subdivision, title to which is commonly retained by the utility company or political subdivision. In event of installation of any such metering device or equipment, Contractor shall advise District as to its owner within five (5) days of such installation in writing, prior to making the installation.
3.3.8 Title to Materials.

The title to new materials 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 the District and Architect; no part of said materials shall be removed from its place of storage, and Contractor shall keep an accurate inventory of all said materials and equipment in a manner satisfactory to the District or its authorized representative.

3.3.9 Assemblies.

For all material 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. Incidental items not indicated on the 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 in the Contract Documents 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.

3.4 WARRANTY

3.4.1 The Contractor warrants to the District that material and equipment furnished under the Contract will be of the highest quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor’s warranty and guaranty to District includes, but is not limited to the following representations:

3.4.1.1 In addition to any other warranties and guaranties provided elsewhere, Contractor shall, and hereby does, warrant all Work after the date of Notice of Completion of Work by District and shall repair or replace any or all such work, together with any other work, which may be displaced in so doing that may prove defective in workmanship or materials within a one (1) year period from date of completion as defined in Public Contract Code Section 7107(c) without expense whatsoever to District, ordinary wear and tear, unusual abuse or neglect excepted. District will give notice of observed defects with reasonable promptness. Contractor shall notify District upon completion of repairs.

3.4.1.2 In the event of failure of Contractor to comply with above mentioned conditions within one week after being notified in writing, District is hereby authorized to proceed to have defects repaired and made good at expense of Contractor who hereby agrees to pay costs and charges therefore immediately on demand.

3.4.1.3 If, in the opinion of the District, defective Work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the District, the District will attempt to give the notice required by this Article. If the Contractor cannot be contacted or does not comply with the District’s requirements for correction within a reasonable time as determined by the District, the District may, notwithstanding the provisions of this article, proceed to make such correction or
attention which shall be charged against Contractor. Such action by the District will not
relieve the Contractor of the guarantee provided in this Article or elsewhere in this
Contract.

3.4.1.4 This Article does not in any way limit the guarantee on any items for
which a longer warranty or guaranty is specified or on any items for which a
manufacturer gives a guarantee for a longer period. Contractor shall furnish District all
appropriate guaranty or warranty certificates upon completion of the project.

3.4.2 Format - All Warranties/Guaranties and shall include:

3.4.2.1 Contractor, subcontractor, and equipment supplier shall provide
Warranties and Guaranties on their original company letterhead with original signature.

3.4.2.2 Contractor shall provide original Warranties and Guaranties. Photo
copies, fax and e-mail copies are not acceptable.

3.4.3 Preparation

3.4.3.1 Contractor shall obtain warranties and guaranties, executed in duplicate
by each applicable and/or responsible subcontractor(s), supplier(s), and
manufacturer(s), within fifteen (15) days after Notice of Substantial Completion of the
applicable Work or Phase of Work. Except for items put into use with District’s
permission, Contractor shall leave date of beginning of time of warranty or guaranty
blank until the date of completion is determined by District.

3.4.3.2 Contractor’s Response to Construction Warranty and Guaranty Service
Requirements: Following oral or written notification by the District, respond to
construction warranty and guaranty service requirements within 24 hours, or earlier in
case of emergency.

3.4.4 Warranty and/or Guaranty Tags.

At the time of installation of mechanical equipment or other major system elements, tag each
warranted or guaranteed item with a durable, oil and water resistant tag approved by the District.
Attached each tag with a copper wire and spray with a silicone waterproof coating. The date of
Substantial Completion and the Contractor Authorized signature must remain blank until the date the
District makes a determination of Substantial Completion. Show the following information on the tag:
WARRANTY/GUARANTY INFORMATION – [insert project number and name on actual tag]

a. Type of product/material

b. Model number

c. Serial number

d. Contract number

e. Warranty/Guaranty period ______ (months) from______ to______________.

f. Inspector’s signature

g. Construction Contractor

Address ____________________________

Telephone number ____________________

h. Warranty or Guaranty contact

Address ____________________________

Telephone number ____________________

j. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

3.5 TAXES

Contractor will pay all applicable Federal, State, and local taxes on all materials, labor, or services furnished by it, and all taxes arising out of its operations under the Contract Documents. District is exempt from Federal Excise Tax, and a Certificate of Exemption shall be provided upon request.

3.6 PERMITS, FEES AND NOTICES

3.6.1 Payment.

The Contractor shall secure and pay for all permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are necessary after execution of the Contract and are legally required by any authority having jurisdiction over the Project, except those required by the Division of the State Architect (DSA). District shall be responsible for all testing and inspection as required by the DSA on-site or within the distance limitations set forth in Paragraph 13.5.2.

3.6.2 Compliance.

The Contractor shall comply with and give notices required by any law, ordinance, rule, regulation, and lawful order of public authorities bearing on performance of the Work.

3.6.3 Responsibility.

The Contractor shall perform all Work in conformance with every applicable law, statute, ordinance, building code, rule or regulation. The Contractor shall assume full responsibility for such Work and shall bear the attributable cost of correction or project delay.
3.8 CONTRACTOR’S CONSTRUCTION SCHEDULES

3.8.1 Requirements.

(a) Within ten (10) calendar days after being awarded the contract, Contractor shall submit a schedule for District’s approval using Microsoft Project, or Oracle Primavera software. Contractor shall provide digital schedule files to District on CD for this schedule, and all subsequent progress schedules required by the District. The schedule shall not exceed time limits set forth in the Contract Documents and shall comply with all of the scheduling requirements as set forth in the Specifications. Failure to submit a schedule or submittal of a schedule which shows completion of the Work beyond the specified completion date shall be deemed a material breach by the Contractor. The schedule must indicate the beginning and completion of all phases of construction and shall use the “critical path method” (commonly called CPM) for the value reporting, planning and scheduling, of all Work required under the Contract Documents. The scheduling is necessary for the District’s adequate monitoring of the progress of the Work and shall be prepared in accordance with the time frame described in Article 8 of the General Conditions. The District may disapprove of any schedule or require modification to it if, in the opinion of the District, adherence to the progress schedule will not cause the Work to be completed in accordance with the Agreement.

(b) Contractor shall not submit a schedule showing early completion without indicating float time through the date set for Project completion by District. Contractor’s schedule shall account for all days past early completion as float which belongs to both District and Contractor. Usage of float shall not entitle Contractor to any delay claim or damages due to delay.

(c) Contractor shall not be granted an extension of time for failure to obtain necessary approvals for deferral approvals due to failure to comply with laws, building codes, and other regulations (including Title 24 of the California Code of Regulations). Contractor shall schedule all deferred approval items and shop drawings in its progress schedule. If Contractor fails to include deferred approval items and shop drawings in its schedule which results in a critical path delay, then Contractor shall be subject to the assessment of liquidated damages.

(d) In addition to providing a schedule update every thirty (30) days, the Contractor, if requested by the Architect or District, shall provide revised schedules within ten (10) days if, at any time, the Architect or District, consider the completion date to be in jeopardy because of “activities behind schedule.” The additional schedule shall include a new arrow or precedence diagram and schedule reports conforming to the requirements above, designed to show how the Contractor intends to accomplish the Work to meet the completion date. The form and method employed by the Contractor shall be the same as for the original construction schedule accepted by the District. The Contractor shall modify any portions of the schedule that become infeasible because of “activities behind schedule” or for any other valid reason. An activity that cannot be completed by its
original latest completion date shall be deemed to be behind schedule. If Contractor submits a revised schedule showing an earlier completion date for the Project, District’s acceptance of this revised schedule shall not entitle Contractor to any delay claim or damages due to any such revised schedule.

(e) Contractor shall include in the schedule all shop drawings, and deferred submittals. Include activities for the submittal, District/Architect’s review (minimum duration of 14 calendar days), procurement (or fabrication as applicable); and link the finish of the procurement/fabrication activity to the start of the related field activity at the Site.

3.8.2 Failure to Meet Requirements.

Failure of the Contractor to provide proper schedules as required by this Article and Article 9 is a material breach of the contract and grounds for termination pursuant to Article 14. The District, at its sole discretion, may choose, instead, to withhold, in whole or in part, any progress payments or retention amounts otherwise payable to the Contractor.

3.9 Not used.

3.10 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the Site for the District one current copy of the International Building Code, Titles 19, 21 and 24 of the California Code of Regulations and one record copy of the Drawings, Specifications, Addenda, Change Orders, and other Modifications, in good order and marked currently to record changes and selections made during construction. In addition, the Contractor shall maintain at the Site approved Shop Drawings, Product Data, Samples, and similar required submittals. These documents shall be available to the District, and shall be delivered to the District upon completion of the Work.

3.11 SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND SUBSTITUTIONS

3.11.1 Submittals defined.

3.11.1.1 Shop Drawings. The term “shop drawings” as used herein means drawings, diagrams, schedules, and other data, which are prepared by Contractor, Subcontractors, manufacturers, suppliers, or distributors illustrating some portion of the Work, and includes: illustrations; fabrication, erection, layout and setting drawings; manufacturer's standard drawings; schedules; descriptive literature, instructions, catalogs, and brochures; performance and test data including charts; wiring and control diagrams; and all 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 their position conform to the requirements of the Contract Documents. The Contractor shall obtain and submit with shop drawings all seismic and other calculations and all product data from equipment manufacturers. “Product data” as used herein are 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. As used herein, the term “manufactured” applies to standard units usually mass-produced, and “fabricated” means items specifically assembled or made out of selected materials to meet individual design requirements. Shop drawings shall: establish the actual detail of all manufactured or...
fabricated items, indicate proper relation to adjoining work, amplify design details of mechanical and
electrical systems and equipment in proper relation to physical spaces in the structure, and incorporate
minor changes of design or construction to suit actual conditions.

3.11.1.2 **Samples.** The term “samples” as used herein are physical examples furnished by
Contractor to illustrate materials, equipment, or quality and includes natural materials, fabricated items,
equipment, devices, appliances, or parts thereof as called for in the Specifications, and any other
samples as may be required by the District/Architect to determine whether the kind, quality,
construction, finish, color, and other characteristics of the materials, etc., proposed by the Contractor
conform to the required characteristics of the various parts of the Work. All Work shall be in accordance
with the approved samples.

3.11.1.3 **Contractor’s Responsibilities.** Contractor shall obtain and shall submit all
required shop drawings, samples, etc., required by the Specifications with such promptness as to cause
no delay in its own Work or in that of any other contractor or subcontractor but in no event later than
ten (10) days after the award of the Contract. No extensions of time will be granted to Contractor or
any Subcontractor because of its failure to have shop drawings and samples submitted in accordance
with the Schedule. Each Subcontractor shall submit all shop drawings, samples, and manufacturer’s
descriptive data for the review of the District, the Contractor, and the Architect through the Contractor.
By submitting shop drawings, product data, samples, etc., the Contractor represents that it has
determined and verified all materials, field measurements, catalog numbers, related field construction
criteria, and other relevant data in connection with each such submission, and that it has checked,
verified, and coordinated the information contained within such submittals with the requirements of the
Work and of the Contract Documents, including the construction schedule. The submission of the shop
drawings, product data, samples, etc., shall not deviate from the requirements of the Contract
Documents including detailing and design intent which is specifically outlined in Contract Documents
except as specifically authorized by the District/Architect or through an accepted substitution pursuant
to Paragraph 3.10.4. All deviations from the Contract Documents shall be narratively described in a
transmittal accompanying the shop drawings. However, shop drawings shall not be used as a means of
requesting a substitution, the procedure for which is defined in Paragraph 3.10.4, “Substitutions.”
Review by District and Architect shall not relieve the Contractor or any Subcontractor from its
responsibility in preparing and submitting proper shop drawings in accordance with the Contract
Documents. Any submission, which in District/Architect’s opinion is incomplete, contains errors, or has
been checked superficially will be returned un-reviewed by the District/Architect for resubmission by
the Contractor. Contractor shall stamp, sign, and date each submittal indicating its representation that
the submittal meets all of the requirements of the Contract Documents and evidence Contractor’s
review through execution of the following stamp to be placed on each shop drawings:

“[Signature of Contractor and date]"

3.11.1.4 **Extent of Review.** In reviewing shop drawings, the District nor the Architect will
not verify dimensions and field conditions. The Architect will review and approve shop drawings,
product data, samples, etc., for aesthetics and for conformance with the design concept of the Work and the information in the Contract Documents. The District nor the Architect's review shall neither be construed as a complete check which relieves the Contractor, Subcontractor, manufacturer, fabricator, or supplier from responsibility for any deficiency that may exist or from any departures or deviations from the requirements of the Contract Documents unless the Contractor has, in writing, called the District's/Architect's attention to the deviations at the time of submission. The District's or Architect's review shall not relieve the Contractor or Subcontractors from responsibility for errors of any sort in shop drawings or schedules, for proper fitting of the Work, coordination of the differing subcontractor trades and shop drawings and Work which is not indicated on the shop drawings at the time of submission of shop drawings. Contractor and Subcontractors shall be solely responsible for any quantities which may be shown on the submittals or Contract Documents.

3.11.2 Drawing Submission Procedure.

3.11.2.1 Transmittal Letter and Other Requirements. All shop drawings must be properly identified with the name of the Project and dated, and each lot submitted must be accompanied by a letter of transmittal referring to the name of the Project and to the Specification section number for identification of each item clearly stating in narrative form, as well as "clouding" on the submissions, all qualifications, departures, or deviations from the Contract Documents. Shop drawings, for each section of the Work shall be numbered consecutively and the numbering system shall be retained throughout all revisions. All Subcontractor submissions shall be made through the Contractor. Each drawing shall have a clear space for the stamps of Architect and Contractor.

3.11.2.2 Copies Required. Unless otherwise approved by the District, each submittal shall include six (6) legible prints of each drawing or schedule, table, cut sheet, etc., including fabrication, erection, layout and setting drawings, and such other drawings as required under the various sections of the Specifications, until final acceptance thereof is obtained. Subcontractor shall submit copies, in an amount as requested by the Contractor, of: (1) manufacturers' descriptive data for materials, equipment, and fixtures, including catalog sheets showing dimensions, performance, characteristics, and capacities; (2) wiring diagrams and controls; (3) schedules; (4) all seismic calculations and other calculations; and (5) other pertinent information as required by the District or Architect.

3.11.2.3 Corrections. The Contractor shall make all corrections required by District/Architect and shall resubmit, as required by District/Architect, corrected copies of shop drawings or new samples until approved. Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections required by the District/Architect on previous submissions. Professional services required for more than one (1) re-review of required submittals of shop drawings, product data, or samples are subject to charge to the Contractor pursuant to Paragraph 4.4.

3.11.2.4 Approval Prior to Commencement of Work. No portion of the Work requiring a shop drawing or sample submission or other submittal shall be commenced until the submission has been reviewed by Contractor and Architect and approved by Architect unless specifically directed in writing by the District. All such portions of the Work shall be in accordance with approved shop drawings and samples.

3.11.3 Sample Submissions Procedure.

3.11.3.1 Samples Required. In case a considerable range of color, graining, texture, or other characteristics are anticipated in finished products, a sufficient number of samples of the specified materials shall be furnished by the Contractor to indicate the full range of characteristics which will be
present in the finished products; and products delivered or erected without submittal and approval of a full range of samples shall be subject to rejection. Except for range samples, and unless otherwise called for in the various sections of the Specifications, samples shall be submitted in duplicate. All samples shall be marked, tagged, or otherwise properly identified with the name of the submitting party, the name of the Project, the purpose for which the samples are submitted and the date, and shall be accompanied by a letter of transmittal containing similar information, together with the Specification section number. Each tag or sticker shall have clear space for the review stamps of Contractor and Architect.

3.11.3.2 **Labels and Instructions.** All samples of materials shall be supplied with the manufacturer’s descriptive labels and application instructions.

3.11.3.3 **Architect's Review.** The Architect will review and, if appropriate, approve submissions and will return them to the Contractor with the Architect’s stamp and signature applied thereto, indicating the timing for review and appropriate action in compliance with the Architect’s (or District’s) standard procedures.

3.11.3.4 Not used.

3.11.3.5 Not used.

3.11.3.6 **District’s Property.** All shop drawings, computer disks, annotated specifications, samples and other submittals shall become the District’s property upon receipt by the District or Architect.

3.11.4 Substitutions.

3.11.4.1 **One Product Specified.** Unless the Specifications state that no substitution is permitted, whenever the Contract Documents indicate any specific material, product, thing or service, or any specific name, make, trade name, or catalog number, with or without the words “or equal,” such specification shall be deemed to be used for the purpose of facilitating description of the material, product, thing or service desired and shall be deemed to be followed by the words “or equal” unless the Contract Documents specify “no substitution allowed”, “no equal”, “no equivalent”, or other language with similar meaning, in which case no substitutions will be allowed. Pursuant to Paragraph 3.11.4.3, the Contractor may, unless otherwise stated, within three (3) work days after the bid opening, submit a substitution request for any material, product, thing or service, which shall be materially equal or better in every respect to that so indicated or specified (“Specified Item”) and will completely accomplish the purpose of the Contract Documents.

(a) **Products Specified Which are Commercially Unavailable.** If the Contractor fails to make a request for substitutions for products, within three (3) work days after bid opening, and such products subsequently become commercially unavailable, the Contractor may request a substitution for such commercially unavailable item. The decision to grant this request is solely at the District’s discretion. The written approval of the District, consistent with the procedure for Change Orders, shall be required for the use of a proposed substitute material. The District may condition its approval of the substitution upon the delivery to District of an extended warranty or guaranty or other assurances of adequate performance of the substitution as well as an equitable deduction in the contract sum should the substituted item cost less than the Specified Item. All risks of delay due the approval of a requested substitution by the District, DSA, or any other governmental agency having jurisdiction, shall be on the requesting party. All additional costs, all procurement and construction delays, and all costs for review by the Architect.
or its consultants shall be the responsibility of the Contractor and will be deducted from Contractor’s pay request.

3.11.4.2 **Substitution Request Form.** Requests for substitutions of materials, products, things or services in place of a Specified Item must be submitted to the District in writing on the District’s Substitution Request Form (“Request Form”) within three (3) work days after bid opening, except as provided for in Paragraph 3.11.4.1. (a *Substitution Request Form* is included at the end of this document; or may be obtained from the District.)

The Request Form must be accompanied by evidence as to whether the proposed substitution:

1. Is equal in quality/service/ability to the Specified Item;
2. Will entail no changes in detail, construction, and scheduling of related work;
3. Will be acceptable in consideration of the required design and artistic effect;
4. Will provide no cost disadvantage to the District;
5. Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and
6. Will required no change of the construction schedule.

3.11.4.3 In completing the Request Form, the bidder shall state, with respect to each requested substitution, that the bidder will agree to provide the Specified Item in the event that the District denies the bidder’s request for such requested substitution. In the event the District denies the bidder’s requested substitution for a Specified Item, the bidder shall provide the Specified Item without any additional cost or charge to the District, and waives all rights to submit a claim.

3.11.4.4 After bids are opened, the apparent lowest bidder shall provide, within three (3) days of opening such bids, any and all Drawing, Specifications, samples, performance data, calculations, and other information, as may be required to assist the Architect and the District in determining whether the proposed substitution is acceptable. The burden of establishing these facts shall be upon the bidder.

3.11.4.5 After the District’s receipt of such evidence by the bidder, the District will make its final decision as to whether the bidder’s request for substitution for any Specified Items will be granted. The decision as to whether a proposed request for substitution is equal to a Specified Item shall be at the sole discretion of the District. Any request for substitution that is granted by the District shall be documented and processed through a Change Order. The District may condition its approval of any substitution upon delivery to the District of an extended warranty or guaranty or other assurances of adequate performance of the substitution. Any and all risks of delay due to approval by the District, DSA or any other governmental agency having jurisdiction shall be on the bidder.

3.11.4.6 If the Architect and District accept a proposed substitution, the Contractor agrees to pay for all District expenses, including but not limited to Division of the State Architect fees, engineering and design services, compensation to the Architect and affected engineers for their required time to process such substitution through the Division of the State Architect, if required, and to make all changes and adjustments in materials or the work of all trades directly or indirectly affected by the substituted item or items at no cost to the District.
3.12 INTEGRATION OF WORK

3.12.1 Scope.

The Contractor shall be responsible for cutting, fitting, or patching to complete the Work and to make all parts fit together properly. Contractor shall be responsible for ensuring that all trades are coordinated and scheduled so as to ensure the timely and proper execution of the work. When modifying existing work or installing new Work adjacent to existing work, Contractor shall match, as closely as conditions of Site and materials will allow, the finishes, textures, and colors of the original work, refinishing existing work at no additional cost to District. All cost caused by defective or ill-timed work shall be borne by Contractor. Contractor shall be solely responsible for protecting existing work on adjacent properties and shall obtain all required permits for shoring and excavations near property lines.

3.12.2 Structural Members.

New or existing structural members and elements, including reinforcing bars and seismic bracing, shall not be cut, bored, or drilled except by written authority of the Architect and DSA. Work done contrary to such authority is at the Contractor’s risk and subject to replacement at its own expense without reimbursement under the Contract. Schedule delays resulting from unauthorized work shall be the Contractor’s responsibility.

3.12.3 Subsequent Removal.

Permission to patch any areas or items of the Work shall not constitute a waiver of the District’s or the Architect’s right to require complete removal and replacement of the areas of items of the Work if, in the opinion of the Architect or the District, the patching does not satisfactorily restore quality and appearance of the Work or does not otherwise conform to the Contract Documents.

3.13 CLEANING UP

3.13.1 Contractor’s Responsibility.

Contractor at all times shall keep premises free from debris such as waste, dust, excess water, storm water runoffs, rubbish, and excess materials and equipment. Contractor shall not leave debris under, in, or about the premises, but shall promptly remove same from the premises and dispose of it in a lawful manner. Disposal receipts or dump tickets shall be furnished to the Architect within five (5) days of request. Upon completion of Work, Contractor shall clean interior and exterior of buildings, including fixtures, equipment, walls, floors, ceilings, roofs, window sills and ledges, horizontal projections, and any areas where debris has collected, so surfaces are free from foreign material or discoloration; Contractor shall clean and polish all glass, plumbing fixtures, equipment, finish hardware and similar finish surfaces. Upon completion of the Work, Contractor shall also remove temporary utilities, fencing, barricades, planking, sanitary facilities and similar temporary facilities from Site.

Contractor shall remove rubbish and debris resulting from the Work on a daily basis. Contractor shall maintain the structures and Site in a clean and orderly condition at all times until acceptance of the project by the District. Contractor shall keep its access driveways and adjacent streets, sidewalks, gutters and drains free of rubbish, debris and excess water by cleaning and removal each day.
3.13.1.1 In addition to the general cleaning, the following special cleaning shall be done at the completion of the work in accordance with the specifications including, but not limited to:

(a) Remove putty stains from glazing, then wash and polish glazing.
(b) Remove marks, stains, fingerprints and other soil or dirt from painted, stained or decorated work.
(c) Remove temporary protection and clean and polish floors and waxed surfaces.
(d) Clean and polish hardware and plumbing trim; remove stains, dust, dirt, plaster and paint.
(e) Remove spots, soil, plaster and paint from tile work, and wash tile.
(f) Clean all fixtures and equipment, remove excess lubrication, clean light fixtures and lamps, polish metal surfaces.
(g) Vacuum-clean carpeted surfaces.
(h) Remove debris from roofs, down spout and drainage system.

3.13.2 Failure to Cleanup.

If the Contractor fails to clean up as provided in the Contract Documents, the District may do so, and the cost thereof shall be the responsibility of the Contractor and deducted from the next progress payment.

3.14 ACCESS TO WORK

The Contractor shall provide the District, the Architect, Engineers and the Inspector of Record, access to the Work in preparation and progress wherever located. Contractor shall provide safe and proper facilities for such access so that District's representatives may perform their functions.

CONTRACTOR IS AWARE THAT THIS CONTRACT MAY BE SPLIT INTO SEVERAL PHASES AS ADDRESSED IN ARTICLE 6.

3.15 ROYALTIES AND PATENTS

3.15.1 Payment and indemnity for Infringement.

Contractor shall hold and save the District and its officers, agents, and employees, the Architect, and the Architect's consultants harmless from liability of any nature or kind, including cost and expense, for or on account of any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the District, unless otherwise specifically provided in the contract documents, and unless such liability arises from the sole negligence, or active negligence, or willful misconduct of the District, the Architect, or the Architect's consultants.

3.15.2 Review.

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

3.16.1 Contractor.

Contractor shall defend, indemnify and hold harmless District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from all liabilities, claims, actions, liens, judgments, demands, damages, losses, costs or expenses of any kind arising from death, personal injury, property damage or other cause based or asserted upon any act, omission, or breach connected with or arising from the progress of Work or performance of service under this Agreement or the Contract Documents. As part of this indemnity, Contractor shall protect and defend, at its own expense, District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from any legal action including attorneys fees or other proceeding based upon such act, omission, or breach.

Furthermore, Contractor agrees to and does hereby defend, indemnify and hold harmless District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from every claim or demand made, and every liability, loss, damage, expense or attorneys fees of any nature whatsoever, which may be incurred by reason of:

(a) Liability for (1) death or bodily injury to persons; (2) damage or injury to, loss (including theft), or loss of use of, any property; (3) any failure or alleged failure to comply with any provision of law or the Contract Documents; or (4) any other loss, damage or expense, sustained by any person, firm or corporation or in connection with the Work called for in this Agreement or the Contract Documents, except for liability resulting from the sole or active negligence, or the willful misconduct of the District.

(b) Any bodily injury to or death of persons or damage to property caused by any act, omission or breach of Contractor or any person, firm or corporation employed by Contractor, either directly or by independent contract, including all damages or injury to, loss (including theft), or loss of use of, any property, sustained by any person, firm or corporation, including District, arising out of or in any way connected with Work covered by this Agreement or the Contract Documents, whether said injury or damage occurs either on or off District property, but not for any loss, injury, death or damages caused by the sole or active negligence or willful misconduct of the District.

(c) Any dispute between Contractor and Contractor's subcontractors/supplies/sureties, including, but not limited to, any failure or alleged failure of the Contractor (or any person hired or employed directly or indirectly by the Contractor) to pay any Subcontractor or Materialman of any tier or any other person employed in connection with the Work and/or filing of any stop notice or mechanic's lien claims.

Contractor, at Contractor's own expense, cost, and risk, shall defend any and all claims, actions, suits, or other proceedings that may be brought or instituted against the District, its officers, agents or employees, on or founded upon any cause, damage, or injury identified herein Section 3.16.1 and shall pay or satisfy any judgment that may be rendered against the District, its officers, agents or employees in any action, suit or other proceedings as a result thereof.
Contractor shall ensure that its contract with each of its subcontractors contains provisions requiring the subcontractors to defend, indemnify and hold harmless the District, Architect, Inspector, the State of California to a minimum level as set forth in this Article and consistent with the language of 3.16.1.

The Contractor’s and Subcontractors’ obligation to defend, indemnify and hold harmless the District, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors hereunder shall include, without limitation, any and all claims, damages, and costs for the following: (1) any damages or injury to or death of any person, and damage or injury to, loss (including theft), or loss of use of, any property; (2) breach of any warranty or guaranty, express or implied; (3) failure of the Contractor or Subcontractors to comply with any applicable governmental law, rule, regulation, or other requirement; and (4) products installed in or used in connection with the Work.

3.17 SUBMISSION OF DAILY REPORTS

3.17.1 General.

At the close of each working day, the Contractor shall submit a daily report to the District and the Inspector, on forms approved by the District, together with applicable delivery tickets, listing all labor, materials, and equipment involved for that day. An attempt shall be made to reconcile the report daily, and it shall be signed by a District representative and the Contractor. In the event of disagreement, pertinent notes shall be entered by each party to explain points which cannot be resolved that day. Each party shall retain a signed copy of the report. Reports by subcontractors or others shall be submitted through the Contractor.

3.17.2 Labor.

The report required by Paragraph 3.17.1 shall show names of workers, classifications, hours worked.

3.17.3 Materials.

The report required by Paragraph 3.17.1 shall describe materials used.

3.17.4 Equipment.

The report required by Paragraph 3.17.1 shall show type of equipment, size, , and hours of operation, including loading and transportation, if applicable. .

3.18 EXECUTION OF THE WORK

3.18.1 Examination.

3.18.1.1 Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record all observations in writing.
3.18.1.2 Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.

3.18.1.3 Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

3.18.1.4 Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.18.2 Existing Site and/or Building Conditions.

The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning Work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

Before construction, verify the location and points of connection of all utility services for the entire Project.

3.18.3 Existing Utilities.

The existence and location of underground and other utilities and construction indicated in the Contract Documents as existing are not guaranteed. Prior to beginning the Work investigate and verify the existence and location of all underground utilities and/or other improvements affecting the Work.

3.18.3.1 Before construction, verify the location and invert all elevations at points of connection of sanitary sewer, storm sewer, and water-service piping; and all underground electrical services.

3.18.3.2 Furnish location data for work related to Project that must be performed by public utilities serving Project site.

3.18.4 Preparation.

Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a written request for information (RFI) to the District.

Existing Utility Information: Furnish information to the District and Architect that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Contractor shall coordinate with authorities having jurisdiction.

Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, Contractor shall investigate and verify all dimensions of other construction by field measurements before fabrication. Contractor shall coordinate fabrication schedule with construction progress to avoid delaying the Work.

Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Contract Documents. Contractor shall be responsible for all coordination and measurements including means and methods of Construction.
3.18.5 Construction Layout.

Verification: Before proceeding to lay out the Work, Contractor shall verify layout information and Field conditions in relation to the Contract documents. Notify District and Architect immediately of any discrepancies.

3.18.6 Installation.

General Contractor shall locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

3.18.6.1 Make vertical work plumb and make horizontal work level.

3.18.6.2 Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

3.18.6.3 Conceal pipes, ducts, and wiring in furnished areas, unless otherwise indicated.

3.18.6.4 Maintain minimum headroom clearance of eight feet in spaces without a suspended ceiling.

3.18.6.5 Contractor shall comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

3.18.6.6 Contractor shall install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for performance until accepted by District.

3.18.6.7 Contractor shall conduct construction operations so no part of the Work is subjected to damage or loading in excess of that expected during normal conditions of occupancy.

3.18.6.8 Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

3.18.6.9 Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.

3.18.6.10 Allow for building movement, including thermal expansion and contraction.

3.18.6.11 Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

3.18.6.12 Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

3.18.6.13 Hazardous Materials: Use only products, cleaners, and installation materials that are not classified as or considered hazardous.
3.18.7 District-Installed Products

3.18.7.1 Site Access: Provide access to Project site for District’s construction forces.

3.18.7.2 Coordination: Coordinate construction and operations of the Work with work performed by District construction forces.

3.18.7.3 Construction Schedule: Inform District of Contractor’s preferred construction schedule for District’s portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify District and Architect if changes to schedule are required due to differences in actual construction progress.

3.18.7.4 Pre-installation Conferences: Include District’s construction forces at pre-installation conferences covering portions of the Work that are to receive District’s work. Attend pre-installation conferences conducted by District’s construction forces if portions of the Work depend on District’s construction forces.

3.19 DSA VERIFIED REPORTS AND CERTIFICATE OF COMPLIANCE

3.19.1 Contractor Actions.

The Contractor acknowledges and agrees that a material obligation of the Contractor under the Contract Documents is the completion by the Contractor of all actions and activities which by the Contract Documents or by operation of applicable law, code, rule or regulation are the responsibility of the Contractor relating to DSA reporting requirements pursuant to Education Code §81141 (including amendments thereto) and issuance of DSA’s Certificate of Compliance for the Project pursuant to Education Code §81147 (including amendments thereto) upon completion of Project construction. The foregoing shall include without limitation, the timely preparation, completion and filing of Verified Reports during Project construction and the filing of the Final Verified Report with DSA within ten (10) days of the determination of Project Final Completion. The Contractor shall provide the Project Inspector, Architect, Construction Manager retained by the District for the Project and the District with copies of all Verified Reports completed by the Contractor and submitted to DSA; such copies shall be provided to the Project Inspector, Architect, the Construction Manager and the District concurrently with the Contractor’s submission thereof to DSA.


Notwithstanding any provision of the Contract Documents to the contrary, the completion and filing of the Final Verified Report with DSA by the Contractor is an express condition precedent to the District's disbursement of Twelve Thousand Dollars ($12,000) of the Contract Sum due the Contractor under this Agreement (“the Final Verified Report Value”). The Final Verified Report Value is in addition to, and not in lieu of, retention withheld and retained by the District from Progress Payments disbursed to the Contractor during Project construction. The District’s disbursement of the Final Verified Report Value to the Contractor shall be made by the District within thirty (30) days of the presentation by the Contractor to the Project Inspector, Architect, Construction Manager and District of reasonably satisfactory written evidence that the Contractor has filed the Contractor’s Final Verified Report with DSA in accordance with the preceding and the submission of a billing statement by the Contractor to the District for payment of the Final Verified Report Value. If the Contractor fails to file the Final Verified Report...
Report with DSA within ten (10) days of the determination of Project Final Completion, notwithstanding the preparation or filing of such Final Verified Report by the Contractor thereafter, the District may in the sole and exclusive discretion of the District retain and withhold from disbursement to the Contractor all or any part of the Final Verified Report Value as damages for the failure of the Contractor to have timely discharged its obligations hereunder.

3.20 NOISE CONTROL

The Contractor shall be responsible for the installation and maintenance of noise reducing devices on construction equipment. Contractor shall comply with the requirements of the city and county having jurisdiction with regard to noise ordinances governing construction sites and activities. Construction equipment noise is subject to the control of the Environmental Protection Agency’s Noise Control Program (Part 204 of Title 40, Code of Federal Regulations). If classes are in session at any point during the progress of the Project, and, in the District’s reasonable discretion, the noise from such Work disrupts or disturbs the students or faculty or the normal operation of the college, at the District’s request, the Contractor shall schedule the performance of all such Work around normal campus hours or make other arrangements so that the Work does not cause such disruption or disturbance. In no event shall Contractor have a right to receive additional compensation or an extension to the contract time as a result of any such rescheduling or the making of such arrangements. These controls shall be implemented during site preparation and construction.

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 Replacement of Architect.

In the case of the termination of the Architect, the District may appoint an architect or another construction professional or may perform such functions with its own licensed professional personnel. The status of the replacement Architect under the Contract Documents shall be the same as that of the former architect.

4.2 ARCHITECT’S ADMINISTRATION OF THE CONTRACT

4.2.1 Status.

Pursuant to Titles 24 and 21 of the California Code of Regulations and as required pursuant to the Field Act, Education Code 81130 et. seq. the Architect will provide administration of the Contract Documents and the Work, and will be a District representative during construction, as well as during the one (1) year period following the commencement of any warranties or guaranties. The Architect will have authority to act on behalf of the District only to the extent provided in the Contract Documents.

4.2.2 Site Visits.

The Architect will visit the Site at intervals necessary in the judgment of the Architect to become generally familiar with the progress and quality of the Work and to determine in general if the Work is being performed in accordance with the Contract Documents.
4.2.3 Limitations of Construction Responsibility.

The Architect shall not have control over, charge of, or be responsible for construction means, methods, techniques, schedules, sequences or procedures, fabrication, procurement, shipment, delivery, receipt, installation, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility under the Contract Documents. The Architect shall not be responsible for the Contractor's, Subcontractors', material or equipment suppliers', or any other person's schedules or failure to carry out the Work in accordance with the Contract Documents. The Architect shall not have control over or charge of acts or omissions of the Contractor, Subcontractors, their agents or employees, or any other persons or entities performing or supplying portions of the Work. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract Documents, or by tests, inspections, or approvals required or performed by persons other than the Contractor.

4.2.4 Communications Facilitating Contract Administration.

Except as otherwise provided in the Contract Documents the Contractor shall communicate through the District representative. The District representative shall be promptly informed, and shall receive copies of all written communications. Contractor shall not rely upon any communications from the District that is not from the District's representative. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material or equipment suppliers shall be through the Contractor.

4.2.5 Payment Applications.

The Architect will review and make recommendations to the District regarding the amounts due the Contractor on the Certificates for Payment pursuant to Article 9 and subject to the Inspector's approval and Architect's observation.

4.2.6 Rejection of Work.

In addition to the rights, duties, and obligations of the Inspector under this Article, the Architect may recommend to the District that the District reject Work which does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable to achieve the intent of the Contract Documents, the Architect may recommend to the District that the District require additional inspection or testing of the Work in accordance with Paragraph 13.5, whether or not such Work is fabricated, installed, or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.7 Warranties and Guaranties Upon Completion.

The Architect, in conjunction with the District and Inspector will conduct field reviews of the Work to determine the date of completion, shall receive and forward to the District for the District's review and records written warranties, guaranties, and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment when the Architect believes the Work has been completed in compliance with the requirements of the Contract Documents.
handling by the Architect of such warranties, guaranties, maintenance manuals, or similar documents shall not diminish or transfer to the Architect any responsibilities or liabilities required by the Contract Documents of the Contractor or other entities, parties, or persons performing or supplying the Work.

The Architect will conduct a field review of the Contractor's comprehensive list of items to be completed or corrected (final punch list) and one (1) follow-up field review if required. The cost incurred by the District for further field reviews or the preparation of further punch lists by the Architect shall be invoiced to the Contractor and deducted from the final payment.

4.2.8 Interpretation.

The Architect will interpret and decide matters concerning performance and requirements of the Contract Documents.

4.2.9 Additional Instructions.

4.2.9.1 Typical Parts and Sections. Whenever typical parts or sections of the Work are completely detailed on the Drawings, and other parts or sections which are essentially of the same construction are shown in outline only, the complete details shall apply to the Work which is shown in outline.

4.2.9.2 Dimensions. Dimensions of Work shall not be determined by scale or rule. Figured dimensions shall be followed at all times. If figured dimensions are lacking on Drawings, Architect shall supply them on request. The Architect's decisions on matters relating to aesthetic effect will be final.

4.3 INSPECTOR OF RECORD

4.3.1 General.

One or more project inspectors employed by the District and approved by the Division of the State Architect will be assigned to the Work in accordance with the requirements of Title 24 of the California Code of Regulations. The Inspector's duties are as specifically defined in Title 24.

4.3.2 Inspector's Duties.

All Work shall be under the observation of the Inspector. The Inspector shall have free access to any or all parts of the Work at any time. The Contractor shall furnish the Inspector such information as may be necessary to keep the Inspector fully informed regarding progress and manner of Work and character of materials. Such observations shall not, in any way, relieve the Contractor from responsibility for full compliance with all terms and conditions of the Contract, or be construed to lessen to any degree the Contractor's responsibility for providing efficient and capable superintendence. The Inspector is not authorized to make changes in the drawings or specifications nor shall the Inspector's approval of the Work and methods relieve the Contractor of responsibility for the correction of subsequently discovered defects, or from its obligation to comply with the Contract Documents.

4.3.3 Inspector's Authority to Reject or Stop Work.

The Inspector shall have the authority to reject Work whenever provisions of the Contract Documents are not being complied with, and Contractor shall instruct its Subcontractors and employees
accordingly. In addition, the Inspector may stop any Work that poses a probable risk of harm to persons or property. The Contractor shall instruct its employees, Subcontractors, material and equipment suppliers, etc., accordingly. The absence of any Stop Work order or rejection of any portion of the Work shall not relieve the Contractor from any of its obligations pursuant to the Contract Documents.

4.3.4 Inspector's Facilities.

Within seven (7) days after notice to proceed, the Contractor shall provide the Inspector with the temporary facilities as required under Division 1 of the Specifications.

4.3.5 Testing Times.

The District will provide inspection and testing at its cost during the normal eight (8) hour day Monday through Friday (except holidays). Work by the Contractor outside of the normal eight (8) hour day shall constitute an authorization from the Contractor to the District to provide inspection and testing as required outside of the normal eight (8) hour day. Contractor shall reimburse District for any additional costs associated with inspection and testing (including re-inspection and re-testing) outside the normal eight-hour day and for any retests caused by the Contractor.

4.4 RESPONSIBILITY FOR ADDITIONAL CHARGES INCURRED BY THE DISTRICT FOR PROFESSIONAL SERVICES

If at any time prior to the completion of the requirements under the Contract Documents, the District is required to provide or secure additional professional services for any reason by any act of the Contractor, the Contractor shall be invoiced by the District for any costs incurred for any such additional services, which costs shall be deducted from the next progress payment. Such invoicing shall be independent from any other District remedies and shall not be considered a waiver of any District rights or remedies. If payments then or thereafter due to the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the District. Additional services shall include, but shall not be limited to, the following:

(a) Services made necessary by the default of the Contractor.

(b) Services made necessary due to the defects or deficiencies in the Work of the Contractor.

(c) Services required by failure of the Contractor to perform according to any provision of the Contract Documents.

(d) Services in connection with evaluating substitutions of products, materials, equipment, Subcontractors’ proposed by the Contractor, and making subsequent revisions to drawings, specifications, and providing other documentation required (except for the situation where the specified item is no longer manufactured or available).

(e) Services for evaluating and processing claims submitted by the Contractor in connection with the Work outside the established Change Order process.

(f) Services required by the failure of the Contractor to prosecute the Work in a timely manner in compliance with the specified time of completion.
(g) Services in conjunction with the testing, adjusting, balancing and start-up of equipment other than the normal amount customarily associated for the type of Work involved.

(h) Services in conjunction with more than one (1) re-review of submittals of shop drawings, product data, samples, etc.

4.5 DISPUTES

4.5.1 Decision of Architect.

Disputes between District and Contractor involving money or time, including those alleging an error or omission by the Architect, shall be referred initially to the Architect for action as provided in Paragraph 4.5.2. A decision by the Architect, as provided in Paragraph 4.5.5, shall be required as a condition precedent to proceeding with remedies set forth in Paragraph 4.5.6 as to all such matters arising prior to the date final payment is due, regardless of whether such matters relate to execution and progress of the Work, or the extent to which the Work has been completed. The decision by the Architect in response to a Claim shall not be a condition precedent to the remedies under Paragraph 4.5.2 through 4.5.5 in the event: (1) the position of Architect is vacant; (2) the Architect has not received evidence or has failed to render a decision within agreed time limit; (3) the Architect has failed to take action required under Paragraph 4.6.4 within thirty (30) days after the Claim is made, forty-five (45) days have passed after the Claim has been referred to the Architect; or (4) the Claim relates to a Stop Notice Claim not arising from any extra change order or Construction Change Directive for which approval has not been provided.

4.5.2 Architect’s Review.

The Architect will review Claims and take one or more of the following preliminary actions within ten (10) days of receipt of a Claim: (1) request additional supporting data from the Claimant; (2) submit a schedule to the parties indicating when the Architect expects to take action; (3) reject the Claim in whole or in part, stating reasons for rejection; (4) recommend approval of the Claim; or (5) suggest a compromise. The Architect may also, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim.

4.5.3 Documentation if Resolved.

If a Claim has been resolved, the Architect will prepare or obtain appropriate documentation.

4.5.4 Actions if Not Resolved.

If a Claim has not been resolved and all documentation requested pursuant to Paragraph 4.5.2 has been provided, the party making the Claim shall, within ten (10) days after the Architect’s preliminary response, take one or more of the following actions: (1) modify the initial Claim; (2) notify the Architect that the initial Claim stands; or (3) supplement with additional supporting data.

4.5.5 Architect’s Written Decision.

If a Claim has not been resolved after consideration of the foregoing and of other evidence presented by the parties or requested by the Architect, the Architect will notify the parties in writing that the Architect’s decision will be made within twenty (20) days. Upon expiration of such time period, the Architect will render to the parties its written decision relative to the Claim, including any change in
the Contract Sum or Contract Time or both. The Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

4.5.6 Continuing Contract Performance.

Pending final resolution of a Claim, including, negotiation, mediation, arbitration, or litigation, the Contractor shall proceed diligently with performance of the Contract, and the District shall continue to make any undisputed payments in accordance with the Contract. If the dispute is not resolved, Contractor agrees it will neither rescind the contract nor stop the progress of the work, but Contractor's sole remedy shall be to submit such controversy to determination by a court of competent jurisdiction in the county where the project is located, after the project has been completed, and not before. At the District's sole option, the District may submit individual disputes for binding arbitration and Contractor agrees to the resolution determined for each individual dispute by Arbitrator, including resolution of time and delays. If binding arbitration is utilized for individual disputes, such resolution is full and final as to that particular Claim.

4.5.7 Claims for Concealed Trenches or Excavations Greater Than Four Feet Below the Surface.

When any excavation or trenching extends greater than four feet below the surface or if any condition involving hazardous substances are encountered:

(a) Immediately upon discovery, the Contractor shall promptly, and before the following conditions are disturbed, notify the District, by telephone and in writing, of the condition except:

1. If such condition is a hazardous waste condition, and Contractor's bid includes removal or disposal of hazardous substances. Material that the Contractor believes may be a material that is hazardous waste, 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 the provisions of existing law. In such case, the notice bulletin procedures of Article 7 apply.

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

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.

(b) The District shall investigate the conditions, and if District finds that the conditions do materially so differ, 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 or construction change directive under the procedures described in the Contract.

(c) In the event that a dispute arises between the District and the Contractor whether the conditions materially differ, 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 which pertain to the resolution of disputes and protests between the contracting parties.

4.5.8 Claims for Extension of Time.

If Contractor and District cannot agree upon an extension of time, whether compensable or not, then Contractor must have first completed the procedures set forth in Paragraph 8.4. Upon completion of the procedures set forth under Paragraph 8.4, Contractor must then comply with the requirements in this Article including those set forth under Paragraph 4.5.9.

4.5.9 Claims Procedures.

4.5.9.1 Procedure applicable to all Claims:

(a) Definition of Claim: A “Claim” means a separate demand by the Contractor for (1) time extension, (2) 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 the Claimant is not otherwise entitled to, or (3) and amount the payment of which is disputed by the District.

(b) Filing Claim is Not Basis To Discontinue Work: The Contractor shall promptly comply with Work under the Contract or Work requested by the District even though a written Claim has been filed. The Contractor and the District shall make good faith efforts to resolve any and all Claims that may arise during the performance of the Work covered by this contract.

(c) Claim Notification: The Contractor shall within seven (7) calendar days after the Claim arises, submit a notification, in writing, with the District stating clearly the basis for the Claim. If the notification is not submitted within seven (7) days after the Claim arises, the Contractor shall be deemed to have waived all right to assert the Claim, and the Claim shall be denied. Claims submitted after the final payment date shall also be considered null and void by the District. All Claims shall be reviewed pursuant to Paragraph 4.5.1, 4.5.2, and 4.5.5. In order to qualify as a Claim, the written notice must state that it is a Claim submitted under this paragraph of these General Conditions.

(d) Formal Claim Appeal Submission: If the Contractor does not concur with the District’s decision regarding the Claim Notification, the Contractor will issue a formal Claim Appeal within fourteen (14) days of receipt of the District’s decision and all detailed information in support of the Claim Appeal within thirty (30) days. All appeals shall be submitted before final payment. If the Claim Appeal is not submitted within fourteen (14) calendar days and detailed information within thirty (30) days, the Contractor shall be deemed to have waived its right to assert the Claim and the Claim shall be denied. Contractor’s failure to submit any detailed information which is in the possession of Contractor shall render such information inadmissible by Contractor at trial or arbitration.
(e) Appeal Claim Format: The Contractor shall provide all written detailed documentation which supports the Claim, including but not limited to: arguments, justifications, cost, estimates, schedule analysis and detailed documentation. The format of the Claim Appeal shall be as follows:

(1) Cover letter.

(2) Summary of factual basis of Claim and amount of Claim.

(3) Summary of the basis of the Claim, including the specific clause and section under the Contract under which the Claim is made.

(4) Documents relating to the Claim, including:
   a. Specifications
   b. Drawings
   c. Clarifications (RFI's)
   d. Other relevant information
   e. Analysis of claim merit.
   f. Analysis of claim cost.
   g. For Claims relating to time extensions, an analysis and supporting documentation evidencing any effect upon the critical path.
   h. Certification.
   i. Chronology of events and related correspondence.
   j. Daily reports and logs.

(f) Certification: The Contractor (and subcontractors, if applicable) shall submit with the Claim a certification under penalty of perjury:

(1) That the Contractor has reviewed the Claim and that such Claim is made in good faith;

(2) Supporting data are accurate and complete to the best of the Contractor's knowledge and belief;

(3) The amount requested accurately reflects the amount of compensation for which the Contractor believes the District is liable.

(4) That the Contractor is familiar with Government Code Sections 12650 et seq. and Penal Code Section 72 and that false Claims can lead to substantial fines and/or imprisonment.

(g) Signature of Certification: If the Contractor is not an individual, the certification shall be executed by an officer or general partner of the Contractor having overall responsibility for the conduct of the Contractor's affairs.

(h) Mandatory Claim Appeal Procedure: The Contractor's Claim Appeal shall be denied if it fails to provide the written basis of the Claim and certification as set forth herein.
(i) District May Request Additional Information: Within thirty (30) days of receipt of the Claim Appeal and the information under this Article, the District may request in writing any additional documentation supporting the Claim or documentation relating to defenses to the Claim which the District may assert.

4.5.9.2 Binding Arbitration of Individual Claim Issues. At the District’s sole option, the District may submit individual disputes, or Claims, to binding arbitration and Contractor agrees to the resolution determined for each individual dispute by Arbitrator, including resolution of time and delays. If binding arbitration is utilized, such resolution is a full and final resolution of the particular Claim or dispute. Under no circumstances may the Contractor stop work, rescind its contract or otherwise slow the progress of Work during resolution of individual Claims in binding Arbitration.

4.5.9.3 Resolution of Disputes in Court of Competent Jurisdiction. If Claims are not resolved under the procedure set forth and pursuant to Article 4.5.9.2, such Claim or controversy shall be submitted to a court in the county of competent jurisdiction after the Project has been completed, and not before.

4.5.9.4 Warranties, Guaranties and Obligations. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guaranties and obligations imposed upon Contractor by the General Conditions and amendments thereto; and all of the rights and remedies available to District and Architect thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by laws or regulations by special warranty or guaranty or by other provisions of the Contract Documents, and the provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the same obligations and responsibilities, assumed by Contractor pursuant to the Contract Documents. Each subcontract agreement shall preserve and protect the rights of the District and the Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound. Upon written request of the Subcontractor, the Contractor shall identify to the Subcontractor the terms and conditions of the proposed subcontract agreement, which may be at variance with the Contract Documents.
Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.1.2 Subcontractor Licenses.

All subcontractors shall be properly licensed by the California State Licensing Board.

5.1.3 Substitution of Subcontractor

Substitution of Subcontractors shall be permitted only as authorized under Public Contract Code §§ 4107 et. Seq. Any substitutions of Subcontractors shall not result in any increase in the Contract Price or result in the granting of any extension of time for the completion of the Project.

5.1.4 Contingent Assignment of Subcontracts and Other Contracts

Each subcontract and other contract or agreement for any portion of the Work is hereby assigned by the Contractor to the District provided that:

(a) Such assignment is effective only after termination of this contract with the Contractor by the District as provided herein and only for those subcontracts and other contracts and agreements that the District accepts by notifying the Subcontractor or Materialman (as may be applicable) in writing; and

(b) Such assignment is subject to the prior rights of the Surety(ies) obligated under the Payment Bond and Performance Bond.

The Contractor shall include adequate provisions for this contingent assignment of subcontracts and other contracts and agreements in each such document.

ARTICLE 6

CONSTRUCTION BY DISTRICT OR BY SEPARATE CONTRACTORS

6.1 DISTRICT’S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 Separate Contracts.

(a) District reserves the right to let other contracts in connection with this Work. Contractor shall afford other contractors reasonable opportunity for (1) introduction and storage of their materials; (2) access to the Work; and (3) execution of their work. Contractor shall properly connect and coordinate its work with that of other Contractors.

(b) If any part of Contractor’s Work depends on proper execution or results of any other contractor, the Contractor shall inspect and within seven (7) days or less, report to Architect, in writing, any defects in such work that render it unsuitable for proper execution of Contractor’s work. Contractor will be held accountable for damages to District for that work which it failed to inspect or should have inspected. Contractor’s failure to inspect and report shall constitute its acceptance of other
contractors' work as fit and proper for reception of its work, except as to defects which may develop in other contractors' work after execution of Contractor's work.

(c) To ensure proper execution of its subsequent Work, Contractor shall measure and inspect Work already in place and shall at once report to the Architect in writing any discrepancy between executed Work As-Built drawings and the Contract Documents.

(d) Contractor shall ascertain to its own satisfaction the scope of the Project and nature of any other contracts that have been or may be awarded by District in prosecution of the Project and the potential impact of such work on Contractor's schedule.

(e) Nothing herein contained shall be interpreted as granting to Contractor the exclusive occupancy at the site of Project. Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the Project Site. If execution of any contract by the District is likely to cause interference with Contractor's performance of its contract, District shall decide which contractor shall cease work temporarily and which contractor shall continue, or whether work can be coordinated so that contractors may proceed simultaneously.

(f) District shall not be responsible for any damages suffered or extra costs incurred by Contractor resulting directly or indirectly from award or performance or attempted performance of any other contract or contracts at the Project, or caused by any decision or omission of District respecting the order of precedence in performance of contracts.

CONTRACTOR IS AWARE THAT THIS CONTRACT MAY BE SPLIT INTO SEVERAL PHASES. IF THE CONTRACT IS SPLIT INTO PHASES THEN CONTRACTOR HAS MADE ALLOWANCE FOR ANY DELAYS OR DAMAGES WHICH MAY ARISE FROM COORDINATION WITH CONTRACTORS FOR OTHER PHASES. IF ANY DELAYS SHOULD ARISE FROM ANOTHER CONTRACTOR WORKING ON A DIFFERENT PHASE, CONTRACTOR'S SOLE REMEDY FOR DAMAGES, INCLUDING DELAY DAMAGES, SHALL BE AGAINST THE CONTRACTOR WHO CAUSED SUCH DAMAGE AND NOT THE DISTRICT. CONTRACTOR SHALL PROVIDE ACCESS TO OTHER CONTRACTORS FOR OTHER PHASES AS NECESSARY TO PREVENT DELAYS AND DAMAGES TO OTHER CONTRACTORS WORKING ON OTHER PHASES OF CONSTRUCTION.

6.1.2 District’s Right to Carry Out the Work.

See Paragraph 2.2.

6.1.3 Designation as Contractor.

When separate contracts are awarded to contractors on the Project Site, the term “Contractor” in the Contract Documents in each case shall mean the Contractor who executes each separate District/Contractor Agreement.
6.1.4 Contractor Duties.

The Contractor shall have overall responsibility to reasonably coordinate and schedule Contractor’s activities with the activities of the District’s own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the District in reviewing their construction schedules when directed to do so. The Contractor shall make any revisions to the construction schedule and Contract Sum deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors, and the District until subsequently revised. Additionally, Contractor shall coordinate with Architect and District inspector to ensure timely and proper progress of work.

6.2 CONSTRUCTIVE OWNERSHIP OF PROJECT SITE AND MATERIAL

Upon commencement of Work, the Contractor becomes the constructive owner of the entire site, improvements, material and equipment on Project site. Contractor must ensure proper safety and storage of all materials and assumes responsibility as if Contractor was the owner of the Project site. All risk of loss or damage shall be borne by Contractor during the Work until the date of Completion. As construction owner, Contractor must carry adequate insurance in case of calamity and is not entitled to rely on the insurance requirements as set forth in this agreement as being adequate coverage in case of calamity.

6.3 DISTRICT’S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors, and the District as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in Paragraph 3.12, the District may clean up and allocate the cost among those it deems responsible.

ARTICLE 7

CHANGES IN THE WORK

7.1 CHANGES

7.1.1 No Changes Without Authorization.

There shall be no change whatsoever in the drawings, specifications, or in the Work without an executed Change Order, Construction Change Directive, or order by the Architect for a minor change in the Work 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 approved in writing by Change Order or executed Construction Change Directive. 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 in writing in the Change Order. 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. Notwithstanding anything to the contrary in this
Article 7, all Change Orders shall be prepared and issued by the District and shall become effective when executed by the District’s Governing Board, the Architect, the Contractor, and the DSA.

Should any Change Order result in an increase in the Contract Sum, the cost of such Change Order shall be agreed to, in writing, in advance by Contractor and District and be subject to the monetary limitations set forth in Public Contract Code Section 20659. In the event that Contractor proceeds with any change in Work without first notifying District and obtaining the Architect’s and District’s consent to a Change Order, Contractor waives any claim of additional compensation for such additional work.

CONTRACTOR UNDERSTANDS, ACKNOWLEDGES, AND AGREES THAT THE REASON FOR THIS NOTICE REQUIREMENT 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 SUCH CHANGE IN WORK BECOMES UNNECESSARY.

7.1.2 Architect Authority.

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Sum, or an extension of the Contract Time, or when a change which is inconsistent with the intent of the Contract Documents. Such changes shall be effected by written Change Order and shall be binding on the District and the Contractor. The Contractor shall carry out such written orders promptly.

7.2 CHANGE ORDERS (“CO”)

A CO is a written instrument prepared by the Architect and signed by the District (as authorized by the District’s Governing Board), the Contractor, the Architect, stating their agreement upon all of the following:

(a) A description of a change in the Work;
(b) The amount of the adjustment in the Contract Sum, if any; and
(c) The extent of the adjustment in the Contract Time, if any.

7.3 CONSTRUCTION CHANGE DIRECTIVE

7.3.1 Definition.

A Construction Change Directive is a written order prepared by the Architect and signed by the District and the Architect, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The District may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions within. If applicable, the Contract Sum and Contract Time will be adjusted accordingly. In the case of a Construction Change Directive being issued, Contractor must commence Work immediately or delays from failure to perform Construction Change Directive shall be the responsibility of Contractor. Any dispute as to the sum of Construction Change Directive or timing of payment, shall be resolved pursuant to Paragraph 4.5.
7.3.2 Use to Direct Change

A Construction Change Directive shall be used in the absence of agreement on the terms of a CO. A copy of a proposed form is provided at the end of this Article.

7.4 REQUEST FOR INFORMATION ("RFI")

7.4.1 Definition.

An RFI is a written request prepared by the Contractor requesting the District to provide additional information necessary to clarify or amplify an item which the Contractor believes is not clearly shown or called for in the drawings or specifications, or to address problems which have arisen under field conditions.

7.4.2 Scope.

The RFI shall reference all the applicable Contract Documents including specification section, detail, page numbers, drawing numbers, and sheet numbers, etc. The Contractor shall make suggestions and interpretations of the issue raised by the RFI. An RFI cannot modify the Contract Sum, Contract Time, or the Contract Documents.

7.4.3 Response Time.

The Architect must respond to a RFI within a reasonable time after receiving such request. If the Architect’s response results in a change in the Work, then such change shall be effected by a written CO or Construction Change Directive, if appropriate. If the Architect cannot respond to the RFI within a reasonable time, the Architect shall notify the Contractor, with a copy to the Inspector and the District, of the amount of time that will be required to respond.

7.4.4 Costs Incurred.

The Contractor shall be responsible for any costs incurred for professional services, which shall be deducted from the next progress payment, if an RFI requests an interpretation or decision of a matter where the information sought is equally available to the party making such request. District, at its sole discretion, shall invoice Contractor for all such professional services arising from this Article.

7.5 REQUEST FOR PROPOSAL ("RFP")

7.5.1 Definition.

An RFP 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 on the Contract Sum and the Contract Time.

7.5.2 Scope.

An RFP shall contain adequate information, including any necessary drawings and specifications, to enable Contractor to provide the cost breakdowns required by Paragraph 7.7. The Contractor shall
not be entitled to any Additional Compensation for preparing a response to an RFP, whether ultimately accepted or not.

7.6  **CHANGE ORDER REQUEST (“COR”)**

7.6.1  **Definition.**

A COR is a written request prepared by the Contractor requesting that the District and the Architect issue a CO based upon a proposed change called for in an RFP or a claim pursuant to Paragraph 4.5.

7.6.2  **Changes in Sum.**

A COR shall include breakdowns per Paragraph 7.7 to validate any change in Contract Sum due to proposed change or claim.

7.6.3  **Changes in Time.**

A COR shall also include any additional 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 Project Schedule as defined in Paragraph 3.8 of the General Contract. If contractor fails to request a time extension in a COR, then the Contractor is thereafter precluded from requesting or claiming a delay.

7.7  **COST OF CHANGE ORDERS**

7.7.1  **Scope.**

Within ten (10) days after a request is made for a change that impacts the Contract Sum as defined in Paragraph 9.1, the critical path, or the Contract Time as defined in Paragraph 8.4.2, the Contractor shall provide the District and the Architect, with a written estimate of the effect of the proposed CO upon the Contract Sum and the actual cost of construction, which shall include a complete itemized cost breakdown of all labor and material showing actual quantities, hours, unit prices, and wage rates required for the change, and the effect upon the Contract Time of such CO. Changes may be made by District by an appropriate written CO, or, at the District’s option, such changes shall be implemented immediately upon the Contractor’s receipt of an appropriate written Construction Change Directive.

District may, as provided by law and without affecting the validity of this Agreement, order changes, modification, deletions and extra work by issuance of written Construction Change Directives from time to time during the progress of the Project, contract sum being adjusted accordingly. All such work shall be executed under conditions of the original Agreement except that any extension of time caused thereby shall be adjusted at time of ordering such change. District has discretion to order changes on a “time and material” basis with adjustments to time made after Contractor has justified through documentation the impact on the critical path of the Project.
7.7.2 Determination of Cost.

The amount of the increase or decrease in the Contract Price from a CO, if any, shall be determined in one or more of the following ways as applicable to a specific situation:

(a) Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation. If an agreement cannot be reached within fifteen (15) days after submission and negotiation of Contractor's proposal, Contractor may submit pursuant to Paragraph 7.7.3. Submission of sums which have no basis in fact 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.);

(b) By unit prices contained in Contractor's original bid and incorporated in the Project documents or fixed by subsequent agreement between District and Contractor;

(c) Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee. However, in the case of disagreement, Contractor must utilize the procedure under section 7.7.3; or

(d) By cost of material and labor and percentage of overhead and profit. If the value is determined by this method the following requirements shall apply:

1. Basis for Establishing Costs.

a. Labor will be the actual cost for wages prevailing locally for each craft or type of workers at the time the extra Work is done, plus employer payments of payroll taxes and insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State, or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. The use of a labor classification which would increase the extra Work cost will not be permitted unless the Contractor establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental.

b. Materials shall be at invoice or lowest current price at which such materials are locally available and delivered to the Site in the quantities involved, plus sales tax, freight, and delivery.

The District reserves the right to approve materials and sources of supply or to supply materials to the Contractor if necessary for the progress of the Work. No markup shall be applied to any material provided by the District.

c. Tool and Equipment Rental. No payment will be made for the use of tools which have a replacement value of $250 or less.
Regardless of ownership, the rates to be used in determining equipment rental costs shall not exceed listed rates prevailing locally at equipment rental agencies or distributors at the time the Work is performed.

The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Necessary loading and transportation costs for equipment used on the extra Work shall be included. If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the District than holding it at the Work Site, it shall be returned unless the Contractor elects to keep it at the Work Site at no expense to the District.

All equipment shall be acceptable to the Inspector, in good working condition, and suitable for the purpose for which it is to be used. Manufacturer's ratings and modifications shall be used to classify equipment, and equipment shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

d. Other Items. The District may authorize other items which may be required on the extra work. Such items include labor, services, material, and equipment which are different in their nature from those required by the Work, and which are of a type not ordinarily available from the Contractor or any of the Subcontractors. Invoices covering all such items in detail shall be submitted with the request for payment.

e. Invoices. Vendors’ invoices for material, equipment rental, and other expenditures shall be submitted with the COR. If the request for payment is not substantiated by invoices or other documentation, the District may establish the cost of the item involved at the lowest price which was current at the time of the Daily Report.

f. Overhead. Overhead, including direct and indirect costs, shall be submitted with the COR and include: home office overhead, off-site supervision, CO preparation/negotiation/research, time delays, project interference and disruption, additional guaranty and warranty durations, on-site supervision, additional temporary protection, additional temporary utilities, additional material handling costs, and additional safety equipment costs.

7.7.3 Format for Proposed Cost Change.

The following format shall be used as applicable by the District and the Contractor to communicate proposed additions and deductions to the Contract. A copy of a proposed Construction Change Directive form is provided at the end of this Article.

<table>
<thead>
<tr>
<th>EXTRA</th>
<th>CREDIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Material (attach itemized quantity and unit cost plus sales tax)</td>
<td></td>
</tr>
<tr>
<td>(b) Labor (attach itemized hours and rates)</td>
<td></td>
</tr>
</tbody>
</table>

Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear

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General Conditions
(c) Equipment (attach invoices)  

(d) Subtotal  

(e) If Subcontractor performed Work, add Subcontractor’s overhead and profit to portions performed by Subcontractor, not to exceed fifteen percent (15%) of item (d).  

(f) Liability and Property Damage Insurance, Worker’s Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed as follows: FICA @ 6.2% - with a wage ceiling of $84,900; Medicare @ 1.45% - no wage ceiling; FUTA @ .8% - with a wage ceiling of $7,000; ETT and SUI @ 2.3% - with a wage ceiling of $7,000; Workers’ Compensation @ 5.94%; Liability and Property Damage @ 2.5%. Total not-to-exceed is 19.19%. (Note: Modifications to these percentages will be evaluated and possibly modified only on a case-by-case basis and only after proper proof of alternate percentages are documented and approved in advance. In addition, as wage ceilings are met, those corresponding percentages must drop from the “burden” calculations).  

(g) Subtotal  

(h) General Contractor’s Overhead and Profit: Not to exceed fifteen percent (15%) of item (g) if Contractor performed the work. No more than five percent (5%) of item (g) if Subcontractor performed the work. If work was performed by Contractor and Subcontractors, portions performed by Contractor shall not exceed fifteen percent (15%) if Item (g), and portions performed by Subcontractor shall not exceed five percent (5%) of item (g)  

(i) Subtotal  

(j) Bond not to exceed one percent (1%) of Item (g)
(k) TOTAL
(l) Time

The undersigned Contractor approves the foregoing Construction Change Directive as to the changes, if any, and the contract price specified for each item and as to the extension of time allowed, if any, for completion of the entire work on account of said Construction Change Directive, and agrees to furnish all labor, materials and service and perform all work necessary to complete any additional work specified therein, for the consideration stated herein. It is understood that said Construction Change Directive shall be effective when approved by the Governing Board of the District.

It is expressly understood that the value of such extra Work or changes, as determined by any of the aforementioned methods, expressly includes any and all of the Contractor's costs and expenses, both direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Any costs, expenses, damages or time extensions not included are deemed waived.

The Contractor expressly acknowledges and agrees that any change in the Work performed shall not be deemed to constitute a delay or other basis for claiming additional compensation based on theories including, but not limited to, acceleration, suspension or disruption to the Project.

7.7.4 Net Deductive Change Orders

All net deductive Change Order(s) must be prepared pursuant to Paragraph 7.7.3. Contractor will be allowed a maximum of 5% total profit and overhead. If subcontractor work is involved, subcontractors shall be entitled to a maximum of 5% profit and overhead on the deducted work. Any deviation from this Article shall not be allowed.

7.7.5 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 omissions in the Work as provided herein.

7.7.6 Accounting Records.

With respect to portions of the Work performed by COs and Construction Change Directives on a time-and-materials, unit-cost, or similar basis, the Contractor shall keep and maintain cost-accounting records satisfactory to the District, 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.

7.7.7 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 Paragraph 4.5 and this Article.
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 CO.

7.7.8 Applicability to Subcontractors.

Any requirements under this Article 7 shall be equally applicable to COs or Construction Change Directives issued to Subcontractors by the Contractor to the same extent required by the Contractor.

7.7.9 Alteration to Change Order Language.

Contractor shall not alter Change Orders or reserve time in Construction Change Directives. Contractor shall execute finalized Change Orders and proceed under Paragraph 7.7.7 and Paragraph 4.5 with proper notice. If Contractor intends to reserve time, without an approved CPM schedule prepared pursuant to Paragraph 3.8 then Contractor may be prosecuted pursuant to the False Claim Act.

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Contract Time.

Unless otherwise provided, Contract Time is the period of time, in calendar days, including authorized adjustments, allotted in the Contract Documents for Completion of the Work.

8.1.2 Notice to Proceed.

District may give a notice to proceed within three (3) months of the award of the bid by District. Once Contractor has received the notice to proceed, Contractor shall complete the Work in the period of time referenced in the Contract Documents.

In the event that District desires to postpone the giving of the notice to proceed beyond this two-month period, it is expressly understood that with reasonable notice to the Contractor, the giving of the date to proceed may be postponed by District. 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 giving of the notice to proceed.

If the Contractor believes that a postponement will cause a hardship to Contractor, Contractor may terminate the contract with written notice to District within 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 responsible bidder.
8.1.3 Computation of Time.

The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

The Contractor will only be allowed a time extension for unusually severe weather if it results in precipitation or other conditions which in the amount, frequency, or duration is in excess of the norm at the location and time of year in question as established by National Oceanic and Atmospheric Administration (NOAA) weather data. No less than three work days allocated equally across the Contract Time will be identified as non-working weather days in the contractor’s schedule for the entire contract period of performance. The weather days shall be shown on the schedule and if not used will become float for the Project’s use. A day-for-day extension will only be allowed for those days in excess of the norm. The Contractor is expected to work seven (7) days per week (if necessary, irrespective of inclement weather), to maintain access, and to protect the Work under construction from the effects of inclement weather.

If the weather is unusually severe and is in excess of the NOAA data norm and prevents the Contractor from beginning work at the usual daily starting time, or prevents the Contractor from proceeding with seventy-five (75%) of the normal labor and equipment force towards completion of the day’s current controlling item on the accepted construction schedule for a period of at least five hours, and the crew is dismissed as a result thereof, the Architect will designate such time as unavoidable delay and grant one (1) work-day extension.

8.2 HOURS OF WORK.

8.2.1 Sufficient Forces.

Contractors and Subcontractors shall continuously furnish sufficient forces to ensure the prosecution of the Work in accordance with the Construction Schedule.

8.2.2 Performance During Working Hours.

Work shall be performed during regular working hours as permitted by the District 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.

8.2.3 Costs for After Hours Inspections.

If the Contract Documents require Work to be done outside the Inspector’s regular working hours, the costs of any after hour inspections, shall be borne by the District.

If the District allows the Contractor to do Work outside regular working hours for the Contractor’s convenience, or if required to maintain schedule, the costs of any inspections required outside regular working hours shall be invoiced to the Contractor by the District and deducted from the next Progress Payment.
If the Contractor elects to perform Work outside the Inspector's regular working hours, costs of any inspections required outside regular working hours shall be invoiced to the Contractor by the District and deducted from the next Progress Payment.

8.3 PROGRESS AND COMPLETION.

8.3.1 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.

8.4 EXTENSIONS OF TIME – LIQUIDATED DAMAGES

8.4.1 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 specified in the Construction Agreement for each calendar day of delay in completion. Any liquidated damages recovered by the District shall not, however, limit the District's right to separately recover any actual out-of-pocket damages it suffers due to Contractor's delay. Contractor and his surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

8.4.2 Excusable Delay.

Contractor shall not be charged for liquidated damages because of any delays in completion of Work which are not the fault or negligence of Contractor or its subcontractors, including acts of God, as defined in Public Contract Code Section 7107, acts of enemy, epidemics and quarantine restrictions. Contractor shall within five (5) calendar days of beginning of any such delay notify District in writing of causes of delay; thereupon District shall ascertain the facts and extent of delay and grant extension of time for completing Work when, in its judgment, the findings of fact justify such an extension. Extensions 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 after proper compliance with Paragraph 3.8 requiring preparation and submission of a properly prepared CPM schedule.

No extended overhead, general conditions costs, impact costs, out-of-sequence costs or any other type of compensation, by any name or characterization, shall be paid to the Contractor for any delay to any activity not designated as a critical path item on the latest approved Project schedule.

The Contractor shall notify the District and Architect in writing of any anticipated delay and its cause, in order that the District and Architect may take immediate steps to prevent, if possible, the occurrence or continuance of delay, and 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.
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, i.e., extensions, for proposed Change Orders, they must be submitted with the proposed Change Order with full justification and documentation. If the Contractor fails to submit justification with the proposed Change Order it waives its right to a time extension at a later date. Such justification must be based on the District accepted 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. The justification must include, but is not limited to, the following information:

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

(b) Logical ties to the District accepted construction schedule for the proposed changes and/or delay showing the activity/activities in the schedule whose start or completion dates are affected by the change and/or delay. (A fragment of any delay of over ten (10) days must be provided.)

The Contractor and District understand and expressly agree that insofar as Public Contract Code Section 7102 may apply to changes in the Work or delays under this contract, the actual delays and damages, if any, and time extensions are intended to, and shall provide, the exclusive and full method of compensation for changes in the Work and construction delays.

8.4.3 Notice by Contractor Required.

The Contractor shall within five (5) calendar days of beginning of any such delay notify the District in writing of causes of delay with justification and supporting documentation. District will then ascertain the facts and extent of the delay and grant an extension of time for completing the Work when, in its judgment, the findings of fact justify such an extension. Extensions of time shall apply only to that portion of the Work affected by the delay and shall not apply to other portions of the Work not so affected. The sole remedy of Contractor for extensions of time under Paragraph 8.4.2 shall be an extension of the Contract Time at no cost to the District.

Claims relating to time extensions shall be made in accordance with applicable provisions of Article 7.

8.4.4 No Additional Compensation for Delays within Contractor's Control

CONTRACTOR IS AWARE THAT GOVERNMENTAL AGENCIES, SUCH AS 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. CONTRACTOR HAS INCLUDED DELAYS AND DAMAGES WHICH MAY BE CAUSED BY SUCH AGENCIES IN CONTRACTOR'S BID. THUS, CONTRACTOR IS NOT ENTITLED TO MAKE CLAIM UPON THE DISTRICT FOR DAMAGES OR DELAYS ARISING FROM THE DELAYS CAUSED BY SUCH AGENCIES. FURTHERMORE, THE CONTRACTOR HAS SCHEDULED FOR SUCH DELAYS AND IS NOT ENTITLED TO AN EXTENSION OF TIME FOR DELAYS CAUSED BY GOVERNMENTAL AGENCIES WHICH CONTRACTOR MUST OBTAIN APPROVALS FROM AND, THUS, CONTRACTOR IS NOT ENTITLED TO AN EXTENSION OF TIME.
CONTRACTOR SHALL ONLY BE ENTITLED TO COMPENSATION FOR DELAY WHEN THE FOLLOWING CONDITIONS ARE MET: (1) THE DISTRICT IS RESPONSIBLE FOR THE DELAY; (2) THE DELAY IS UNREASONABLE UNDER THE CIRCUMSTANCES INVOLVED; AND (3) THE DELAY WAS NOT WITHIN THE CONTEMPLATION OF DISTRICT AND CONTRACTOR.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

The Contract Sum 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.

9.2 COST BREAKDOWN

9.2.1 Required Information.

On forms or software programs (e.g., Microsoft Project, Primavera or Excel) approved by the District, the Contractor shall furnish the following:

(a) Within ten (10) days of the award of the Contract, a detailed breakdown of the Contract Sum (hereinafter “Schedule of Values” or “SOV”) for each Project or Site;

(b) Within ten (10) days of the award of the Contract, a schedule of estimated monthly payment requests due the Contractor showing the values and construction time of the various portions of the Work to be performed by it and by its Subcontractors or material and equipment suppliers containing such supporting evidence as to its correctness as the District may require;

(c) Within ten (10) days of the award of the Contract, the name, address, telephone number, telescopier number, California State Contractors License number, classification and monetary value of all Subcontracts for parties furnishing labor, material, or equipment for completion of the Project.

9.2.2 District Approval Required.

The District shall review all submissions received pursuant to Paragraph 9.2.1 in a timely manner. All submissions must be approved by the District before becoming the basis of any payment. Contractor may request to District representation, prior to submission, to submit information required by paragraph 9.2.1 in a spreadsheet (Microsoft Excel) format. Approval of an alternate format is entirely at District’s discretion.
9.3 **PROGRESS PAYMENTS**

9.3.1 Payments to Contractor.

Within thirty (30) days after approval of the Request for Payment, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as certified by Architect and Inspector and verified by Contractor) up to the last day of the previous month, less the aggregate of previous payments. 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 enforcement of 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.

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.

The SOV items of Work shall include a prorated portion of Contractor's home office and field office overhead, profit, insurance, (except to the extent expressly identified in a Proposal Item) and/or other financing, as well as General Conditions costs, (e.g., routine time related Site cleanup and maintenance, temporary power and lighting, security, temporary trailer rental, temporary fence rentals, and the like). The SOV shall also **not** include separate line items to prepare submittals, or other Work items not at the Project Site, unless expressly identified in these Contract Documents as specific exceptions.

Costs for each item of Work at the Project site shall be indicated on a single line that breaks out labor, materials, and equipment for that item of Work, with all items noted in the paragraph above prorated into each line. Unless otherwise allowed, the SOV shall reflect that the District shall only pay for installed items of Work at the Project site. All other costs shall be prorated through all activities and all Phases of the Project so that the sum of all Schedule of Values line items equals the total Contract Sum.

Notwithstanding anything to the contrary stated above, the Contractor may include in its Request for Payment the value of any fabricated structural steel, mail order materials, G.F.R.C. panels and other such custom-made materials prepared specifically for the Project and unique to the Project so long as all of the following requirements are satisfied:

(a) No payment shall be made for materials stored off-site without the written approval of the District to be given or withheld in the District's sole discretion;

(b) Title to such materials shall be vested in the District as evidenced by documentation satisfactory in form and substance to the District, including, without limitation, recorded financing statements, UCC filings and UCC searches;

(c) With each Contractor Request for Payment, the Contractor shall submit to the District a written list identifying each location where materials are stored off-site (which must be a bonded warehouse) and the value of the materials at each location. The Contractor shall procure insurance satisfactory to the District (in its
reasonable discretion) for materials stored off-site in an amount not less than the total value thereof;

(d) The consent of any Surety shall be obtained to the extent required prior to payment for any materials stored off-site;

(e) Representatives of the District shall have the right to make inspections of the storage areas at any time; and

(f) Such materials shall be (1) protected from diversion, destruction, theft and damage to the reasonable satisfaction of the District; (2) specifically marked for use on the Project; and (3) segregated from other materials at the storage facility.

9.3.2 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.

9.3.3 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 any error subsequent to any payment.

9.3.4 Issuance of Certificate of Payment.

The Architect shall, within seven (7) days after receipt of the Contractor’s Application for Payment, either approve such payment or notify the Contractor in writing of the Architect’s reasons for withholding approval in whole or in part as provided in Paragraph 9.6. The review of the Contractor’s Application for Payment by the Architect is based on 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 Architect’s knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to (1) an evaluation of the Work for conformance with the Contract Documents, (2) results of subsequent tests and inspections, (3) minor deviations from the Contract Documents correctable prior to completion, and (4) specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified.

9.4 APPLICATIONS FOR PROGRESS PAYMENTS

9.4.1 Procedure.

9.4.1.1 Application for Progress. On or before the fifth (5th) day of each calendar month during the progress of the Work, Contractor shall submit to the Architect an itemized Application for Progress Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or such portion thereof as Architect requires:
(a) 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;

(b) 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;

(c) The balance that will be due to each of such entities after said payment is made;

(d) A certification that the As-Built Drawings and Annotated Specifications are current;

(e) Itemized breakdown of work done for the purpose of requesting partial payment;

(f) An updated construction schedule in conformance with Paragraph 3.8;

(g) The additions to and subtractions from the Contract Sum and Contract Time;

(h) A summary of the retentions held;

(i) Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the District may require from time to time;

(j) The percentage of completion of the Contractor’s Work by line item; and

(k) An updated Schedule of Values from the preceding Application for Payment.

9.4.2 Prerequisites for Progress Payments.

9.4.2.1 First Payment Request. The following items, if applicable, must be completed before the first payment request will be accepted for processing:

(a) Installation of the Project sign;

(b) Receipt by Architect of submittals;

(c) Installation of field office;

(d) Installation of temporary facilities and fencing;

(e) Submission of documents listed in the Paragraph 9.2 relating to Cost Breakdown;

(f) Contractor’s Construction Schedule (Schedule to be CPM based in conformance with Paragraph 3.8);

(g) Schedule of unit prices;

(h) Submittal Schedule;

(i) Copies of necessary permits;

(j) Copies of authorizations and licenses from governing authorities;
(k) Initial progress report;
(l) Surveyor qualifications;
(m) Written acceptance of District’s survey of rough grading;
(n) List of all subcontractors, with names, license numbers, telephone numbers, and scope of work;
(o) All bonds and insurance endorsements; and
(p) Resumes of General Contractor’s Project Manager and superintendent.

9.4.2.2 All Payment Requests. No payment requests will be processed unless Contractor has submitted copies of the Certified Payroll records for the Work which correlates to the payment request and a proper CPM schedule pursuant to Paragraph 3.8 is submitted.

9.4.2.3 Any payments made to Contractor where criteria set forth in Paragraph 9.4.2.1 or 9.4.2.2 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 and that Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.

9.5 WARRANTY OF TITLE

The Contractor warrants title to all work. The Contractor further warrants that all work is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work. Failure to keep work free of liens, claims, security interests or encumbrances is grounds to make a claim against Contractor’s payment and performance bond to immediately remedy and defend.

If a lien or stop notice of any nature should at any time be filed against the Work or any District property, by any entity which 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 stop notice to be released or discharged immediately therefrom.

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 stop notice has been so released, discharged, or secured, then 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.

9.6 DECISIONS TO WITHHOLD PAYMENT

9.6.1 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 by Paragraph 9.4 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:
(a) Defective Work not remedied;
(b) Stop Notices served upon the District;
(c) Liquidated damages assessed against the Contractor;
(d) The cost of completion of the Contract if there exists reasonable doubt that the Work can be completed for the unpaid balance of any Contract Sum or by the completion date;
(e) Damage to the District or other contractor;
(f) Unsatisfactory prosecution of the Work by the Contractor;
(g) Failure to store and properly secure materials;
(h) Failure of the Contractor to submit on a timely basis, proper and sufficient documentation required by the Contract Documents, including, without limitation, acceptable monthly progress schedules, shop drawings, submittal schedules, schedule of values, product data and samples, proposed product lists, executed Construction Change Directives, and verified reports;
(i) Failure of the Contractor to maintain As-Built drawings;
(j) Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment;
(k) Unauthorized deviations from the Contract Documents;
(l) Failure of the Contractor to prosecute the Work in a timely manner in compliance with established progress schedules and completion dates.
(m) Failure to properly pay prevailing wages as defined in Labor Code section 1720, et seq.;
(n) Failure to properly maintain or clean up the Site;
(o) Payments to indemnify, defend, or hold harmless the District;
(p) Any payments due to the District including but not limited to payments for failed tests, or utilities changes or permits;
(q) Failure to submit an acceptable schedule in accordance with Paragraph 3.8; or
(r) Failure to pay Subcontractor or suppliers as required by Paragraph 9.8.1.

9.6.2 Reallocation of Withheld Amounts.

District may, in its discretion, apply any withheld amount to payment of outstanding claims or obligations as defined in Paragraphs 9.6.1 and 9.5. In so doing, District shall make such payments on behalf of Contractor. If any payment is so made by District, then such amount shall be considered as a payment made under Contract by District to Contractor and District shall not be liable to Contractor for such payments made in good faith. Such payments may be made without prior judicial determination of claim or obligation. District will render Contractor an accounting of such funds disbursed on behalf of Contractor.

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 ten (10) calendar days 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 which is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract price (of at least 150% of the estimated reasonable value of the nonconforming work) shall be made thereafter.

9.6.3 Payment After Cure.

When the grounds for declining approval are removed, 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.

9.7 NONCONFORMING WORK

Contractor shall promptly remove from premises all Work identified by District as failing to conform to the Contract whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract without additional expense to District and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

If Contractor does not remove such Work which has been identified by District as failing to conform to the Contract Documents within a reasonable time, fixed by written notice, District may remove it and may store the material at Contractor's expense. If Contractor does not pay expenses of such removal within ten (10) calendar days' time thereafter, District may, upon ten (10) calendar days' written notice, sell such materials at auction or at private sale and shall account for net proceeds thereof, after deducting all costs and expenses that should have been borne by Contractor.

9.8 SUBCONTRACTOR PAYMENTS

9.8.1 Payments to Subcontractors.

No later than ten (10) 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 Sub-subcontractors in a similar manner.

9.8.2 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.

9.8.3 Payment Not Constituting Approval or Acceptance.

An approved Request for Payment, a progress payment, or partial or entire use or occupancy of the Project by the District shall not constitute acceptance of Work not in accordance with the Contract Documents.

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9.8.4 Joint Checks.

District shall have the right, if necessary for the protection of the District, to issue joint checks made payable to the Contractor and Subcontractors and 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, any obligation from the District to such Subcontractor, or rights in such Subcontractor against the District.

9.9 PROJECT AS-BUILT DOCUMENTS

This section includes administrative and procedural requirements for Project As-Built Documents, including but not limited to the following where applicable:

9.9.1 As-Built Drawings
9.9.2 As-Built Specifications
9.9.3 As-Built Product Data
9.9.4 As-Built MEP & Structural coordination documents
9.9.5 Project As-Built Documents include, but are not limited to, the following:

9.9.5.1 Marked-up copies of Drawings
9.9.5.2 Marked up copy of the Project Specifications
9.9.5.3 Marked-up copies of Shop Drawings
9.9.5.4 Newly prepared Drawings and Specifications
9.9.5.5 Marked-up Product Data submittals
9.9.5.6 Field records, such as photographs, for variable and concealed conditions
9.9.5.7 Record information for Work that is only schematically shown
9.9.5.8 Maintenance forms for equipment

Contractor shall dedicate one complete full size set of the Contract Drawings and one complete Project Manual for use in recording as-built conditions.

Contractor shall submit to District in hard copy one original and two copies of all Project As-Built Documents. In addition, one electronic copy in electronic media format shall be submitted to District. District reserves the right to require resubmittal in accordance with these General Conditions if the documents are inaccurate or incomplete, or otherwise fail to meet the requirements of these Contract Documents.

9.9.6 Project As-Built

Mark-up Procedure: During the construction period, maintain a complete, current set of full size blackline prints of Contract Drawings and Shop Drawings for Project As-Built Documents purposes.
Label each document (on first sheet or format page) "As-Built" in 2-inch high printed letters. Keep all As-Built documents current.

A reference by number to a Change Order, CCD, RFI, RFQ, RFP, Field Order or other such document is not acceptable as sufficient record information on any record document. Do not conceal any Work until required record information has been recorded.

Contractor shall mark As-Built drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later. Items required to be marked include, but are not limited to:

9.9.6.1 Dimensional changes to the Contract Drawings (horizontal and/or vertical)
9.9.6.2 Revisions or any modification to details shown on the Contract Drawings
9.9.6.3 Depths of various elements of foundations in relation to main floor level or survey datum.
9.9.6.4 Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
9.9.6.5 Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
9.9.6.6 Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stub outs, invert elevations and similar items
9.9.6.7 Final, actual numbering of each electrical circuit
9.9.6.8 Revisions to routing of piping and conduits
9.9.6.9 Revisions to electrical circuitry
9.9.6.10 Actual equipment locations
9.9.6.11 Duct size and routing
9.9.6.12 Changes made by Change Order, CCD, ASI, or any other directive
9.9.6.13 Details not on original Contract Drawings

Contractor shall mark completely and accurately As-Built Drawing prints of Contract Drawings or Shop Drawings, whichever is the most capable of showing actual physical conditions. Where Shop Drawings are marked, show cross-reference on Contract Drawings location.

Contractor shall mark As-Built Drawing sets with red, erasable colored pencil; use other colors to distinguish between changes for different categories of the Work at the same location.

Contractor shall be responsible for Mark-up: Where feasible, the individual or entity who obtained As-Built Drawing data, whether the individual or entity is the installer, Subcontractor or similar entity, is required to prepare the mark-up on As-Built Drawings.
Contractor shall prepare As-Built Drawings: Immediately prior to inspection for Certification of Substantial Completion of the Work, review completed marked-up As-Built Drawings with District, Project Inspector, Construction Manager, and Architect to ensure accuracy of information. Once accuracy of information is confirmed, prepare and submit a full set of As-Built Contract Drawings and Shop Drawings.

Incorporate changes and additional information previously marked on print sets. Delete, redraw, and/or add details and notations where applicable. Identify and date each Drawing; include the printed designation "PROJECT AS-BUILT DRAWING" and the date prepared in a prominent location on each Drawing.

Distribution: Whether or not changes and additional information were recorded, organize and bind original marked-up set of prints that were maintained during the construction period into manageable sets. Bind the set with durable paper cover sheets, with appropriate identification, including titles, dates and other information on cover sheets and submit to District.

9.9.7 Project As-Built Specification

Contractor shall, during the construction period, maintain one copy of the Project Specifications, including all addenda and all other modifications issued for Project As-Built Documents purposes.

Contractor shall mark the Project As-Built specifications to indicate the actual installation where the installation varies substantially from that indicated in Specifications and/or modifications issued. Note related Project As-Built Drawing information, where applicable. Give particular attention to substitutions, selection of product options, Change Order and Construction Change Directive Work, and information on concealed installation that would be difficult to identify, measure, and record later.

9.9.8 Project As-Built Product Data

Contractor shall, during the construction period, maintain one copy of each Project As-Built Product Data submittal for "Project As-Built Document" purposes.

Contractor shall arrange Project As-Built Product Data by Specification Section number, and provide names, addresses, fax numbers, emails addresses, and telephone number of Subcontractors and suppliers. Information to be provided includes:

9.9.8.1 Trade Names
9.9.8.2 Model or type numbers
9.9.8.3 Assembly diagrams
9.9.8.4 Operating instructions
9.9.8.5 Cleaning instructions
9.9.8.6 Maintenance instructions
9.9.8.7 Recommended spare parts
9.9.8.8 Product data
9.9.9 Miscellaneous Project As-Built Submittals

Refer to other Specification Sections for miscellaneous record keeping requirements and submittals. Immediately prior to Substantial Completion of the Work complete miscellaneous records and place in good order, properly identified, ready for use and reference. Submit to the District for District’s records, in Adobe PDF format.

9.9.10 Electronic Media Format

Electronic Media Format: Electronic media format for all Project As-Built Documents shall be Adobe PDF, with chapter markers and/or bookmarks inserted in place of the equivalent hard copy section tabs. Electronic copy shall include all tables, charts, drawings, codes and all other matters reflected in hard copies. Electronic media files shall be delivered on a unique CD-ROM or flash drive.

9.10 COMPLETION OF THE WORK

9.10.1 Contract Closeout Submittals include, but are not limited to:

9.10.1.1 Electronic Media of All Project As-Built Documents described in Article 9.9.10 above.

9.10.1.2 Record Samples
9.10.1.3 Field records for variable and concealed conditions
9.10.1.4 Operating and maintenance manuals and data
9.10.1.5 Warranties, guaranties, and bonds
9.10.1.6 Warranty Tags
9.10.1.7 Spare Parts Data
9.10.1.8 Service and maintenance contracts
9.10.1.9 Certified and approved fire inspection documents, when required

9.10.2 Initial Punch List and Inspection

When Contractor considers Work to be Substantially Complete, submit written notice to District’s Representative requesting an Initial Inspection and listing items remaining to be completed or corrected listed by room number and item number (hereinafter “Initial Punch List”). The Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the list without waiting for District review of the Initial Punch List and inspection of the Work. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The Contractor shall not submit a notice requesting an Initial Inspection unless the Work is Substantially Complete.

9.10.2.1 Before calling for final inspection, Contractor shall determine that the following Work has been performed:
a. The Work has been completed.
b. All life safety items are completed and in working order.
c. Mechanical and electrical Work complete, fixtures in place, connected and ready for tryout and test.
d. Electrical circuits scheduled in panels and disconnect switches labeled.
e. Painting and special finishes complete.
f. Doors complete with hardware, cleaned of protective film relieved of sticking or binding and in working order.
g. Tops and bottoms of doors sealed.
h. Floors waxed and polished as specified.
i. Broken glass replaced and glass cleaned.
j. Grounds cleared of Contractor’s equipment, raked clean of debris, and trash removed from Site.
k. Work cleaned, free of stains, scratches, and other foreign matter, replacement of damaged and broken material.
l. Finished and decorative work shall have marks, dirt and superfluous labels removed.
m. Final cleanup.

9.10.2.2 Furnish a letter to District stating that a responsible representative of District [give name and position] has been instructed in working characteristics of mechanical and electrical equipment.

Should District’s Representatives determine that Work is not Substantially Complete, the Architect or Construction Manager will promptly notify Contractor in writing, listing Work that must be completed prior to Substantial Completion. Any inspection list that is submitted to the District that does not result in a District determination of Substantial Completion will not be considered an accepted Initial Punch List. If the Work or Phase of Work is determined to not be Substantially Complete, Contractor shall complete all Work as directed prior to requesting an additional Initial Inspection by the District to determine Substantial Completion per this Specification Section.

Upon receipt of the Contractor’s Initial Punch List, and not before, the Architect, Construction Manager, and Inspector will make an Initial Inspection to determine whether the Work, or Phase of Work, is Substantially Complete.

9.10.2.3 All fire and life safety items, manufactured units, equipment and systems that require startup must have been started, run, tested, and operational for periods prescribed by the Contract Documents before a request for Initial Inspection is accepted by the District.

9.10.2.4 If additional Initial Inspections are required to review Initial Punch List items due to incompleteness of the Work by Contractor, Contractor will reimburse District for all costs associated with these inspections if additional services fees by District consultants are required. The costs of such District additional service fees will be deducted from the Contract Sum by Change Order.
9.10.3 Substantial Completion

When District determines that the Work is Substantially Complete, District will issue a Certificate of Substantial Completion, accompanied by Final Punch List of items to be completed or corrected as verified and/or appended by Architect and District.

When the Work is Substantially Complete, the District will file a Notice of Completion.

9.10.3.1 Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work unless otherwise provided in the Notice of Completion.

9.10.3.2 The Notice of Completion shall be submitted to the Contractor for their written acceptance of responsibilities assigned to them in such Notice prior to District filing the Notice of Completion for purposes of initiating the release of Retention for the Work or Phase of Work.

9.10.3.3 The District shall withhold from Contractor payment the value of remaining Work, Work to be corrected, incomplete Work, and an amount identified for Punch List Work, and as otherwise identified in Public Contract Code.

The Contractor shall complete the items listed in the Final Punch List within ten (10) working days of the Certificate of Substantial Completion. The Contractor shall execute the Work such that the District can occupy the Work within seven (7) calendar days of the date of the Certificate of Substantial Completion.

9.10.4 Final Inspection

When Contractor considers the items listed in the Final Punch List to be complete the Contractor shall submit written notice to District’s Representative requesting a Final Inspection.

Operations and Maintenance Manuals and Warranty and Guaranty documents. At least ten (10) days prior to final inspection, three (3) copies of complete operations and maintenance manuals, repair parts lists, service instructions for all electrical and mechanical equipment, and equipment warranties shall be submitted. All installation, operating, and maintenance information and drawings shall be bound in 8½” x 11” binders. Provide a table of contents in front and all items shall be indexed with tabs. Each manual shall also contain a list of subcontractors, with their addresses and the names of persons to contact in cases of emergency. Identifying labels shall provide names of manufactures, their addresses, ratings, and capacities of equipment and machinery. Additional requirements for Operations and Maintenance manuals may be found in other Specifications and Sections of the Contract Documents.

Upon receipt of the Contractor’s request for Final Inspection, and not before, the Contractor, Architect, and Construction Manager, shall meet to go over the Contract Documents to identify the administrative requirements for contract close-out.

9.10.4.1 The Construction Manager will prepare a list of requirements remaining for administrative close-out and shall provide the list to the Contractor. This list may be general in nature, and shall not serve to relieve the Contractor from any of the administrative requirements of the Contract.
9.10.4.2 The Contractor shall complete all items on the administrative close-out list within twenty-one (21) days

Subsequent to the meeting to identify administrative close-out requirements, Architect, Construction Manager, Campus Representatives, and Inspector will inspect the Work to determine whether the Work identified on the Final Punch List is complete.

If additional Final Inspections are required to review the Final Punch List items due to incompleteness of the Work by Contractor, Contractor will reimburse District for all costs associated with these inspections if additional services fees by District consultants are required. The costs of such District additional service fees will be deducted from the Contract Sum by Change Order.

When the Architect determines that all final punch list items have been completed, a final Project Inspection Report will be issued. Any outstanding administrative close-out requirements will be identified and a value for withholding from Progress Payment or Final Payment will be assigned.

The Project Inspector (IOR), the Construction Manager, and the Contractor shall, at all times, be together during all inspections. The Contractor shall give 24-hour notice to the District for such inspections.

9.10.5 Final Completion

Final Completion occurs when all Work meets all requirements of the Contract Documents. When Contractor considers all Work complete and all close-out requirements have been performed, submitted, and accepted, submit written certification to District that:

9.10.5.1 Contractor has inspected Work for compliance with Contract Documents, and all requirements for Final Acceptance have been met.

9.10.5.2 Except for Contractor maintenance and Deferred or Seasonal Testing, after Final Acceptance, all Work has been completed in accordance with Contract Documents and deficiencies listed with any Certificate of Substantial Completion have been corrected. Equipment and systems have been tested in the presence of Architect, Project Inspector (IOR), Construction Manager, and District Representatives and are operative.

Should District determine that the Work is incomplete or defective or that administrative requirements have not been completed:

9.10.5.3 District’s Representative promptly will so notify Contractor, in writing, listing the incomplete or defective items.

9.10.5.4 Contractor shall promptly remedy all incomplete and/or defective Work and notify the District when it is ready for re-inspection. District’s Representatives will then re-inspect the Work. If deficiencies previously noted are found not to be corrected, Contractor shall pay all District costs for re-inspection.

9.10.5.5 When District determines that all Work and requirements are complete under the Contract Documents, District or Construction Manager will request Contractor to make a request for Final Payment.
9.11 **PARTIAL OCCUPANCY OR USE**

9.11.1 District’s Rights.

The District may occupy or use any completed or partially completed portion of the Work at any stage. The District and the Contractor shall agree in writing to the responsibilities assigned to each of them 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. If District and Contractor cannot agree as to responsibilities such disagreement shall be resolved pursuant to Paragraph 4.5.1. When the Contractor considers a portion complete, the Contractor shall prepare and submit a Punch List to the District as provided under Paragraph 9.9.1.

9.11.2 Inspection Prior to Occupancy or Use.

Immediately prior to such 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.

9.11.3 No Waiver.

Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of the Work not complying with the requirements of the Contract Documents.

9.12 **COMPLETION AND FINAL PAYMENT**

9.12.1 Final Inspection.

Contractor shall comply with all Punch List and Inspection procedures under Paragraph 9.10

Upon receipt and approval of such final Application for Payment as required in Article 9.10.5.5 and elsewhere, the Architect shall issue a final Certificate of Payment stating that to the best of its knowledge, information, and belief, and on the basis of its observations, inspections, and all other data accumulated or received by the Architect in connection with the Work, such Work has been completed in accordance with the Contract Documents. The District shall thereupon inspect such 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 (which, 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 payment from the District, pay the amounts due Subcontractors.

9.12.2 Retainage.

The retainage, less any amounts disputed by the District or which the District has the right to withhold Pursuant to Paragraph 9.6, shall be paid after approval of the District by the Architect’s Certificate of Payment, after the satisfaction of the conditions set forth in Article 9, and after thirty-five (35) days after the acceptance of the Work and recording of the Notice of Completion by District. No interest shall be paid on any retainage, 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 § 22300.

9.12.3 Procedures for Application for Final Payment.

9.12.3.1 Prerequisites for Final Payment. The following conditions must be fulfilled prior to Final Payment:

(a) A full and final waiver or release of all Stop Notices in connection with the Work shall be submitted by Contractor, including a release of Stop Notice in recordable form, together with (to the extent permitted by law) a copy of the full and final release of all Stop Notice rights.

(b) The Contractor shall have made all corrections to the Work which 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.

(c) 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.

(d) Contractor must have completed all requirements set forth in Paragraph 9.9.1.2.

(e) Architect shall have issued a Final Certificate of Payment.

(f) The Contractor shall have delivered to the District all manuals and materials required by the Contract Documents.

(g) The Contractor shall have completed final clean up as required by Paragraph 3.12.

9.13 SUBSTITUTION OF SECURITIES

The District will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 Contractor Responsibility.

The Contractor is constructive owner of Project site. The 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 protection of all materials delivered and work performed until completion and final acceptance.
by the District. All work shall be solely at the Contractor’s risk, with the exception of damage to the work caused by “acts of God” as defined in Public Contract Code Section 7105(b)(2).

Contractor shall take, and require subcontractor to take, all necessary precautions for safety of workers on the Work 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. In addition to meeting all requirements of OSHA, Cal-OSHA, state, and local codes, Contractor shall furnish, erect and properly maintain at all times, as directed by District or Architect or required by conditions and progress of work, all necessary safety devices, safeguards, construction canopies, signs, audible devices for protection of the blind, safety rails, belts and 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. Contractor shall designate a responsible member of its organization on the Work, 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. The name and position of person so designated shall be reported to District by Contractor. 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, such violation shall be corrected promptly.

The Contractor and Subcontractors shall continuously protect the Work, the District’s property, and the property of others, from damage, injury, or loss arising in connection with operations under the Contract Documents. The Contractor and Subcontractors, at their own expense, shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the District.

10.1.2 Subcontractor Responsibility.

Contractor shall require that Subcontractors participate in, and enforce, the safety and loss prevention programs established by the Contractor for the Project, which will cover all Work performed by the Contractor and its Subcontractors. Each Subcontractor shall designate a responsible member of its organization whose duties shall include loss and accident prevention, and who shall have the responsibility and full authority to enforce the program. This person shall attend meetings with the representatives of the various Subcontractors employed to ensure that all employees understand and comply with the programs.

10.1.3 Cooperation.

All Subcontractors and material or equipment suppliers, shall cooperate fully with Contractor, the District, and all insurance carriers and loss prevention engineers.

10.1.4 Accident Reports.

Subcontractors shall immediately, within two (2) days, report in writing to the Contractor all accidents whatsoever arising out of, or in connection with, the performance of the Work, whether on or off the Site, which caused death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported within four (4) days by telephone or messenger. Contractor shall thereafter immediately,
within two (2) days, report the facts in writing to the District and the Architect giving full details of the accident.

10.1.5 First-Aid Supplies at Site.

The Contractor will provide and maintain at the Site first-aid supplies which complies with the current Occupational Safety and Health Regulations.

10.1.6 Material Safety Data Sheets and Compliance with Proposition 65.

(a) Contractor is required to have material safety data sheets available in a readily accessible place at the job 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 properly label any substance brought into the job site, and require 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.

Contractor is required to comply with the provisions of California Health and Safety Code section 25249, et seq., which requires the posting and giving of notice to persons who may be exposed to any chemical known to the State of California to cause cancer. The Contractor agrees to familiarize itself with the provisions of this section, and to comply fully with its requirements.

10.1.7 Non-Utilization of Asbestos Material.

NO ASBESTOS OR ASBESTOS-CONTAINING PRODUCTS SHALL BE USED IN THIS CONSTRUCTION OR IN ANY TOOLS, DEVICES, CLOTHING, OR EQUIPMENT USED TO EFFECT THIS CONSTRUCTION.

Asbestos and/or asbestos-containing products shall be defined as all items containing, but not limited to, chrysotile, amosite, anthophyllite, tremolite, and actinolite.

Any or all material containing greater than one-tenth of one percent (> .1%) asbestos shall be defined as asbestos-containing material.

All Work or materials found to contain asbestos or Work or material installed with asbestos-containing equipment will be immediately rejected and this Work will be removed at no additional cost to the District.

Decontamination and removal of Work found to contain asbestos or Work installed with asbestos-containing equipment shall be done only under supervision of a qualified consultant, knowledgeable in the field of asbestos abatement and accredited by the Environmental Protection Agency.

The asbestos removal contractor shall be an EPA accredited contractor qualified in the removal of asbestos and shall be chosen and approved by the asbestos consultant, who shall have sole discretion and final determination in this matter.
The asbestos consultant shall be chosen and approved by the District, who shall have sole discretion and final determination in this matter.

The Work will not be accepted until asbestos contamination is reduced to levels deemed acceptable by the asbestos consultant.

Interface of Work under this Contract with work containing asbestos shall be executed by the Contractor at his risk and at his discretion, with full knowledge of the currently accepted standards, hazards, risks, and liabilities associated with asbestos work and asbestos-containing products. By execution of this Contract, the Contractor acknowledges the above and agrees to hold harmless District and its assigns for all asbestos liability which may be associated with this work and agrees to instruct his employees with respect to the above-mentioned standards, hazards, risks, and liabilities.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor.

The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury, or loss to:

(a) Employees on the Work and other persons who may be affected thereby;
(b) The Work, material, and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody, or control of the Contractor or the Contractor’s Subcontractors or Sub-subcontractors; and
(c) Other property at the Site or adjacent thereto such as trees, shrubs, lawns, walks, pavement, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

Contractor is constructive owner of Project site as more fully discussed in Paragraph 6.2.

10.2.2 Contractor Notices.

The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss.

10.2.3 Safety Barriers and Safeguards.

The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

10.2.4 Use or Storage of Hazardous Material.

When use or storage of explosives, other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall notify the
District any time that explosives or hazardous materials are expected to be stored on Site. Location of storage shall be coordinated with the District and local fire authorities.

10.2.5 Protection of Work.

The Contractor and Subcontractors shall continuously protect the Work, the District’s property, and the property of others, from damage, injury, or loss arising in connection with operations under the Contract Documents. The Contractor and Subcontractors, at their own expense, shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the District.

The Contractor, at Contractor’s expense, will remove all mud, water, or other elements as may be required for the proper protection and prosecution of its Work.

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. All permits, licenses, or inspection fees required for such repair Work shall be obtained and paid for by Contractor.

10.2.6 Requirements for Existing Sites.

Contractor shall (unless waived by the District in writing):

(a) When performing construction on existing sites, become informed and take into specific account the maturity of the students on the Site; and perform Work which may interfere with campus routine before or after campus hours, enclose working area with a substantial barricade, and arrange Work to cause a minimum amount of inconvenience and danger to students and faculty in their regular campus activities. The Contractor shall comply with specifications and directives of the District regarding the timing of certain construction activities in order to avoid unnecessary interference with the campus’ functions.

(b) Provide substantial barricades around any shrubs or trees indicated to be preserved.

(c) Deliver materials to building area over route designated by Architect.

(d) Take preventive measures to eliminate objectionable dust, noise, or other disturbances.

(e) Confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits or directions of Architect; and not interfere with the Work or unreasonably encumber premises or overload any structure with materials; and enforce all instructions of District and Architect regarding signs, advertising, fires, and smoking and require that all workers comply with all regulations while on the Project site.

(f) Take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed by accident, they shall be replaced by an approved land
surveyor or civil engineer and all maps and records required therefrom shall be filed with county and local authorities, at no cost to the District. All filing and plan check fees shall be paid by Contractor.

(g) Provide District on request with Contractor’s written safety program and safety plan for each site.

10.2.7 Shoring and Structural Loading.

The Contractor shall not impose structural loading upon any part of the Work under construction or upon existing construction on or adjacent to the Site in excess of safe limits, or loading such as to result in damage to the structural, architectural, mechanical, electrical, or other components of the Work. The design of all temporary construction equipment and appliances used in construction of the Work and not a permanent part thereof, including, without limitation, hoisting equipment, cribbing, shoring, and temporary bracing of structural steel, is the sole responsibility of the Contractor. All such items shall conform with the requirements of governing codes and all laws, ordinances, rules, regulations, and orders of all authorities having jurisdiction. The Contractor shall take special precautions, such as shoring of masonry walls and temporary tie bracing of structural steel work, to prevent possible wind damage during construction of the Work. The installation of such bracing or shoring shall not damage the Work in place or the Work installed by others. Any damage which does occur shall be promptly repaired by the Contractor at no cost to the District.

10.2.8 Conformance Within Established Limits.

The Contractor and Subcontractors shall confine their construction equipment, the storage of materials, and the operations of workers to the limits indicated by laws, ordinances, permits, and the limits established by the District or the Contractor, and shall not unreasonably encumber the premises with construction equipment or materials.

10.2.9 Subcontractor Enforcement of Rules.

Subcontractors shall enforce the District’s and the Contractor’s instructions, laws, and regulations regarding signs, advertisements, fires, smoking, the presence of liquor, and the presence of firearms by any person at the Site.

10.2.10 Site Access.

The Contractor and the Subcontractors shall use only those ingress and egress routes designated by the District, observe the boundaries of the Site designated by the District, park only in those areas designated by the District, which areas may be on or off the Site, and comply with any parking control program established by the District, such as furnishing license plate information and placing identifying stickers on vehicles.

10.3 EMERGENCIES

10.3.1 Emergency Action.

In an emergency affecting the safety of persons or property, the Contractor shall take any action necessary, at the Contractor’s discretion, to prevent threatened damage, injury, or loss. Additional
compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 7.

10.3.2 Accident Reports.

The Contractor shall promptly report in writing to the District all accidents arising out of or in connection with the Work, which caused death, personal injury, or property damage, giving full details and statements of any witnesses in conformance with Article 10.1.4. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported in accordance with Paragraph 10.1.4, immediately by telephone or messenger to the District.

10.4 HAZARDOUS MATERIALS

10.4.1 Discovery of Hazardous Materials.

In the event the Contractor encounters or suspects the presence on the job site of material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous by § 25249.5 of the California Health and Safety Code, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the District and the Architect in writing, whether or not such material was generated by the Contractor or the District. The Work in the affected area shall not thereafter be resumed, except by written agreement of the District and the Contractor, if in fact the material is asbestos, polychlorinated biphenyl (PCB), or other hazardous material, and has not been rendered harmless. The Work in the affected area shall be resumed only in the absence of asbestos, polychlorinated biphenyl (PCB), or other hazardous material, or when it has been rendered harmless by written agreement of the District and the Contractor.

If hazardous materials are encountered, they shall be handled in accordance with applicable local, state and federal regulation which may include: (1) CCR Title 8, Division 4, Chapter 4, Sections 5163 through 5167 and 5192 (Hazardous Waste Operations and Emergency Response); (2) CCR Title 22, Division 4.5, Chapters 10 through 13 and 18 (Environmental Health Standards for Management of Hazardous Waste); and (3) CCR Title 23, Division 3, Chapter 15 (Discharges of Hazardous Waste to Land).

Should the discovery of contaminants cause delay to Contractor's operation, extension of Contract Time will be granted by District in accordance with these General Conditions. Contractor may not be entitled to damages or additional payment due to such delays. District may, if it believes appropriate in its sole discretion, grant an extension of Contract Time.

The Contractor shall take all measures to avoid and/or mitigate delays due to Hazardous Materials/Waste finds such as; avoiding the area of the find and proceeding with other work on the project; developing “work around” plans; and documenting his best efforts to avoid and/or mitigate delays.

10.4.2 Hazardous Material Work Limitations.

In the event that the presence of hazardous materials is suspected or discovered on the Site (except in cases where asbestos and other hazardous material work in the Contractor’s responsibility), the District shall retain an independent testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required. The Contractor shall not
be required pursuant to Article 7 to perform without consent any Work in the affected area of the Site relating to asbestos, polychlorinated biphenyl (PCB), or other hazardous material, until any known or suspected hazardous material has been removed, or rendered harmless, or determined to be harmless by District, as certified by an independent testing laboratory and approved by the appropriate government agency.

10.4.3 Indemnification by Contractor for Hazardous Material Caused by Contractor.

In the event the hazardous materials on the Project Site is caused by the Contractor, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the District for any additional costs incurred as a result of Contractor’s generation of hazardous material on the Project Site. In addition, the Contractor shall defend, indemnify and hold harmless District and its agents, officers, and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with, arising out of, or relating to, the presence of hazardous material on the Project Site.

10.4.4 Terms of Hazardous Material Provision.

The terms of this Hazardous Material provision shall survive the completion of the Work and/or any termination of this Contract.

ARTICLE 11

INSURANCE AND BONDS

11.1 Not used

11.2 Not used

11.3 Not used

11.4 Not used

11.5 OTHER INSURANCE

The Contractor shall provide all other insurance required to be maintained under applicable laws, ordinances, rules, and regulations.

11.6 PROOF OF INSURANCE

The Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract until all required insurance and certificates have been obtained and delivered in duplicate to the District for approval subject to the following requirements:

(a) Certificates and insurance policies shall include the following clause:

“This policy shall not be non-renewed, canceled, or reduced in required limits of liability or amounts of insurance until notice has been mailed to the District. Date of
cancellation or reduction may not be less than thirty (30) days after the date of mailing notice.”

(b) Certificates of insurance shall state in particular those insured, the extent of insurance, location and operation to which the insurance applies, the expiration date, and cancellation and reduction notices.

(c) Certificates of insurance shall clearly state that the District and the Architect are named as additional insureds under the policy described and that such insurance policy shall be primary to any insurance or self-insurance maintained by District.

(d) The Contractor and its Subcontractors shall produce a certified copy of any insurance policy required under this Section upon written request of the District.

11.7 COMPLIANCE

In the event of the failure of any contractor to furnish and maintain any insurance required by this Article 11, or in Section 00600, Construction Agreement, the Contractor shall be in default under the Contract. Compliance by Contractor with the requirement to carry insurance and furnish certificates or policies evidencing the same shall not relieve the Contractor from liability assumed under any provision of the Contract Documents, including, without limitation, the obligation to defend and indemnify the District and the Architect.

11.8 WAIVER OF SUBROGATION

Contractor waives (to the extent permitted by law) any right to recover against the District for damages to the Work, any part thereof, or any and all claims arising by reason of any of the foregoing, but only to the extent that such damages and/or claims are covered by property insurance and only to the extent of such coverage (which shall exclude deductible amounts) by insurance actually carried by the District.

The provisions of this section are intended to restrict each party to recovery against insurance carriers only to the extent of such coverage and waive fully and for the benefit of each, any rights and/or claims which might give rise to a right of subrogation in any insurance carrier. The District and the Contractor shall each obtain in all policies of insurance carried by either of them, a waiver by the insurance companies thereunder of all rights of recovery by way of subrogation for any damages or claims covered by the insurance.

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 Uncovering Work for Required Inspections.

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 Inspector or the Architect, be
uncovered for the Inspector’s or the Architect’s observation and be replaced at the Contractor’s expense without change in the Contract Sum or Time.

12.1.2 Costs for Inspections not Required.

If a portion of the Work has been covered which the Inspector or the Architect has not specifically requested to observe prior to its being covered, the Inspector or the Architect may request to see such Work, and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncover and replacement shall, by appropriate Change Order, be charged to the District. If such Work is not in accordance with Contract Documents, the Contractor shall pay such costs unless the condition was caused by the District or a separate contractor, in which event the District shall be responsible for payment of such costs to the Contractor.

12.2 CORRECTION OF WORK

12.2.1 Correction of Rejected Work.

The Contractor shall promptly correct the Work rejected by the Inspector or the District upon recommendation of the Architect 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.

12.2.2 One-Year Warranty or Guaranty Corrections.

If, within one (1) years after the date of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties and guaranties established under this Contract, or by the terms of an applicable special warranty or guaranty 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 unless the District has previously given the Contractor a written acceptance of such condition. This period of one (1) 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 under this Paragraph 12.2.2 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.

12.2.3 District’s Rights if Contractor Fails to Correct.

If the Contractor fails to correct nonconforming Work within a reasonable time, the District may correct it, pursuant to Article 9.

ARTICLE 13

MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW AND REGULATIONS

The Contract shall be governed by the law of the place where the Project is located.
13.1.1 Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency in effect at the time of the opening of Proposals, except as may be otherwise specifically stated in the Contract Documents.

13.1.2 No change order shall be considered for any change in any applicable federal, state or local code or regulation if similar language existed in an alternate applicable regulation in force at the time of opening of Bids.

13.1.3 Contractor shall not allow design or construction of any conditions wherein the finished Work will not comply with current applicable codes. No change order shall be considered by District for the Work correction of any Work not complying with code.

13.1.4 This section shall cover 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.

13.1.5 Code, laws, ordinances, rules and regulations referred to shall have full force and effect as though printed in full in these Specifications. Code, laws, ordinances, rules and regulations are not furnished to Contractor because Contractor is assumed to be and shall be familiar with these requirements, including readily available access to these requirements. The listing of applicable codes, laws, and regulations for hazardous waste abatement Work in the Contract Documents is supplied to Contractor as a courtesy and shall not limit Contractor's responsibility for complying with all applicable laws, regulations or ordinances having application to the Work. Where conflict among the requirements or with these Specifications occurs, the most stringent requirements shall be used with no change in Contract Sum or Contract Time.

13.1.6 Contractor shall conform to all applicable federal, state, and local codes, laws, ordinances, rules and regulations, whether or not referenced in the Contract Documents.

13.1.7 Precedence:

13.1.7.1 Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.

13.1.7.2 Where Contract Documents require or describe products or execution of better quality, higher standard or greater size than required by applicable codes, ordinances and standards, Contract Documents shall take precedence so long as such increase is legal.

13.1.7.3 Where no requirements are identified on Contract Documents, comply with all requirements of applicable codes, ordinances and standards of governing authorities have jurisdiction.

13.1.7.4 If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and
requirements that are different, but apparently equal, to District for a decision before proceeding.

13.2 SUCCESSORS AND ASSIGNS

The District and the Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 WRITTEN NOTICE

In the absence of specific notice requirements in the Contract Documents, written notice shall be deemed to have been duly served if delivered in person to the individual, member of the firm or entity, or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

13.4.1 Duties and Obligations Cumulative.

Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

13.4.2 No Waiver.

No action or failure to act by the Inspector, the District, or the Architect shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 TESTS AND INSPECTIONS

13.5.1 Compliance.

Tests, inspections, and approvals of portions of the Work required by the Contract Documents will comply with Title 24, and with all other laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction.

13.5.2 Independent Testing Laboratory.

The District will select and pay an independent testing laboratory to conduct all tests and inspections required by regulatory agencies. Selection of the materials required to be tested shall be made by the laboratory, and not by the Contractor. All costs for all other tests shall be included in the Bid Price and shall be paid for by the Contractor. Any costs or expenses of inspection or testing required
by regulatory agencies, incurred outside of a fifty (50) mile radius from the Project Site or not located in a contiguous county to the Site, whichever distance is greater, shall be paid for by the District, invoiced by the District to the Contractor, and deducted from the next Progress Payment.

13.5.3 Contractor Responsibilities

13.5.3.1 Make samples available to the Independent Testing Laboratory. Samples shall be selected by laboratory personnel. Allow proper time for selecting samples, and making tests or considerations.

13.5.3.2 Cooperate with laboratory personnel, and provide access to work and to manufacturer's facilities.

13.5.3.3 Provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples as selected by laboratory personnel at the site or at source of products to be tested, to facilitate tests and inspections, and for storage and curing of test samples.

13.5.3.4 Schedule all tests and inspections with the testing and inspections firm and to notify Construction Manager and Project Inspector a minimum of 3 working days prior to expected time for operations requiring inspection and testing services. Do not allow work to be covered prior to inspection and testing.

13.5.3.5 Cooperate fully with the testing laboratory's personnel and with special inspectors in inspection any part of the construction and in taking any samples of materials required to be tested. Provide access to the work. The Contractor's personnel shall furnish and cut or prepare all samples in the presence of either the testing laboratory personnel or the special inspectors and secure the witness's initial on each sample prepared.

13.5.3.6 Notify the testing laboratory to pick up the initialed samples the same day the samples were prepared. Alert the testing laboratory 3 working days in advance as to the times and location of the required sampling, tests and inspections so as to not delay the work of the project, and make sure that the required sampling, tests inspections are promptly completed.

13.5.4 Contractor Paid Test/Inspection Reports not required by regulatory agencies:

13.5.4.1 Reports will comply with Section 4-335(d), Part 1, Title 24, CCR.

13.5.4.2 Include every test and inspection made regardless of whether such tests and inspections indicate that the material and procedures are satisfactory or unsatisfactory.

13.5.4.3 Include records of special sampling operations as required.

13.5.4.4 Indicate that materials were sampled and tested in accordance with requirements of CCR regulations and Construction Documents.

13.5.4.5 Indicate specified design strength of materials such as masonry, concrete and steel.

13.5.4.6 State whether or not materials and procedures comply with requirements of the Construction Documents.
13.5.4.7 Submit copies of reports to District, Architect, Project Inspector, Structural Engineer, Civil Engineer, Soils Engineer and Contractor within 14 days of tests. Submit copies of reports of non-complying materials and procedures immediately.

13.5.5 Advance Notice to Inspector.

The Contractor shall notify the Inspector a sufficient time in advance of its readiness for required observation or inspection so that the Inspector may arrange for same, but no less than 2 work days. The Contractor shall notify the Inspector a sufficient time in advance, but no less than 2 work days, of the manufacture of material to be supplied under the Contract Documents which must, by terms of the Contract Documents, be tested in order that the Inspector may arrange for the testing of the material at the source of supply.

13.5.6 Testing Off-Site.

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 Inspector that such testing and inspection will not be required, shall not be incorporated in the Work.

13.5.7 Additional Testing or Inspection.

If the Inspector, the Architect, the District, or public authority having jurisdiction determines that portions of the Work require additional testing, inspection, or approval not included under Paragraph 13.5.1, the Inspector will, upon written authorization from the District, make arrangements for such additional testing, inspection, or approval. The District shall bear such costs except as provided in Paragraph 13.5.4.

13.5.8 Costs for Retesting.

If such procedures for testing, inspection, or approval under Paragraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs arising from such failure, including those of re-testing, re-inspection, or re-approval, including, but not limited to, compensation for the architect’s services and expenses. Any such costs shall be paid by the District, invoiced to the Contractor, and deducted from the next Progress Payment.

13.5.9 Retesting Covered Work.

Re-examination of previously tested and inspected work may be ordered by the District, Architect, or by the Project Inspector. The Contractor shall uncover such work if retesting is ordered. If the work is found in accordance with Contract Documents, the District will pay costs of uncovering, removing, retesting and replacing. If work is found not in accordance with Contract Documents, the District will deduct the cost of retesting from the Contract Sum by Change Order and the Contractor will bear the costs of uncovering, removing and replacing work.

13.5.10 Costs for Premature Test.

In the event the Contractor requests any test or inspection for the Project and is not completely ready for the inspection, the Contractor shall be invoiced by the District for all costs and expenses
resulting from that testing or inspection, including, but not limited to, the Inspector’s and Architect’s fees and expenses, and the amount of the invoice of shall be deducted from the next Progress Payment.

13.6 **TRENCH EXCAVATION**

13.6.1 Trenches Greater Than Five Feet.

Pursuant to Labor Code § 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, submit to the District or a registered civil or structural engineer employed by the District or Architect, a detailed plan showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches. Said detailed plan shall be prepared by a California licensed civil or structural engineer employed by the Contractor.

13.6.2 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 in writing by the District or by the person to whom authority to accept has been delegated by the District.

13.6.3 No Tort Liability of District.

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

13.6.4 No Excavation Without Permits.

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

13.7 **WAGE RATES, TRAVEL, AND SUBSISTENCE**

13.7.1 Wage Rates.

Pursuant to the provisions of Article 2 (commencing at § 1720), Chapter 1, Part 7, Division 2, of the Labor Code, the District has obtained 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 works project is to be performed for each craft, classification, or type of worker needed for this Project from the Director of the Department of Industrial Relations ("Director"). These rates are on file at the administrative office of the DISTRICT and are also available from the Director of the Department of Industrial Relations. Copies will be made available to any interested party on request. The Contractor shall post a copy of such wage rates at appropriate, conspicuous, weatherproof points at the Site.

Any worker employed to perform work on the Project, but such work is not covered by any classification listed in the published general prevailing wage rate determinations or per diem wages determined by the Director of the Department of Industrial Relations, shall be paid not less than the
minimum rate of wages specified therein for the classification which most nearly corresponds to the employment of such person in such classification.

13.7.2 Holiday and Overtime Pay.

Holiday and overtime work, when permitted by law, shall be paid for at the rate set forth in the prevailing wage rate determinations issued by the Director of the Department of Industrial Relations or at least one and one-half (1½) times the specified basic rate of per diem wages, plus employer payments, unless otherwise specified in the contract documents or authorized by law.

13.7.3 Wage Rates Not Affected by Subcontracts.

The Contractor shall pay and shall cause to be paid each worker engaged in the execution of the Work on the Project not less than the general prevailing rate of per diem wages determined by the Director, regardless of any contractual relationship which may be alleged to exist between the Contractor or any Subcontractor and such workers.

13.7.4 Per Diem Wages.

The Contractor shall pay and shall cause to be paid to each worker needed to execute the Work on the Project per diem wages including, but not limited to, employer payments for health and welfare, pensions, vacation, travel time and subsistence pay as provided for in Labor Code §1773.1.

13.7.5 Forfeiture and Payments.

Pursuant to Labor Code §1775 and the District's Labor Compliance Program, the Contractor shall forfeit to the District, not more than Fifty Dollars ($50.00) for each calendar day, or portion thereof, for each worker paid less than the prevailing wages rates as determined by the Director of the Department of Industrial Relations, for the work or craft in which the worker is employed for any Work done under the Agreement by the Contractor or by any Subcontractor under it. The amount of the penalty shall be determined by the Labor Commissioner and shall be based on consideration of: (1) whether the Contractor or Subcontractor’s failure to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily correct upon being brought to the attention of the Contractor or Subcontractor; and (2) whether the Contractor or Subcontractor has a prior record of failing to meet its prevailing wage obligations. Further details regarding the enforcement of paying prevailing wage rates, reporting violations, withholding contract payments, forfeitures and hearing to review withholding of contract payments are set forth in the District’s Labor Compliance Program.

13.8 RECORDS OF WAGES PAID

13.8.1 Payroll Records.

(a) Pursuant to §1776 of the Labor Code, each Contractor and Subcontractor shall keep an accurate payroll record showing the name, address, social security number, work classification and 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 in connection with the Project.
(b) All payroll records shall be certified and submitted to the District with each application for payment, but shall not be submitted less than once per month. All payroll records shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:

(1) A certified copy of an employee’s payroll record shall be made available for inspection or furnished to the employee or their authorized representative on request.

(2) A certified copy of all payroll records shall be made available for inspection or furnished upon request to a representative of District, the Division of Labor Standards Enforcement or the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through the District, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to Paragraph (2) above, the requesting party shall, prior to being provided the records, reimburse the costs, according to law for the preparation by the Contractor, Subcontractor(s), and the entity through which the request was made. The public shall not be given access to such records at the principal office of the Contractor.

(c) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the Division of Labor Standards Enforcement.

(d) The Contractor or Subcontractor(s) shall file a certified copy of all payroll records with the entity that requested such records within 10 calendar days after receipt of a written request.

(e) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the District, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual’s name, address and social security number. The name and address of the Contractor awarded the Contract or the Subcontractor(s) performing the Contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (Section 175a of Title 29 of the United States Code) shall be marked or obliterated only to prevent disclosure of an individual’s name and social security number.

(f) The Contractor shall inform the District of the location of all payroll records, including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

(g) The Contractor or Subcontractor(s) shall have 10 calendar days in which to comply subsequent to receipt of a written notice requesting payroll records. In the
event that the Contractor or Subcontractor(s) fails to comply within the 10-day period, the Contractor or Subcontractor(s) shall, as a penalty to the District, forfeit Twenty-Five Dollars ($25.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

Responsibility for compliance with this Article and the District’s Labor Compliance Program shall rest upon the Contractor.

13.8.2 Withholding of Contract Payments & Penalties.

The District may withhold or delay contract payments to the Contractor and/or any Subcontractor if:

(a) The required prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations is not paid to all workers employed on the Project; or

(b) The Contractor or Subcontractor(s) fail to submit all required certified payroll records with each application for payment, but not less than once per month; or

(c) The Contractor or Subcontractor(s) submit incomplete or inadequate payroll records; or

(d) The Contractor or Subcontractor(s) fail to comply with the Labor Code requirements concerning apprentices; or

(e) The Contractor or Subcontractor(s) fail to comply with the District’s Labor Compliance Program; or

(f) The Contractor or Subcontractor(s) fail to comply with any applicable state laws governing labor on public works projects.

Any withholding of contract payments and penalties are set forth in the District’s Labor Compliance Program.

13.9 **APPRENTICES**

13.9.1 Apprentice Wages and Definitions.

All apprentices employed by the Contractor to perform services under the Contract shall be paid the standard wage paid to apprentices under the regulations of the craft or trade for which he or she is employed, and as determined by the Director of the Department of Industrial Relations, and shall be employed only at the Work of the craft or trade to which he or she is registered. Only apprentices, as defined in §3077 of the Labor Code, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprenticeship agreements under Chapter 4 (commencing with §3070) of Division 3, are eligible to be employed under this Contract. The employment and training of each apprentice shall be in accordance with the apprenticeship standards and apprentice agreements under which he or she is training, or in accordance with the rules and regulations of the California Apprenticeship Council.
13.9.2 Employment of Apprentices.

Contractor agrees to comply with the requirements of Labor Code §1777.5. The Contractor awarded the Project, or any Subcontractor under him or her, when performing any of the Work under the Contract or subcontract, employs workers in any apprenticeable craft or trade, the Contractor and Subcontractor shall employ apprentices in the ratio set forth in Labor Code §1777.5. The Contractor or any Subcontractor must apply to any apprenticeship program in the craft or trade that can provide apprentices to the Project site for a certificate approving the Contractor or Subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the Contractor or Subcontractor, shall arrange for the dispatch of apprentices to the Contractor or Subcontractor. The Contractor or Subcontractor covered by an apprenticeship program’s standards shall not be required to submit any additional application in order to include additional public works contracts under that program. “Apprenticeable craft or trade” as used in this Article means a craft or trade determined as an apprenticeable occupation in accordance with the rules and regulations prescribed by the California Apprenticeship Council. The ratio of work performed by apprentices to journeyman employed in a particular craft or trade on the Project shall be in accordance with Labor Code §1777.5.

13.9.3 Submission of Contract Information.

Prior to commencing work on the Project, the Contractor and Subcontractors shall submit contract award information to the applicable apprenticeship program(s) that can supply apprentices to the Project and make the request for the dispatch of apprentices in accordance with the Labor Code. The information submitted shall include an estimate of journeyman hours to be performed under the Contract, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the District. Within 60 days after concluding work on the Project, the Contractor and Subcontractors shall submit to the District, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the Project.

13.9.4 Apprentice Fund.

The Contractor or any Subcontractor under him or her, who, in performing any of the Work under the Contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the Director determines is the prevailing amount of apprenticeship training contributions in the area of the Project. The Contractor and Subcontractors may take as a credit for payments to the California Apprenticeship Council any amounts paid by the Contractor or Subcontractor to an approved apprenticeship program that can supply apprentices to the Project. The Contractor and Subcontractors may add the amount of the contributions in computing his or her bid for the Contract.

13.9.5 Prime Contractor Compliance.

The responsibility of compliance with Article 13 and §1777.5 of the Labor Code for all apprenticeable occupations is with the Prime Contractor. Any Contractor or Subcontractor that knowingly violates the provisions of this Article or Labor Code §1777.5 shall be subject to the penalties set forth in Labor Code §1777.7 and the District’s Labor Compliance Program.

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13.10 **ASSIGNMENT OF ANTITRUST CLAIMS**

13.10.1 Application.

Pursuant to Government Code § 4551, in entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the District 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. § 15) or under the Cartwright Act (Chapter 2 [commencing with § 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from the purchase of goods, services, or materials pursuant to the public works contract or the subcontract. This 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. If the District receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Chapter 11 (commencing with § 4550) of Division 5 of Title 1 of the Government Code, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the District any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the District as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

13.10.2 Assignment of Claim.

Upon demand in writing by the assignor, the District shall, within one (1) year from such demand, reassign the cause of action assigned pursuant to this Article if the assignor has been or may have been injured by the violation of law for which the cause of action arose and the District has not been injured thereby or the District declines to file a court action for the cause of action.

13.11 **STATE AUDIT**

Pursuant to and in accordance with the provisions of Government Code § 10532, or any amendments thereto, all books, records, and files of the District, the Contractor, or any Subcontractor connected with the performance of this Contract involving the expenditure of state funds in excess of Ten Thousand Dollars ($10,000.00), including, but not limited to, the administration thereof, shall be subject to the examination and audit of the Office of the Auditor General of the State of California for a period of three (3) years after final payment is made under this Contract. Contractor shall preserve and cause to be preserved such books, records, and files for the audit period.

13.12 **Not Used**

(a)

13.13 **INDUSTRY STANDARDS**

13.13.1 Applicability of Standards.

Unless the Contract Documents specify more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
13.13.2 Publication Dates.

Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

13.13.3 Minimum Quantity or Quality Levels.

The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

13.13.4 Copies of Standards.

Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not contained within the Contract Documents. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

13.13.5 Abbreviations and Acronyms for Industry Organizations.

Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

13.14 PRODUCTS

13.14.1 All products are to be new and not previously incorporated into or used in any other project or facility. Products salvaged or recycled from other projects are not considered new products and are not permitted.

13.14.2 The term product, as used in the Contract Documents, includes materials, equipment, systems, and like terms of similar intent.

13.14.3 Products include materials, machinery, components, equipment, fixtures and systems forming the Work and purchased for incorporation into the Work.

13.14.4 Do not reuse materials and/or equipment removed from existing premises except as specifically permitted by the Contract Documents.

13.14.5 Provide interchangeable components of the same manufacturer, for similar components.

13.14.6 Named products are items identified in the Contract Documents by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
13.14.7 TRANSPORTATION AND HANDLING

13.14.7.1 Transport and handle products in accordance with manufacturer's instructions.

13.14.7.2 Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

13.14.8 SHIPPING REQUIREMENTS

13.14.8.1 Preparation for Shipment: All equipment shall be suitably packaged to facilitate handling and to protect against damage during transit and storage. All equipment shall be protected from exposure to the elements and shall be kept dry at all times.

13.14.8.2 Painted and coated surfaces shall be protected against impact, abrasion, discoloration, and other damage. Painted and coated surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of District at the expense of Contractor.

13.14.9 PRODUCT DELIVERY, STORAGE, AND HANDLING

13.14.9.1 Store products only in staging area per provisions of the Contract Documents.

13.14.9.2 Handle, store, and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate-controlled enclosures.

13.14.9.3 For exterior storage of fabricated products, place on appropriate supports, above ground.

13.14.9.4 Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

13.14.9.5 Deliver, store and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

13.14.9.6 Contractor shall comply with the following without limitation:

(a) Contractor shall bear the responsibility for delivery of equipment, spare parts, special tools, and materials to the Site and shall comply with the requirements specified herein and provide required information concerning the shipment and delivery of the materials specified in the Contract Documents.

(b) Electrical equipment and all equipment with antifriction or sleeve bearings shall be stored in weather-tight structures maintained at a temperature above 60 degree Fahrenheit. Electrical equipment controls and insulation shall be protected against moisture and water damage. All space heaters furnished in or with equipment shall be connected and operated continuously or according to manufacturer's requirements.

(c) Equipment and materials shall not have any pitting, rust, decay, or other deleterious effects of storage when installed in the Work.
(d) Store products to allow for inspection, measurement, and/or counting of units.
(e) Store materials in a manner that will not endanger adjacent Work.
(f) Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.
(g) Store cementitious products and materials on elevated platforms.
(h) Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR FOR CAUSE

14.1.1 Grounds for Termination.

The Contractor may terminate the Contract if the Work is stopped for a period of thirty (30) consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons performing portions of the Work for whom the Contractor is contractually responsible, for only the following reasons:

(a) Issuance of an order of a court or other public authority having jurisdiction; or
(b) An act of government, such as a declaration of national emergency.

14.1.2 Notice of Termination.

If one of the above reasons exists, the Contractor may, upon written notice of seven (7) additional days to the District, terminate the Contract and recover from the District payment for Work executed and for reasonable costs verified by the Architect with respect to materials, equipment, tools, construction equipment, and machinery, including reasonable overhead, profit, and damages.

14.2 TERMINATION BY THE DISTRICT FOR CAUSE

14.2.1 Grounds for Termination.

The District may terminate the Contractor and/or this Contract for the following reasons:

(a) Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
(b) Persistently or repeatedly is absent, without excuse, from the job site;
(c) Fails to make payment to Subcontractors, suppliers, materialmen, etc.;
(d) Persistently disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction; or
(e) Becomes bankrupt or insolvent, including the filing of a general assignment for the benefit of creditors; or

(e) Otherwise is in substantial breach of a provision of the Contract Documents.

14.2.2 Notification of Termination.

When any of the above reasons exist, the District may, without prejudice to any other rights or remedies of the District and after giving the Contractor and the Contractor’s surety, if any, written notice of seven (7) days, except in the event of an emergency or critical path delay to the schedule in which case the District may give written notice of forty-eight (48) hours, terminate the Contract and may, subject to any prior rights of the surety:

(a) Take possession of the Project and of all material, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

(b) Accept assignment of Subcontracts. Contractor acknowledges and agrees that if the District (in its sole and absolute discretion) decides to takeover completion of the Project, the Contractor agrees to immediately assign all subcontracts to the District which the District has chosen to accept; and

(c) Complete the Work by any reasonable method the District may deem expedient, including contracting with a replacement contractor or contractors.

14.2.3 Payments Withheld.

If the District terminates the Contract for one of the reasons stated in Paragraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is complete. All costs associated with the termination and completion of the Project shall be the responsibility of the Contractor and/or its surety.

14.2.4 Payments Upon Completion.

If the unpaid balance of the Contract Sum exceeds costs of completing the Work, including compensation for professional services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the District. The amount to be paid to the Contractor, or District, as the case may be, shall be certified by the Architect upon application. This payment obligation shall survive completion of the Contract.

14.3 TERMINATION OF CONTRACT BY DISTRICT (CONTRACTOR NOT AT FAULT)

14.3.1 Termination for Convenience.

District may terminate the Contract upon fifteen (15) calendar days of written notice to the Contractor and use any reasonable method the District deems expedient to complete the project, including contracting with replacement contractor or contractors, if it is found that reasons beyond the control of either the District or Contractor make it impossible or against the District’s interest to complete the work. In such a case, the Contractor shall have no claims against the District except: (1) the actual cost for labor, materials, and services performed which may be documented through timesheets, invoices, receipts, or otherwise, and (2) ten percent (10%) profit and overhead, and (3) five percent (5%) termination cost of the total of items (1) and (2). Contractor acknowledges and agrees that
if the District (in its sole and absolute discretion) decides to take over completion of the Project, the Contractor agrees to immediately assign all subcontractors to the District which the District has chosen to accept.

14.3.2 Non-Appropriation of Funds/ Insufficient Funds.

In the event that sufficient funds are not appropriated to complete the Project or the DISTRICT determines that sufficient funds are not available to complete the Project, DISTRICT may terminate or suspend the completion of the Project at any time by giving written notice to the Contractor. In the event that the DISTRICT exercises this option, the DISTRICT shall pay for any and all work and materials completed or delivered onto the site for which value is received, and the value of any and all work then in progress and orders actually placed which cannot be canceled up to the date of notice of termination. The value of work and materials paid for shall include a factor of fifteen percent (15%) for the Contractor’s overhead and profit and there shall be no other costs or expenses paid to Contractor. All work, materials and orders paid for pursuant to this provision shall become the property of the DISTRICT. DISTRICT may, without cause, order Contractor in writing to suspend, delay or interrupt the Project in whole or in part for such period of time as DISTRICT may determine. Adjustment shall be made for increases in the cost of performance of the Agreement caused by suspension, delay or interruption.

14.4 REMEDIES OTHER THAN TERMINATION

If a default occurs, the District may, without prejudice to any other right or remedy, including, without limitation, its right to terminate the Contract pursuant to Article 14.2, do any of the following:

(a) Permit the Contractor to continue under this Contract, but make good such deficiencies or complete the Contract by whatever method the District may deem expedient, and the cost and expense thereof shall be deducted from the Contract Price or paid by the Contractor to the District on demand;

(b) If the workmanship performed by the Contractor is faulty or defective materials are provided, erected or installed, then the District may order the Contractor to remove the faulty workmanship or defective materials and to replace the same with work or materials that conform to the Contract Documents, in which event the Contractor, at its sole costs and expense, shall proceed in accordance with the District’s order and complete the same within the time period given by the District in its notice to the Contractor; or

(c) Initiate procedures to declare the Contractor a non-responsible bidder for a period of two to five years thereafter.

All amounts expended by the District in connection with the exercise of its rights hereunder shall accrue interest from the date expended until paid to the District at the maximum legal rate. The District may retain or withhold any such amounts from the Contract Price. If the Contractor is ordered to replace any faulty workmanship or defective materials pursuant to Paragraph (b) above, the Contractor shall replace the same with new work or materials approved by the Architect and the District, and, at its own cost, shall repair or replace, in a manner and to the extent the Architect and the District shall direct, all work or material that is damaged, injured or destroyed by the removal of said faulty workmanship or defective material, or by the replacement of the same with acceptable work or materials. In no event shall anything in this Paragraph be deemed to constitute a waiver by the District.
of any other rights or remedies that it may have at law or in equity, it being acknowledged and agreed by the Contractor that the remedies set forth in this Paragraph are in addition to, and not in lieu of, any other rights or remedies that the District may have at law or in equity.

END OF SECTION 00700
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

SUBSTITUTION REQUEST FORM

Contractor Name: ____________________________
Contract #: ____________________________

RFS # ____________________________ Date: ____________________________
DSA Application #: ____________________________
Campus: ____________________________
Project No., Name: ____________________________

Contractor pursuant to General Conditions submits the proposed items. If the District accepts such items as described, the undersigned may furnish such item with all necessary labor, materials, equipment and incidentals to perform and complete the Work.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>SPECIFIED ITEM OR DRAWING</th>
<th>SPECIFICATION SECTION</th>
<th>PROPOSED SUBSTITUTION (and name of Subcontractor if different)</th>
</tr>
</thead>
<tbody>
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</table>

CERTIFICATION
Under penalty of perjury under the Laws of California, I certify that the proposed substitution will be readily available, perform adequately the functions and achieve the results called for by the design concept, be similar in substance to that specified, and be suited to the same use as that specified in Contract Documents.

Contractor: ____________________________
(Please print name of company) ____________________________
Name and Title (printtype) ____________________________
Contractor Authorized Representative ____________________________
Date ____________________________

A. Does the substitution affect dimensions shown on Drawings?
B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?
C. What effect does the substitution have on other trades?
D. Will substitution cause change to Project Schedule, or to critical delivery dates? Add? Shorten?
E. Differences between proposed substitution and specified item?
F. What is the Cost Differential including all mark-ups?
G. Are Manufacturer’s guarantees for the proposed item the same as for item specified? Explain differences.
H. The undersigned accepts full responsibility for delays caused by redesign of other items of the Work necessitated by substitution.
I. The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

A/E Response: ____________________________
District Representative Response: ____________________________

0 Accepted

0 Not Accepted

0 Accepted As Noted

0 Received Too Late

By: ____________________________ Date: ____________________________

By: ____________________________ Date: ____________________________
SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS

A. Section 01030 – “Alternates”
B. Section 01312 – “Project Meetings”
C. Section 01330 – “Submittal Procedures”
D. Section 01400 – “Quality Control Requirements”
E. Section 01540 – “Site Security and Safety”
F. Section 01625 – “Product Options and Substitutions”
G. Section 01770 – “Contract Closeout Procedures”
H. Section 01780 – “Project Record Documents”
I. Section 01820 – “Demonstration and Training”
J. Divisions 2 through 33 Sections for Summary of Work requirements for the work in those Sections.

1.3 WORK DESCRIPTIONS WITHOUT FORCE

A. All general descriptions and/or general summaries of the work noted in this section, or elsewhere within the Contract Documents, are without force and effect on the Contract Work described and indicated in detail the Construction Documents. These general descriptions and summaries are for general reference and descriptive purposes only and in no way offer the complete and concise description of all the Work required by the Contract Documents.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The intent of the Contract Documents includes but is not limited to:

Replace the existing indoor 5kV metal-clad switchgear metal-with new standard outdoor (non-walk-in) metal clad switchgear located in an outdoor equipment pad adjacent to the Engineering Technology building. Related electrical work includes, but not limited to, new outdoor pad mounted oil filled transformer, underground electrical ductbanks, manholes with sump pumps, cables, splices, terminations, grounding system, testing and related miscellaneous incidentals. Also, disconnect and removal of cables and related materials in existing manholes. Civil site work includes, but not limited to, excavation, concrete equipment pad, equipment anchoring, trenching, storm drain line, pavement repair and landscape restoration. Furnish, install and test
required equipment, materials and incidentals for a fully operating and functioning electrical distribution system.

1.5 CONTRACTS
   A. Perform the work under a single, fixed-price Contract.

1.6 WORK SEQUENCE
   A. During construction operations, various adjoining areas will be occupied and their functions maintained. Temporary construction separations such as walls for sound and dust control, as well as pathway barricades, signage and clearly marked temporary pedestrian path of travel detours will be required and provided by the contractor.
   B. Scheduling of Contractor's use of the areas and times involved shall be determined in cooperation with the District. Notify the District a minimum of 10-days prior to commencement of work.
   C. [TBD prior to BID] Construction activities shall be performed between the hours of 7AM and 5PM, Monday through Friday, unless otherwise required. No Work shall be performed outside the above hours without prior written authorization from the Construction Manager/Project Manager.

1.7 ADDITIONAL WORK SCHEDULE REQUIREMENTS [TBD prior to BID]

1.8 CAMPUS HOLIDAYS [TBD prior to BID]

1.9 USE OF PREMISES
   A. Contractor shall only use the premises for work, storage, staging areas, and vehicular parking as designated in the Contract Documents.

1.10 EXISTING AREA CONDITION SURVEY
   A. Prior to commencement of work, jointly survey the existing area to be remodeled with the District and Architect, noting and recording existing damage such as cracks, sags, and other damage (on Site Plan/Floor Plans).
   B. This record shall serve as a basis for determination of subsequent damage to these items due to settlement, movement, demolition, or Contractor’s operations.
   C. Existing damage observed shall be marked and the official record of existing damage shall be signed by the parties making the survey.
   D. Cracks, sags, and damage to the area and other items not noted in the original survey but subsequently observed shall be reported immediately to the Architect.
   E. Contractor shall provide a photographic and video recording of existing conditions and submit to the District prior to commencement of work.

1.11 PROTECTION OF EXISTING STRUCTURES AND UTILITIES
   A. The Drawings may not show all existing water, gas, electrical, and hot water lines, and other items known or suspected to exist in the area of the work.
B. Contractor shall locate these installations before proceeding with demolition or other operations which may cause damage, maintain them in service where appropriate, and repair damage caused by the performance of the Work, at no increase in the Contract Sum.

C. In addition to notification, if a structure or utility is damaged, take appropriate action as specified in the General Conditions.

1.12 NOISE CONTROL
A. See Section 01416, Special Procedures, for Noise Control requirements.

1.13 PROTECTION OF EXISTING IMPROVEMENTS
A. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing improvements indicated to remain in place.

B. Protect improvements on adjoining properties as well as those on the District’s property.

C. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skimming of roots, skimming and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line.

D. Restore any improvements damaged by this work to their original condition as acceptable to the District or other parties or authorities having jurisdiction.

1.14 MISCELLANEOUS PROVISIONS
A. Items shown or scheduled to be salvaged will remain the property of the District. Store as directed by the Project Manager.

PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION
Not Used.

END OF SECTION 01010
SECTION 01050
FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
B. Section 01311 – “Project Management and Coordination”
C. Section 01572 – “Storm Water Pollution Prevention Plan – Less Then an Acre”
D. Divisions 2 through 33 Sections for Field Engineering requirements for the work in those sections.

1.3 SUBMITTALS
A. Contractor shall submit name and address of Surveyor and professional Engineer to District and Architect for approval prior to 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. At completion of the Work, Contractor shall submit a certificate signed by a licensed engineer or surveyor certifying that all elevations and locations of improvements are in conformance with Contract Documents.

1.4 REQUIREMENTS
A. Contractor shall provide and pay for field engineering services by an engineer licensed in the State of California, required for the Project, including, without limitation:
   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.

1.5 QUALIFICATIONS OF SURVEYOR OR ENGINEERS
A. Contractor shall only use a qualified licensed engineer or registered land surveyor, approved by the District.

1.6 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.
4. Contractor to locate and protect existing survey control and reference points.
5. Control datum for survey is that indicated on Drawings.
6. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.
7. Promptly report to Architect, District, and Project Inspector the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.
8. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice.

1.7 PROJECT RECORD DOCUMENTS
A. Maintain complete, accurate log of control and survey work as it progresses. Indicate dimensions, locations, angles, and elevations of construction and Site Work.
B. Submit Record Documents under provisions of Section 01770

1.8 EXAMINATION
A. Verify locations of survey control points prior to starting Work.
B. Promptly notify Architect of any discrepancies discovered.

1.9 SURVEY REQUIREMENTS
A. Provide field engineering services. Utilize recognized engineering survey practices.
B. Establish a minimum of two permanent bench marks on Site, referenced to established control points. Record locations, with horizontal and vertical data, on Project Record documents.
C. Establish lines and levels, locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, and ground floor elevations.
D. Periodically verify layouts by same means.

1.10 QUALITY CONTROL
A. Employ a professional Engineer of the discipline required for specific service on Project, licensed in the State of California.
B. Submit evidence of Engineer’s errors and omissions insurance coverage to District, in the form of a current Insurance Certificate.

PART 2 – PRODUCTS
Not Used

PART 3 – EXECUTION

3.1 Contractor is responsible for meeting all applicable codes, OSHA, and other safety and shoring requirements.

3.2 Contractor is responsible for any re-surveying required by correction of nonconforming work with no additional cost to the District or its representatives.

END OF SECTION 01050
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SECTION 01140
WORK RESTRICTIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY OF WORK RESTRICTION REQUIREMENTS

A. Prior to the start of Work, Contractor shall familiarize itself with the Work Restrictions as they relate to all Work required by the Contract Documents.

B. Temporary Work Activity Plan shall include:
   1. Full size drawing (36”x42”) of site plan showing the proposed locations and dimensions of temporary facilities and activities, including but not limited to, all proposed trailers, equipment and material storage areas on the Project Site; safe and ADA complaint access (ingress/egress) for pedestrians and vehicles around the construction areas; proposed haul routes; all temporary construction, and way-finding signage; temporary fenced area(s), noise and safety barriers, and dust partitions; and temporary measures to maintain continuous and uninterrupted code compliant use of all occupied and surrounding areas impacted by construction activities. Identify any areas that require temporary paving for stabilization or prevention of tracking of mud, and for ADA complaint ingress and egress. Indicate if the use of supplemental or other staging areas might be required. Also see Section 01500 for Temporary Facilities and Control for additional requirements.

   2. Contractor shall submit two (2) hard copies at the pre-construction meeting, and email Adobe PDF Format of the initial submittal of the Temporary Work Activity Plan for review by the District, Architect, and by personnel from the Campus (e.g., Buildings & Grounds, Police Department, and other representatives).

C. Contractor shall construct dust partitions and other barriers as required prior to the start of abatement or demolition activities, whichever may occur first, and they must remain in place until the completion of that activity where required.

D. Contractor shall perform and complete all Temporary Work Activities to ensure the following:

   1. The continuous and uninterrupted use of all occupied areas or areas within buildings that require 24/7 utility services, including but not limited to the applicable power, data, telephone, waterline, fire alarm system, fire sprinkler system mechanical, HVAC, gas, storm, sewage, plumbing, and electrical systems serving these areas.

   2. Protection of students, staff, faculty and personnel in occupied areas and surrounding and adjacent areas from the hazards and dust associated with construction.

   3. The work areas, roads, parking lots, and streets are to be kept clean, clean, and free of loose debris, construction materials and partially installed work which would create a safety hazard or interfere with subcontractor and personnel duties and traffic. The Contractor shall sweep the areas clean at the end of each work day and make every effort to keep dust and noise to a minimum at all times.
4. Prior to starting work, the Contractor shall provide a proposed schedule of temporary interruptions or shutdown of any utility or electrical/mechanical systems to the District Representatives. The Contractor shall provide written request (S) working days prior to the desired time for the proposed interruption(s). Work shall be performed at times other than the Campus’s normal hours of operation, or as directed by the District’s Construction Manager. Temporary interruptions shall be completed prior to the start of the next business day at the Campus to maintain continuous and uninterrupted use of Campus facilities and utility systems.

1.3 SUMMARY OF WORK RESTRICTIONS

A. General: All Temporary Work Activities must be completed within the timelines, work shift times, and the scheduled time period as required by the Contract Documents. Comply with the following:
   1. The Temporary Work Activity Plan shall be approved by the District prior to any Work starting on the Project Site.
   2. Contractor shall have all temporary fencing, signage, ADA compliant pathways and other temporary measures described in Paragraph 1.2 above installed, operational and accepted by the District prior to starting demolition or other Work as applicable.

B. Time Related Work Restrictions within the Contract Time
   1. Although the Contract Time is a total of 270 calendar days between the Notice to Proceed and Substantial Completion, as articulated in Section 00600, Construction Agreement, Work by the Contractor is restricted and limited to specific time periods at specific locations during this contract duration as follows:
      1.1. Saturday Work: Work on Saturday is not allowed, unless otherwise approved the District.
      1.2. Sunday Work: Work on Sunday is not allowed, unless otherwise approved by the District. Approvals may be granted for work that requires utility service interruptions as scheduled in the Contractor’s work plan.
      1.3. Abatement and Demolition: This work cannot start until work plans are approved by the district assuming all requirements of this section and all other requirement of the Contract Documents are satisfied, unless otherwise approved by the District.
   2. The Contractor is responsible for its own means and methods to comply with these work restrictions, and to submit a schedule in accordance with Section 00700, Article 3.8.

C. Other Project Requirements and Restrictions
   1. The Contractor’s staging area for trailers, construction vehicles, construction equipment and materials is restricted to the general yard area shown on Drawing C001. The Contractor will be provided an additional 7 parking spaces outside of this area, but within 200 yards. Contractor is responsible for obtaining parking passes from the Police Services.
2. Due to the one lane vehicular access in the area of construction (east of the building), the Contractor is cautioned not to attempt to drive the wrong way on this road. Violators will be ticketed by the Campus Police Department.

3. Material and equipment deliveries on this one-way road to the construction site shall be closely monitored and controlled by the Contractor to avoid any delays to other vehicles using this road. The Contractor shall include delivery milestones in its Project CPM Schedule, and provide written notice at least two (2) work days to the District and to the Police Services for all deliveries. Any material or equipment deliveries that could potentially delay traffic on this one-way road will have to be delivered after normal business hours, unless otherwise approved by the District. Contractor truck deliveries that stop traffic on this road or other roads on Campus could be subjected to being ticketed by the Police Services.

PART 2 - PRODUCTS

2.1 MATERIALS

A. All labor, equipment, materials, and all other requirements shall be provided and will be the sole responsibility of the Contractor for execution of entire work described in this specification section.

PART 3 - EXECUTION

3.1 MEANS AND METHODS OF CONSTRUCTION

A. Contractor to provide and shall be responsible for any and all means and methods that will be constructed, implemented and/or maintained on the site for all work described above.

END OF SECTION 01140
SECTION 01305
DELAY AND EXTENSIONS TO THE WORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
C. Section 01311 – “Project Management and Coordination”
D. Divisions 2 through 33 Sections for Delay and Extensions to the Work requirements for the work in those Sections.

1.3 SUMMARY
A. This Section includes administrative and procedural requirements for evaluation of excusable delays including delays due to abnormal or adverse weather conditions.

1.4 DELAYS AND EXTENSIONS TO THE WORK
A. Contractor must complete all Work within the time specified in these Contract Documents. The Contractor will be granted an extension of time and will not be assessed liquidated damages or the cost of engineering and inspection for any delay in substantially completing the Work (or parts thereof) beyond the time set elsewhere in the Contract Documents, provided that such delay was caused by unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include fire, floods, abnormal weather (as described below), and earthquakes, embargoes, changes made pursuant to the provisions of “Changes in work” elsewhere in the Contract Documents or acts or neglect of the District not contemplated by the Contract Documents. In all cases, any extension of time is conditioned on the following:

1. That the cause is not due to the fault or negligence of the Contractor, and the Contractor has taken reasonable precautions to prevent the delays and minimize the effects thereof; and

2. That the Contractor notifies the District, Architect, Project Manager, and project Inspector in writing within five (5) days from the beginning of such delay, specifying the nature of the delay and the measures that have been or will be taken to prevent or minimize the delay. Failure to submit written notice within this time period shall constitute an absolute waiver of any claim for a time extension.
B. No extension of time will be granted for a delay caused by a shortage of materials, unless the Contractor furnishes to the District documentary proof that he has diligently made every effort to obtain such materials from all known sources within reasonable distance of the work and further proof, in the form of schedule data as required in Section 01310, that the inability to obtain such materials as originally planned did in fact cause a delay in final completion of the Work which could not be compensated for by revising the sequence of the Contractor’s operations. Only the physical shortage of material will be considered as a cause for extension of time, and no consideration will be given to any claim that material could not be obtained at a reasonable, practical, or economical cost or price, unless it is shown to satisfaction of the District that such material could have been obtained only at exorbitant prices, taking into account the quantities involved and the usual practices in obtaining such quantities.

C. The term “shortage of materials,” as used in this section, shall apply only to materials, articles, parts or equipment which are standard items and shall not apply to materials, parts, articles or equipment which are processed, made, constructed, fabricated or manufactured to meet the specific requirements of the Contract Documents.

D. No extensions of time will be granted for delay that have no measurable impact on the completion of the Work (or parts thereof) under the Contract Documents. When extensions of time are granted, they will be limited to the period equivalent to the actual number of days lost on the critical path or controlling operations of the current approved Construction Schedule, taking into account the extent to which that delay could be decreased by reasonable mitigation measures by the Contractor. All requests for extensions of time must be supported with a critical path analysis showing the critical path and impacts to it. Contractor’s failure to submit this analysis will be sufficient cause for denial of any request for a time extension.

E. Within a reasonable period of time after the Contractor submits the notice of delay along with any other information required by this section, the District will determine whether an extension of time is justified and, if so, the number of days for the extension.

1.5 ABNORMAL OR ADVERSE WEATHER CONDITIONS

A. Time extensions caused by abnormal weather will be allowed only if there is rain in excess of 0.5 inch in a 24 hours period, as measured at the Concord, CA, Airport weather station maintained by the National Weather Service, for a number of days that exceeds the number of average rain days.

B. In addition, before a time extension may be granted for abnormal weather, Contractor must establish to District satisfaction that the rain either significantly impacted at least 75% of the planned work of the critical path operations for a particular day or prohibited at least five (5) hours of work on the critical path operations planned for that day.

C. In the event that the project experiences favorable weather for a particular month (e.g. a number of actual rain days less than that allocated for allowable rain days per month), the cumulative float resulting from such favorable weather shall accrue to the project.

D. Rain delay shall be only for the actual period of time established pursuant to full compliance with the above requirements.

E. Contractor shall take reasonable steps to mitigate potential weather delays, such as dewatering the Site, providing access roads that are stable under abnormal or adverse weather conditions, and covering work and material that could be affected adversely by weather. Failure to do so
shall be cause for the District to not grant a time extension due to abnormal or adverse weather, where Contractor could have avoided or mitigated the potential delay by exercising reasonable care.

F. Abnormal weather may be a valid basis for a time extension under the Contract. The term “abnormal weather” is defined as the occurrence rain conditions that exceed the criteria set forth that cause impact to Contractor’s operations.

G. Contractor shall employ reasonable methods to mitigate the impact of abnormal weather (i.e. dewatering, protection of site, etc.) The occurrence of rain during non-work hours or having minimal impact to work on the controlling operation shall not constitute a day of abnormal weather.

1.6 ENTITLEMENT TO CLAIM FOR DELAY AND EXTENSIONS TO THE WORK

A. Any Contractor claim for damages or additional compensation based on delay shall be limited to only those circumstances where the Contractor has fulfilled at least one of the following three (3) requirements:

1. Contractor has established its entitlement to a time extension pursuant to the provisions described above regarding delay and extensions to the Work.

2. The delay was caused solely by the District by District’s issuance of changes made pursuant to the provisions of “Changes in Work” elsewhere in these General Conditions or by or acts of neglect of the district.

3. The delay was unreasonable under the circumstances and not within the contemplation of the parties and/or the Contract Documents.

B. It is expressly understood and agreed that delays caused by the District will be non-compensable when there are concurrent delays caused by the Contractor. Also, Contractor shall have no entitlement to additional compensation for any delay where there have been concurrent delays caused by non-compensable delays, including, but not limited to, fire, floods, tidal waves, earthquakes, epidemics, quarantine restrictions, strikes, labor disputes and freight embargoes weather days.

C. In the event that the Contractor submits a claim for additional costs associated with overhead, the Contractor shall, within 60 calendar days of the District’s written request, submit to the District an audit examination and report performed by an independent Certified Public Accountant certifying the Contractor’s actual unanticipated overhead costs. The independent Certified Public Accountant’s audit examination shall be performed in conformance with the requirements of the American Institute of Certified Public Accountants Attestation Standards. The audit examination and report shall depict the Contractor’s project and company-wide financial records and shall specify the actual overall average daily rates for both field and home office overhead for the entire duration of the project, and whether the costs have been properly allocated. The rates of field and home office overhead shall exclude all unallowable costs as determined in the Federal Acquisition Regulations, 48 CFR, Chapter 1, Part 31. The audit examination shall determine if the rates of field and home office overhead;

1. Are allowable in conformance with the requirements of the Federal Acquisition Regulations, 48 CFR, Chapter 1, Part 31;

2. Are adequately supported by reliable documentation; and
3. Related solely to the project under examination.

D. Upon the District’s written request, the Contractor shall make its financial records available for audit by the District for the purpose of verifying the actual rate of overhead specified in the audit submitted by the Contractor. The overhead specified in the audit, submitted by the Contractor, will be subject to review and approval by the District.

PART 2 – PRODUCT
Not Used.

PART 3 – EXECUTION
Not Used.

END OF SECTION 01305
SECTION 01311

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 - “Summary of Work”
B. Section 01312 - “Project Meetings”
C. Section 01330 - “Submittal Procedures”
D. Section 01411 - “Testing Laboratory Services”
E. Section 01416 – “Special Procedures”
F. Section 01505 – “Construction Waste Management”
G. Section 01540 – “Site Security and Safety”
H. Section 01770 – “Contract Closeout Procedures”
I. Section 01820 – “Demonstration & Training”
J. Divisions 2 through 33 Sections for Project Management and Coordination requirements for the work in those Sections.

1.3 SUMMARY
A. This Section specifies the administrative requirements and includes descriptions of required Project Coordination for the work and all Phases of Project including, but not limited to, the following:
   1. Coordination
   2. Pre-construction Conference
   3. Project Meetings
   4. Coordination of Contract Closeout

1.4 COORDINATION
A. Coordinate scheduling, submittals, and Work of the various Sections of Specifications to assure efficient and orderly sequence of Work, with provisions for accommodating items to be installed later and for accommodating items to be installed by other District Contractors.
B. Resolve differences or disputes concerning coordination, interference, or extent of Work of the various Sections of the Specifications. Contractor’s decisions if consistent with requirements of the Contract Documents shall be final.
C. Coordinate completion and clean up of Work of separate Sections in preparation for substantial Completion.

D. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.

E. Contractor shall coordinate construction operations and means and method of construction included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.

1. Coordinate structural, mechanical, and electrical elements prior to installation. All penetrations of structural elements must first receive approval of Architect and District. Rerouting of ductwork, piping, or conduit and resulting changes to other work caused by failure to coordinate beforehand is the responsibility of the Contractor and shall not be considered justification for either additional cost or time.

2. Schedule construction operations in sequence required to obtain the best constructed results where installation of one part of the Work depends on installation of other components, before or after its own installation.

3. Coordinate installation of different components with other contractors or other trades to ensure maximum and appropriate accessibility for required maintenance, service, and repair. Where availability of space is limited, coordinate installation of different components to ensure maximum and appropriate performance and accessibility for required maintenance, service, operations, and repair of all components, and building systems.

4. Make adequate provisions to accommodate items scheduled for later installation.

5. The manner in which the Specifications are divided into Divisions and Sections is not intended to indicate division of work between trades nor indicate trade union or jurisdictional agreements.

   a. Assign and subcontract construction activities, and employ workers in a manner that will not risk jurisdictional disputes that could result in conflicts, delays, claims, or losses.

### 1.5 PRECONSTRUCTION CONFERENCE

A. The District Project Manager will schedule a conference after Notice to Proceed and prior to the start of Work.

B. Attendance Required: District representatives, Architect and consultants, DSA Project Inspector, District Project Manager, Contractor, certain Subcontractors as requested by the District and others as appropriate.

### 1.6 ADMINISTRATIVE COORDINATION

A. Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work.

B. Project Documents Management and Exchange

   1. The Contractor, District, IOR, and Architect shall mutually utilize an internet based...
system for the exchange and tracking of Project documents. The system to be utilized for this Project is EADOC, by Bentley Systems, Inc.

2. The District will provide training for and access to the EADOC system for key Project team members, and will also pay the system usage fees.

3. To the maximum extent feasible, document exchange between and among the Contractor, District, IOR, and Engineer shall occur electronically via the EADOC system. Such documents include, but are not limited to:
   a. Product data and other submittals
   b. ASI's, Field Directives, and similar documents
   c. RFI's
   d. Payment applications
   e. Change Orders
   f. Schedules
   g. Correspondence
   h. Other documents and deliverables as required by the Contract Documents.

4. All Project documents entered into the EADOC system will be stored remotely at a secure Bentley Systems, Inc location.

5. EADOC demonstration videos and screenshots can be found at the following link: http://eadocsoftware.com/demo/

1.7 COORDINATION OF THE WORK

A. Coordinate use of project space and sequence of installation of mechanical, electrical, structural, and other Work which is indicated diagrammatically on Drawings. Follow routings shown for pipes, ducts, and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of structure. Utilize space efficiently for maximum and appropriate accessibility for other installations, for maintenance, service, operations, and for repairs.

B. Contractor shall use large scale drawings, if their preparation is required as part of Work of these specifications, together with shop drawings if applicable and layout drawings of other affected sections of these specifications to check, to coordinate, and to integrate the Work of various sections to prevent interferences.

C. Perform and complete checking and coordination before commencing construction in the affected areas.

D. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of plumbing, fixtures, electrical fixtures, and fixtures and outlets with finish elements.

1.8 CONSERVATION

A. Contractor shall coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as District’s property.

1.9 MEANS AND METHODS
   A. Contractor is solely responsible for construction means, methods, techniques, sequences, and procedures for performing all Work.

1.10 ADMINISTRATIVE AND SUPERVISORY PERSONNEL
   A. Contractor shall provide other administrative and supervisory personnel as required for proper performance of the Work.
   1. Include specific or dedicated personnel required for coordination of operations with other contractors.

1.11 COORDINATION WITH WORK BY DISTRICT
   A. Coordinate service connections for District furnished and District installed equipment. Verify that service connections are correct sizes and in required locations.
   B. Coordinate support and anchorage for equipment furnished and installed by the District. Provide blocking and backing as shown or directed to facilitate installation of equipment by others.

1.12 PERIODIC VERIFIED REPORTS
   A. The Contractor shall complete and submit the Final Verified Report required by DSA when applicable. In addition to other conditions precedent to Final Payment, the Contractor’s completion and submission of the Final Verified Report is an express condition precedent to the District’s obligation to make the Final Payment. In addition to completion and submission of the Final Verified Report, as a material obligation under the Contract Documents, the Contractor shall comply all DSA requests for reports or other data relating to the Work, the status thereof or conformity of the Work to the Contract Documents.

PART 2 - PRODUCTS

2.1 EADOC Construction Management Software
   A. The Project will make use of the EADOC Construction Management Software. The system is a web-based user-interface that can be accessible by typical web-browsers. The District will provide training prior to the start of the Project.

PART 3 - EXECUTION
Not Used.

END OF SECTION 01311
SECTION 01312
PROJECT MEETINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
B. Section 01015 – “Project Phasing”
C. Section 01400 – “Quality Control Requirements”
D. Section 01500 – “Temporary Facilities and Control”
E. Section 01770 – “Contract Closeout Procedures”
F. Divisions 2 through 33 Sections for Project Meetings requirements for the work in those Sections.

1.3 SUMMARY
A. This Section specifies administrative requirements and provides descriptions of the required project meetings for the Work and all Phases of the project. These meetings include, but not limited to, the following:
1. Preconstruction Meeting
2. Schedule Review Meetings
3. Weekly Project Progress Meetings
4. Progress Schedule and Application for Payment Meetings
5. Special Meetings

1.4 PRECONSTRUCTION CONFERENCE
A. District will schedule and conduct the Preconstruction Conference at a time and place to be determined.
B. Contractor and all major subcontractors shall attend the Preconstruction Conference. This includes, but is not limited to, the following:
1. Demolition Subcontractor
2. Civil Subcontractor
3. Electrical Subcontractor
C. Meeting agenda will include, but is not limited to, discussion of the following items:
1. Schedules
2. Personnel and vehicle permit procedures
3. Use of premises
4. Location of Contractor’s on-Site facilities
5. Security
6. Housekeeping
7. Submittal and RFI procedures
8. Inspection and testing procedures, on-Site and off-Site
9. Utility shutdown procedures
10. Control and reference point survey procedures
11. Injury and Illness Prevention Program
12. Initial Schedule
13. Schedule of Values
14. Schedule of Submittals
15. Project Directory
16. Emergency Contact List

1.5 SCHEDULE OF VALUES AND INITIAL SCHEDULE MEETING

A. Contractor shall meet with District and Architect within 10 days of submittal of the draft Schedule of Values and Initial Schedule to review and evaluate the Schedule of Values and the Initial Schedule.

1.6 SHOP DRAWINGS & SUBMITTALS SCHEDULE MEETING

A. Contractor shall meet with District and Architect within 10 days of submittal of the draft Shop Drawings and Submittals Schedule to review and evaluate the Shop Drawings and Submittals Schedule.

1.7 WEEKLY PROGRESS MEETINGS

A. Weekly Progress Meetings will be scheduled throughout duration of Work at a time acceptable to the District. Progress meetings will be held weekly unless otherwise directed by District.

1. Meetings shall be held at Project Manager’s on-site office unless otherwise directed by the District.
2. The Project Manager will prepare an agenda and distribute it 2 working Days in advance of meeting to Contractor.
3. The Architect will record meeting notes of the Weekly Progress Meeting. Within 3 working Days after the meeting, the Architect will distribute minutes to District via e-mail, and to those affected by decisions made at the meeting. Attendees can either submit comments or additions to the minutes within 3 working days. The minutes will constitute a final documentation of the results of meeting.

B. Progress meetings shall be attended by the Contractor’s project manager, project engineer, and job superintendent, District Project Manager, Architect and Engineers, the Inspector of Record, and others as appropriate to agenda topics for each meeting.
C. Agenda will contain the following items, as appropriate:
   1. Review, revise as necessary, and approve previous meeting minutes
   2. Review of Work progress since last meeting
   3. Status of Construction Work Schedule, delivery schedules, adjustments
   4. Submittal, RFI, and Change Order status
   5. Review of the Contractor’s safety program activities and results, including report on any serious injury and/or damage accidents
   6. Review of non-conforming Work (if any)
   7. Other items relating to or affecting progress of Work

1.7 BILLING MEETINGS
   A. See Section 00700 Article 9 Payments and Completion

1.8 SPECIAL MEETINGS
   A. Contractor or District may call special meetings by notifying the desired participants. Notify District no less than 5 work days in advance, and provide the reason for the meeting. Special meetings may be held without advance notice in emergency situations.
   B. At any time during the progress of Work, District shall have authority to require Contractor to attend a meeting with any or all of the Subcontractors engaged in the Work or in other work, and notice of such meeting shall be duly observed and complied with by Contractor.
   C. Contractor shall schedule and conduct his own periodic coordination meetings as necessary to discharge coordination responsibilities.
   D. Contractor shall give District 5 work days written notice of his coordination meetings. Contractors shall maintain and distribute minutes of coordination meetings to District. Attendees shall have 3 work Days to submit comments or additions to minutes. Minutes will constitute final documentation of results of coordination meetings.

PART 2 – PRODUCTS
Not Used

PART 3 – EXECUTION
Not Used

END OF SECTION 01312
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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED DOCUMENTS SPECIFIED IN OTHER SECTIONS

A. Section 01010 — “Summary of Work”
B. Section 01400 — “Quality Control Requirements”
C. Section 01770 — “Project Closeout Procedures”
D. Section 01780 — “Project Record Documents”
E. Section 01820 — “Demonstration and Training”
F. Divisions 2 through 33 sections for Submittal Procedures requirements for the work in these sections

1.3 SUMMARY

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other Submittals.

1.4 DEFINITIONS

A. Action Submittals, as used herein are written and/or graphic information that requires Architect and/or District responsive action. Submittals may be rejected for not complying with requirements. Prepare and submit Action Submittals as required by individual Specification Sections.

B. Informational Submittals, as used herein are written and/or graphic information that does not require Architect responsive action. Submittals may be rejected for not complying with requirements. Prepare and submit Informational Submittals as required by individual Specification Sections.

C. Manufactured, as used herein applies to standard units usually mass-produced, and “fabricated” means items specifically assembled or made out of selected materials to meet individual design requirements.

D. Submittal Descriptions: Submittals requirements are specified in the technical sections. Submittals are identified by description as follows:
   1. [edit this section] Preconstruction Submittals, as used herein are submittals which are required following a Notice to Proceed and prior to commencing Work. Examples include, but are not limited to:
      a. Certificates of insurance
b. Surety bonds
c. List of proposed products
d. Construction Schedule
e. Submittal Log
f. Schedule of prices
g. Safety plan
h. Waste Management Plan
i. Quality Control Plan
j. Others as required by the Contract Documents

2. Shop Drawings, as used herein are drawings, diagrams, schedules, and other data, which are prepared by Contractor, Subcontractors, manufacturers, fabricators, suppliers, or distributors illustrating some portion of the Work, and include: illustrations; fabrication, erection, layout and setting drawings; manufacturer’s standard drawings; schedules; descriptive literature, instructions, catalogs, and brochures; performance and test data including charts; wiring and control diagrams; and all 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 their position conform to the requirements of the Contract Documents.

a. Shop drawings shall establish the actual detail of all manufactured or fabricated items, indicate proper relation to adjoining work, amplify design details of mechanical and electrical systems and equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions.

3. Product data, as used herein are catalog cuts, 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. This includes samples of warranty language when the contract requires extended product warranties.

4. Samples, as used herein are physical examples furnished by Contractor to illustrate materials, equipment, or quality and includes natural materials, fabricated items, equipment, devices, appliances, or parts thereof as called for in the Specifications, and any other samples as may be required by the Architect to determine whether the kind, quality, construction, finish, color, and other characteristics of the materials, etc., proposed by the Contractor conform to the required characteristics of the various parts of the Work. All Work shall be in accordance with the approved samples.

5. Design Data, as used herein are design calculations, mix designs, analyses or other data pertaining to a part of Work.

6. Test Reports, as used herein, include:

a. Reports signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)
b. Reports which include findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

c. Reports which include findings of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

d. Investigation reports.

e. Daily performance logs.

f. Manufacturer or Installer checklists.

g. Manufacturer's Factory or Field Reports, including documentation of the testing and verification actions taken by manufacturer at the factory or manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and must state the test results; and indicate whether the material, product, or system has passed or failed the test.

h. Final acceptance test and operational test procedure.

7. Manufacturer's Instructions. Preprinted material describing installation of a product, system or material, including special notices, checklists, and Material Safety Data sheets concerning impedances, hazards and safety precautions.

8. Operation and Maintenance Data. Data that is furnished by the manufacturer or the system provider to the equipment operating and maintenance personnel, including manufacturer's help and product line documentation necessary to maintain and install equipment. This data is needed by District operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item. This data is intended to be incorporated in the Operations and Maintenance manual submittals.

9. Closeout Submittals. Documentation to record compliance with technical or administrative requirements in order to meet all requirements necessary to properly close out the Construction Contract. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract. These include, but are not limited to:

   a. Record Drawings

   b. As-built drawings

   c. Others as required by the Contract Documents. See Section 01770 Contract Closeout Procedures.

1.5 PREPARATION AND FORMAT

A. Transmit each submittal, except sample installations and sample panels to the District Project Manager.

B. Transmit submittals with transmittal form prescribed by District and standard for the Project.
1. On the transmittal form identify Contractor, indicate date of submittal, and include information prescribed by transmittal form and required in paragraph entitled "Identifying Submittals." Process transmittal forms to record actions regarding sample[s].

C. Identifying Submittals: When submittals are provided by a Subcontractor, the Contractor shall prepare, review and stamp with Contractor's approval stamp all specified submittals prior to submitting for District approval. Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

1. District Project Number and title.
2. Construction contract number.
3. Date of the drawings and revisions.
4. Product identification and location in project.
5. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other second tier Contractor associated with submittal.
6. Section number of the specification section which requires the submittal.
7. When a resubmission, add numeric revision suffix on submittal description, for example, submittal 18 would become 18R1, to indicate resubmission.

D. Format for Shop Drawings

1. Shop drawings are not to be less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless other form is required.

2. Drawings are to be suitable for reproduction and be of a quality to produce clear, distinct lines and letters with dark lines on a white background.

3. Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.

4. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph entitled "Identifying Submittals."

5. Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location adjacent to the title block. Place the District Project number and number in the margin, immediately below the title block, for each drawing.

6. Reserve a blank space on the right hand side of each sheet for the Architect’s disposition stamp.

7. Dimension drawings, except diagrams and schematic drawings and prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

8. Include the nameplate data, size and capacity on drawings. Also include applicable federal, military, industry and technical society publication references.

E. Format of Product Data and Manufacturer's Instructions
1. Present product data submittals for each section as a complete, bound volume. Include table of contents, listing page and catalog item numbers for product data.

2. Indicate by prominent notation each product which is being submitted; indicate specification section number and paragraph number to which it pertains.

3. Supplement product data with material prepared for Project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of Certificates.

4. Include the manufacturer’s name, trade name, place of manufacture, and catalog model or number on all product data. Also include applicable industry and technical society publication references. Should manufacturer’s data require supplemental information for clarification, include such information in the submittal.

5. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer’s Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be acceptable evidence of compliance.
   a. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the District Project Manager. State on the certificate that the item has been tested in accordance with the specified organization’s test methods and that the item complies with the specified organization’s reference standard.

6. Collect required data submittals for each specific material, product, unit of work, or system into a single submittal and marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will [not] be accepted for expedition of construction effort.

7. Submit manufacturer’s instructions prior to installation.

F. Format of Samples

1. Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:
   a. Sample of Equipment or Device: Full size.
   b. Sample of Materials Less Than 2 by 3 inches: Built up to 8 1/2 by 11 inches.
   c. Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.
   d. Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.
   e. Sample of Non-Solid Materials: Pint. Examples of non-solid materials are sand and paint.
   f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the
material or product specified. Sizes and quantities of samples are to represent their respective standard unit.

h. Sample Installation: 100 square feet.

2. Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

3. Reusable Samples: Incorporate returned samples into work only if so specified, indicated, or approved by Architect and District. Incorporated samples are to be in undamaged condition at time of use.

4. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean up of project.

G. Format of Design Data and Certificates. Provide design data and certificates on 8 1/2 by 11 inches paper. Provide a bound volume for submittals containing numerous pages.

H. Format of Test Reports and Manufacturer's Field Reports
   1. Provide reports on 8 1/2 by 11 inches paper in a complete bound volume.
   2. Indicate by prominent notation, each report in the submittal. Indicate specification number and paragraph number to which it pertains.

I. Format of Operation and Maintenance Data shall comply with the requirements specified in Section 01785 Operation and Maintenance data for O&M Data format.

J. Format of Preconstruction Submittals and Closeout Submittals.
   1. When submittal includes a document which is to be used in Project or become part of Project Record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.
   2. Provide all dimensions in English units only.

1.6 QUANTITY OF SUBMITTALS

A. Number of Copies of Shop Drawings. Submit six (6) requiring review and approval by Architect or District.

B. Number of Copies of Product Data and Manufacturer's Instructions. Submit in compliance with quantity requirements specified for shop drawings.

C. Number of Samples.
   1. Submit two (2) samples, or three (3) sets of samples showing range of variation, of each required item. One approved sample or set of samples will be retained by District and one will be returned to Contractor.
   2. Submit one sample panel or provide one sample installation where directed. Include components listed in technical section or as directed.
   3. When required by Contract Documents, provide one sample installation where directed by Architect or District.
4. Submit one sample of non-solid materials.

D. Number of Copies Design Data and Certificates. Submit in compliance with quantity requirements specified for shop drawings.

E. Number of Copies Test Reports and Manufacturer’s Field Reports. Submit in compliance with quantity and quality requirements specified for shop drawings.

F. Number of Copies of Operation and Maintenance Data. Submit three (3) copies of O&M Data to the District Project Manager for review and approval.

G. Number of Copies of Preconstruction Submittals and Closeout Submittals. Unless otherwise specified, submit three (3) sets of administrative submittals.

1.7 SUBMITTALS, GENERAL

A. Contractor shall obtain and shall submit all required shop drawings, samples, technical data, and other submittals as required by the Contract Documents with such promptness as to cause no delay in its own Work or in that of any other contractor or subcontractor.

1. As required by the Contract Documents, the Contractor shall obtain and submit with shop drawings all seismic and other calculations, and all product data from equipment manufacturers.

B. Prepare a complete Submittal Log and maintain it as the Work progresses. Submit the initial Submittal Log for approval by District at the same time as the Schedule (See Section 01310 Construction Scheduling). Include the Contractor’s anticipated submission dates and the approval needed dates (if approval is required).

1. Re-submit submittal log and annotate monthly by the Contractor with actual submission and approval dates. When all items on the log have been fully approved, no further re-submittal is required.

2. Carefully control procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Log."

3. Except as specified otherwise, allow review period of at least fifteen (15) working days for submittals requiring Architect or District approval. Period of review for submittals requiring approval begins when District receives submittal from Contractor.

4. For submittals requiring review by fire protection engineer and/or DSA, allow review period, beginning when District receives submittal thirty (30) calendar days for return of submittal to the Contractor.

5. Period of review for each resubmittal is the same as for initial submittal.

C. The District may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections.

D. Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

E. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.
F. No extensions of time will be granted to Contractor or any Subcontractor because of its failure to have shop drawings, samples, product data and/or other required submittals submitted in accordance with the approved Submittal Log and Master Construction Schedule.

G. Each Subcontractor shall submit all shop drawings, samples, product data and other required submittals for the review by the District and the Architect through the Contractor.

H. By submitting shop drawings, samples, product data and other required submittals, the Contractor represents that it has determined and verified all materials, field measurements, catalog numbers, related field construction criteria, and other relevant data in connection with each such submission, and that it has checked, verified, and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents, including the construction schedule.

I. Partial submittals are not acceptable, will be considered non-responsive, and will be returned without review by either District or Architect.

J. Mark each copy of each submittal to show which products and options are applicable.

K. The submission of the shop drawings, samples, product data and other required submittals, shall not deviate from the requirements of the Contract Documents including detailing and design intent which is specifically outlined in Contract Documents except as specifically authorized by the Architect or through an accepted substitution, per the requirements of the Contract Documents.

L. Deviations from the Contract Documents

1. Any deviations from the Contract Documents shall be fully described in a transmittal accompanying the shop drawings, samples, product data and other required submittals. However, such submittals shall not be used as a means of requesting a substitution, the procedure for which is defined elsewhere in the Contract Documents.

2. Architect and District approval is required for any proposed deviation from the accepted design which still complies with the Contract Documents before the Contractor is authorized to proceed with material acquisition or installation. If necessary to facilitate the project schedule, the Contractor and the Architect may discuss a submittal proposing a deviation with the District Project Manager prior to officially submitting it to the District. However, the District reserves the right to review the submittal before providing an opinion, if deemed necessary. In any case, the District will not formally agree to or provide a preliminary opinion on any deviation without either the Architect’s approval or recommended approval.

3. The District reserves the right to reject any deviation which may impact furniture, furnishings, equipment selections, and/or operations decisions that were made previously and based on the District reviewed and approved Project design.

4. Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the District requiring rejection and removal of such work at the Contractor’s expense.

5. After submittals have been accepted by the Architect, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.
M. Review by District and Architect shall not relieve the Contractor or any Subcontractor from its responsibility in preparing and submitting proper submittals in accordance with the Contract Documents.

N. Any submission, which in Architect’s opinion is incomplete, contains errors, or been superficially checked will be returned by the Architect without review for resubmission by the Contractor.

O. Electronic copies of the stamped and signed Contract Documents will not be provided by District or Architect for Contractor’s use unless:
   1. Contractor shall first request and obtain written approval from Architect prior to use of any Architect’s CAD files, drawings, or other documents for submittal purposes.
   2. Contractor shall be responsible for all reproduction, printing, and delivery cost associated with the use of any requested drawings and/or CAD files.
   3. Contractor provides disclaimer letters to the Architect and District (15) working days in advance of any proposed use of Architect’s documents and/or digital files. Such disclaimer letter shall be in a form acceptable to Architect and District.
   4. Contractor shall not reuse any Architect’s documents and/or electronic files for submittal purposes without prior written approval.

P. Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect and Project Manager reserve the right to withhold action on a submittal requiring coordination with other submittals until all such related submittals are received. No extension of the Contract Time will be authorized.
      b. Architect and Project Manager will return incomplete submittals to the Contractor without review. No extension of Contract Time will be authorized due to incomplete Contractor submittals.

Q. Submittals Schedule: Comply with requirements in Section 01310 (Construction Scheduling) in planning for required submittals and relating them to scheduled construction activities.
   1. Initial Review: Allow seven (7) working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will, through the Project Manager, advise Contractor when a submittal review must be delayed for coordination reasons.
   2. Intermediate Review: If intermediate submittal review is necessary, process it in the same manner as an initial submittal.
   3. Re-submittal Review: Allow five (5) working days for review of each re-submittal.
4. Sequential Review: Where sequential review of submittals by Architect’s consultants, District, or other parties is indicated, allow ten (10) working days for initial review of each submittal.

R. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision(s).
   3. Resubmit submittals until they are marked “No Exceptions Taken” or “Make Corrections Noted” by the Architect.

S. After submittals have been accepted by the Architect, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.8 ARCHITECT’S REVIEW

A. Architect’s review is for general conformance with design concept only, and does not relieve Contractor in any way from compliance with Contract Documents, nor does it in any way constitute grounds for a Change Order. Contractor remains solely responsible for details and accuracy of all quantities and dimensions, and selection of fabrication and/or installation processes.

B. The Architect’s review shall neither be construed as a complete check which relieves the Contractor, Subcontractor, manufacturer, fabricator, or supplier from responsibility for any deficiency that may exist or from any departures or deviations from the requirements of the Contract Documents unless the Contractor has, in writing, called the Architect’s attention to the deviations at the time of submission.

C. The Architect’s review shall not relieve the Contractor or Subcontractors from responsibility for errors of any sort in any required submittals, for proper fitting of the Work, coordination of the differing subcontractor trades, and Work which is not indicated on any submittal at the time of submission.

D. In reviewing shop drawings, samples, product data and other required submittals, the Architect will not verify dimensions and field conditions.

E. The Architect will review and approve shop drawings, samples, product data and other required submittals for aesthetics and for conformance with the design concept of the Work and the Contract Documents.

F. Architect will review each submittal, make marks to indicate corrections or modifications required, and return it.

G. Contractor and Subcontractors shall be solely responsible for any quantities which may be shown on either the submittals or the Contract Documents.

H. Architect will not review submittals that do not bear Contractor’s approval stamp and will return them to the Contractor without review.

I. Architect will stamp each submittal appropriately to indicate action to be taken, as follows:
1. No Exceptions Taken: Work covered by submittal may proceed provided it complies with the requirements of the Contract Documents. Compliance with Contract Documents is a condition of acceptance of the Work.

2. Make Corrections Noted: Work covered by the submittal may proceed provided it complies with Architect and/or Engineer notations and/or corrections. Contractor shall make all noted corrections. Compliance with Contract Documents is a condition of acceptance of the Work.

3. Revise and Resubmit: Do not proceed with any Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise the submittal in accordance with Architect and/or Engineer notations and resubmit without delay. Repeat if necessary.

4. Rejected. See Remarks: Do not proceed with Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Prepare a new submittal in accordance with Architect/Engineer's notations and resubmit without delay.

J. Use of Submittals for Construction: Use only final submittals with Architect's mark indicating "No Exceptions Taken" or "Make Corrections Noted."

K. Informational Submittals: Architect will review each submittal but will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

1.9 REJECTED SUBMITTALS

A. Contractor shall make corrections required by the Architect and resubmit.

B. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, he shall provide notice to the Architect and District.

C. If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.10 NO EXCEPTIONS TAKEN OR MAKE CORRECTIONS NOTED SUBMITTALS

A. Acceptance will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor is responsible for the satisfactory construction of all work.

1.11 NO EXCEPTIONS TAKEN OR MAKE CORRECTIONS NOTED SAMPLES

A. Acceptance of a sample is only for the characteristics or use named in such acceptance and is not be construed to change or modify any contract requirements. Before submitting samples, the Contractor to assure that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been accepted.

B. Match the accepted samples for Materials and equipment incorporated in the work. If requested, accepted samples, including those which may be damaged in testing, will be returned to the Contractor, at his expense, upon completion of the contract. Samples not accepted will also be returned to the Contractor at its expense, if so requested. Failure of any
materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make of that material. District reserves the right to disapprove any material or equipment which previously has proved unsatisfactory in service.

C. Samples of various materials or equipment delivered on the site or in place may be taken by the District Project Manager for testing. Samples failing to meet contract requirements will automatically void previous acceptance, and Contractor shall replace such materials or equipment at Contractor expense to meet contract requirements.

D. Acceptance of the Contractor’s samples by the AOR or District does not relieve the Contractor of his responsibilities under the contract.

1.12 WITHHOLDING OF PAYMENT

A. Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

B. No payment for materials incorporated in the work will be made if all required Designer of Record or required District approvals have not been obtained.

C. No payment will be made for any materials incorporated into the work for any conformance review submittals or information only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.13 SUBMITTAL REQUIREMENTS

A. Shop Drawings

1. Transmittal Letter and Other Requirements. All shop drawings must be properly identified with the name of the Project and dated, and each lot submitted must be accompanied by a letter of transmittal referring to the name of the Project and to the Specification section number for identification of each item clearly stating in narrative form, as well as “clouning” on the submissions, all qualifications, departures, or deviations from the Contract Documents. Shop drawings, for each section of the Work shall be numbered consecutively and the numbering system shall be retained throughout all revisions. All Subcontractor submissions shall be made through the Contractor. Each drawing shall have a clear space for the stamps of Architect and Contractor.

2. Copies Required. Each submittal shall include one (1) original drawing, and five (5) legible prints of each drawing or schedule, table, cut sheet, etc., including fabrication, erection, layout and setting drawings, and such other drawings as required under the various sections of the Specifications, until final acceptance thereof is obtained. Subcontractor shall submit copies, in an amount as requested by the Contractor, of: (1) manufacturers’ descriptive data for materials, equipment, and fixtures, including catalog sheets showing dimensions, performance, characteristics, and capacities; (2) wiring diagrams and controls; (3) schedules; (4) all seismic calculations and other calculations; and (5) other pertinent information as required by the District or Architect.

3. Corrections. The Contractor shall make all corrections required by Architect and shall resubmit, as required by Architect, corrected copies and digital files of shop drawings or new samples until approved. Contractor shall direct specific attention in writing or on
resubmitted shop drawings to revisions other than the corrections required by the Architect on previous submissions. Professional services required for more than one (1) re-review of required submittals of shop drawings, product data, or samples are subject to charge to the Contractor by the District.

4. **Approval Prior to Commencement of Work.** No portion of the Work requiring a shop drawing or sample submission or other submittal shall be commenced until the submission has been reviewed by Contractor and Architect and approved by Architect unless specifically directed in writing by the Architect. All such portions of the Work shall be in accordance with approved shop drawings and samples.

5. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed detail.

6. Fully illustrate requirements of the Contract Documents. Include the following information, as applicable:
   a. Dimensions
   b. Weights and measures
   c. Identification of products
   d. Fabrication and installation drawings
   e. Roughing-in and setting diagrams
   f. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring
   g. Electrical power requirements
   h. Shopwork manufacturing instructions
   i. Templates and patterns
   j. Schedules
   k. Design calculations
   l. Compliance with specified standards
   m. Notation of coordination requirements
   n. Notation of dimensions established by field measurement
   o. Relationship to adjoining construction clearly indicated
   p. Seal and signature of California professional engineer or other engineer if specified
   q. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring
   r. Other information as necessary or required by the Contract Documents

B. **Samples**

1. Samples Required. In case a considerable range of color, graining, texture, or other characteristics are anticipated in finished products, a sufficient number of samples of the specified materials shall be furnished by the Contractor to indicate the full range of characteristics which will be present in the finished products; and products delivered or
erected without submittal and approval of a full range of samples shall be subject to rejection by the District.

a. Except for range samples, and unless otherwise called for in the various sections of the Specifications, samples shall be submitted in duplicate.

b. All samples shall be marked, tagged, or otherwise properly identified with the name of the submitting party, the name of the Project, the purpose for which the samples are submitted and the date, and shall be accompanied by a letter of transmittal containing similar information, together with the Specification section number. Each tag or sticker shall have clear space for the review stamps of Contractor and Architect.

2. Labels and Instructions. All samples of materials shall be supplied with the manufacturer’s descriptive labels and application instructions.

3. Architect’s Review. The Architect will review and, if appropriate, approve submissions and will return them to the Contractor with the Architect’s stamp and signature applied thereto, indicating the timing for review and appropriate action in compliance with the Contract Documents.

4. Identification: Attach label on unexposed side of Samples that includes the following information:
   a. Generic description of Sample
   b. Product name and name of manufacturer
   c. Sample source
   d. Number and title of appropriate Specification Section
   e. District Project name and number
   f. Contractor’s name
   g. Date of submittal

5. Disposition: Maintain sets of all approved Samples at Project site, available for quality-control comparisons throughout the course of the Project. Sample sets may be used to determine final acceptance of construction associated with each sample or sample set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, if any, or otherwise designated as District’s property, are the property of Contractor.

6. Samples for Initial Selection: Submit manufacturer’s color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit 6 full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer’s product line.

7. Samples for Verification: Where required by the Contract Documents, submit full-size units of Samples, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed
for use, and that show full range of color and texture variations expected. Samples
include, but are not limited to, the following: partial sections of manufactured or
fabricated components; small cuts or containers of materials; complete units of
repetitively used materials; swatches showing color, texture, and pattern; color range
sets; and components used for independent testing and inspection.

a. Number of Samples: Unless indicated otherwise, submit six sets of Samples.
Architect will retain two Sample sets; remaining four sets will be returned.

i) Submit a single Sample where assembly details, workmanship, fabrication
techniques, connections, operation, and other similar characteristics are to be
demonstrated.

ii) If variation in color, pattern, texture, or other characteristic is inherent in
material or product represented by Sample, submit at least four sets of paired
units that show approximate limits of variations.

8. District’s Property. All shop drawings, computer disks, annotated specifications, samples,
and other submittals shall become the District’s property upon receipt by the District or
Architect.

C. Other Submittals

1. General: Prepare and submit Submittals required by other Specification Sections.

a. Test and Inspection Reports: Comply with requirements specified in Section 01400
Quality Control Requirements.

b. Coordination Drawings: Comply with requirements specified in Section 01311 Project
Management and Coordination.

i) Coordination Drawings are required where limited space availability
necessitates maximum utilization of space for efficient installation of different
components or if coordination is required for installation of products and
materials fabricated by separate entities.

2. Product Data: Submit manufacturer’s printed literature in original form as required in the
Contract Documents. Submittal shall include specifications, physical dimensions, and
ratings of all equipment. Furnish performance curves for all fans and pumps. Where
printed literature describes items in addition to that item being submitted, submitted
item shall be clearly marked on submittal and superfluous information shall be crossed
out in the same manner on all copies. Equipment submittals shall be complete and
include space requirements, weight, electrical and mechanical requirements, performance
data, and any supplemental information that may be available or requested.

3. Qualification Data: Prepare written information that demonstrates capabilities and
experience of firm or person. Include lists of completed projects with project names and
addresses, names and addresses of architects and owners, and other information
specified.

4. Welding Certificates: Prepare written certification that welding procedures and personnel
comply with requirements in the Contract Documents. Submit record of Welding
Procedure Specification (WPS) and Procedure Qualification Report (PQR) on AWS forms.
Include names of firms and personnel certified.
5. Installer Certificates: Prepare written statements on manufacturer’s letterhead certifying that installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

6. Manufacturer Certificates: Prepare written statements on manufacturer’s letterhead certifying that product complies with requirements in the Contract Documents.

7. Material Certificates: Prepare written statements on manufacturer’s letterhead certifying that material complies with requirements in the Contract Documents.

8. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

9. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

10. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   a. Name of evaluation organization
   b. Date of evaluation
   c. Time period when report is in effect
   d. Product and manufacturer’s names
   e. Description of product
   f. Test procedures and results
   g. Limitations of use

11. Schedule of Tests and Inspections: Comply with requirements specified in Section 01400 Quality Control Requirements.

12. Preconstruction Test Reports: Prepare test reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

13. Compatibility Test Reports: Prepare test reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

14. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency’s standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

15. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Section 01785 (Operation and Maintenance Data.)
16. Manufacturer's Installation and Operations Instructions: Prepare written or published information that documents manufacturer’s recommendations, guidelines, and procedures for installing or operating a product or equipment. Manufacturer’s Instructions shall be available for review on site at all times. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
   a. Preparation of substrates
   b. Required substrate tolerances
   c. Sequence of installation or erection
   d. Required installation tolerances
   e. Required adjustments
   f. Recommendations for cleaning and protection

17. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative’s tests and inspections. Include the following, as applicable:
   a. Name, address, and telephone number of factory-authorized service representative making report.
   b. Statement on condition of substrates and their acceptability for installation of product.
   c. Statement that products at Project site comply with requirements.
   d. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
   e. Results of operational and other tests and a statement of whether observed performance complies with requirements.
   f. Statement whether conditions, products, and installation will affect warranty.
   g. Other required items indicated in individual Specification Sections.

PART 2 - PRODUCTS:
Not Used.

PART 3 - EXECUTION:
Not Used.

END OF SECTION 01330
SECtion 01340

ADMINISTRATIVE FORMS & LOGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS

A. Section 01015 – “Project Phasing”
B. Section 01311 – “Project Management and Coordination”
C. Section 01330 – “Submittal Procedures”
D. Section 01625 - “Product Options and Substitutions”
E. Section 01780 – “Project Record Documents”
F. Divisions 2 through 33 Sections for Administrative Forms & Logs requirements for the Work in those Sections.

1.3 SUMMARY

A. This section specifies the information and format requirements for administrative forms and logs.

1.4 ADMINISTRATIVE FORMS & LOGS

A. The Contractor, District, IOR, and Architect shall mutually utilize an internet based system for the exchange and tracking of Project documents. The system to be utilized for this Project is EADOC, by Bentley Systems, Inc. Refer to 01311.

B. Administrative forms and logs include, but are not limited to, the following:
   1. Transmittal Form
   2. Submittal Transmittal Form
   3. Request for Information Form
   4. Substitution Request Form
   5. 3-Week Projected Construction Schedule Form
   6. 3-Week Testing & Inspection Schedule Form
7. Proposed Change Order Form*
8. Change Order Form*
9. Request for Information Log Form
10. Submittal Log Form
11. Proposed Change Order Log Form
12. Change Order Log Form
13. Contractor's Proposal for Contract Modification Form* (includes sample numbers to demonstrate calculations only)
14. Contractor Production Report
15. Construction Directive Form

C. Forms generated by project management software may be substituted if substitution forms contain essentially the same information as shown in these contract documents. Allowance for the use of substitute forms is at the sole discretion of the District, and shall be requested and approved before use of the substitute form. Forms marked with an asterisk (*) may NOT be substituted under any condition.

D. Microsoft Excel files of these forms are available for Contractor use from the District.

1.5 FORMS INCORPORATED BY REFERENCE

A. Forms available from the California Department of General Services, Division of the State Architect, http://www.dgs.ca.gov/dsa/Forms.aspx, related to administration, construction, testing, and inspection of public work school facilities are hereby incorporated by reference into these Contract Documents.

1.6 CONTRACTOR RESPONSIBILITIES

A. Nothing in this Section 01340 including, but not limited to the above forms and log forms shall be construed to limit, relieve, or release Contractor from liability to District for any damages sustained as a result of inaccurate or incorrect information supplied by the Contractor.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.
TRANSMITTAL TO:
Contra Costa Community College District
500 Court Street, Martinez, CA 94553-1203
Phone: (925) 229-1900
Fax: (925) 335-9967
Attn: __________________________

Date: __________________________

From: __________________________

Via: __________________________
Fax ☐ Hand Delivery ☐
US Mail ☐ Pick-Up ☐
Overnight Mail ☐ Email ☐
Other _________________________

Contract No.: __________________
Project No. and Name: __________

☐ Shop Drawings ☐ Submittals ☐ Plans ☐ Specifications ☐ Disks
☐ Copy of Letter ☐ Change Order ☐ Samples ☐ Product Data ☐ Other: __________
☐ O&M Manual ☐ Project Closeout Documents ☐ Warranty Documents

Copies ☐ Date ☐ Number ☐ Description

☐ For Your Info ☐ For Your Review and Comment
☐ For Your Approval ☐ Originals for Signatures
☐ As Requested ☐ As Required per Contract Para: _______________________
☐ Other ______________________

Remarks:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Copy To: ______________________
From: ________________________
Print Name ___________________
________________________________________________________________________
Signature: ____________________
________________________________________________________________________

Received by: __________________
Print Name ___________________
Signature: ____________________
Date: ________________

Page 1 of 1
## Contra Costa Community College District

**SUBMITTAL TRANSMITTAL**

**Date:**

**Transmittal No.:**

**From:**

**To:**

**Via:**

- Fax
- Hand Delivery
- US Mail
- Pick-Up
- Overnight Mail
- Email
- Other

**Contract No.:**

**Project No. and Name:**

### Specification Section:

- Shop Drawings
- Test Reports
- Plans
- Specifications
- Disks

- Copy of Letter
- Certificate
- Samples
- Product Data
- Other:

### Request Return (per Schedule):

- Shop Drawings
- Test Reports
- Plans
- Specifications
- Disks

- O&M Manual
- Project Closeout Documents
- Warranty Documents

**Contractor Comments:**

**Copies of Submittals to District:**

- Yes
- No

**Reviewer Use Only:**

**Reviewer Initials and Date:**

**Copies To:**

**Received by:**

**Print Name:**

**Signature:**

---

**Page 1 of 1**

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Contra Costa Community College District  
Diablo Valley College  
& Logs  
D-4009 Replacement of Main Electrical Switchgear  

Section 01340 - Page 5 of 29  
Administrative Forms
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

Request for Information (RFI)

<table>
<thead>
<tr>
<th>Contractor Name:</th>
<th>RFI #:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Date:</td>
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<tr>
<td></td>
<td>DSA File #:</td>
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<td></td>
<td>DSA Application #:</td>
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<td>Campus:</td>
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<td></td>
<td>Project No., Name:</td>
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</table>

**REFERENCE:**

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<tr>
<th>Drawing Number/Detail Number</th>
<th>Specification Section</th>
<th>Page</th>
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**ITEM**

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<th>Request:</th>
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**Suggestion:**

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<th>Request Issued By:</th>
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<tr>
<td>Contractor's Signature</td>
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**ITEM**

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<th>Response:</th>
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**Response Issued By:**

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<tr>
<th>Architect/Engineer Signature</th>
<th>Name (Printed)</th>
<th>Date</th>
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**Response Reviewed By:**

<table>
<thead>
<tr>
<th>Owner Authorized Representative (Project Manager)</th>
<th>Name (Printed)</th>
<th>Date</th>
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**Note to Contractor:**

This Form Cannot Modify Contract Amount or Milestones and/or Contract Time.
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

SUBSTITUTION REQUEST FORM

Contractor Name: 
Contract #:

RFS # 
Date: 
DSA Application #: 
Campus: 
Project No., Name:

Contractor must: a) Comply with all Contract Conditions and submit the proposed item. If the District accepts such item as described, the undersigned may furnish such item with all necessary labor, materials, equipment and instructions to perform and complete the Work.

<table>
<thead>
<tr>
<th>Item No.</th>
<th>SPECIFIED ITEM OR DRAWING</th>
<th>SPECIFICATION SECTION</th>
<th>PROPOSED SUBSTITUTION and name of Subcontractor (if different)</th>
</tr>
</thead>
<tbody>
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CERTIFICATION

Under penalties of perjury under the laws of California, I certify that the proposed substitution will be readily available, perform adequately the functions and achieve the results called for by the design concept, be similar in substance to that specified, and be tendered to the same use as that specified in Contract Documents.

Contractor: ________________________________
( Please print name of company) 
Name and Title (Position) __________________
Contractor Authorized Representative __________________
Date __________________

A. Does the substitution effect dimensions shown on Drawings?
B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?
C. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?
D. Will substitution cause change to Project Schedule, or to critical delivery dates? Yes? No?
E. Differences between proposed substitution and specified item?
F. What is the Cost Differential including all mark-ups?
G. Are Manufacturer's guarantees for the proposed item the same as for item specified? Explain differences.
H. The undersigned accepts full responsibility for delays caused by redesign of other items of the Work necessitated by substitution.
I. The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

AME Response: __________________________
District Representative Response: __________________________

O Accepted
O Not Accepted
O Accepted As Noted
O Received Too Late

By: __________________________
Date: __________________________

K:\Project Files\C\CCC\D-117-College Center Design\D-03 Design Draw\05 Coat Closet Phase\05 Space & Piping\CCC-D-117-DRAW 0 6 1 811700831 and 1 working template_forms & Logon Templates\Substitution Request Form .Pdf.doc

Page 1 of 1

Contra Costa Community College District
Diablo Valley College
& Logs
D-4009 Replacement of Main Electrical Switchgear

Section 01340 - Page 7 of 29
Administrative Forms
# 3-Week Projected Testing and Inspection Schedule

**CAMPUS:**

**PROJECT #:**

**Contractor:**

**Project Name:**

**Start Date:**

**Finish Date:**

<table>
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<tr>
<th>Item</th>
<th>Task</th>
<th>Required IOR Inspection YES or NO</th>
<th>Req'd Testing Lab. Ins. Y/N</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
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</tbody>
</table>

**Project Phase #:**

**Remarks:**

**Submitted by:**

**Print Name:**

**Sign & Date:**

---

K:Project Filing System/CCCD/417-College Center Design03. Devs/Dev/26 Const Docs Phase3.45 Specs & Prods/CCC-DIVISION 0 & 1 DRAFT/Rev 0 and 1 working templates/Forms & Logs Templates/3-Week Projected Testing and Inspection Schedule.xls
Contra Costa Community College District

CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

PROPOSED CHANGE ORDER

PCO No.: ______________________

<table>
<thead>
<tr>
<th>Contractor Name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract #:</td>
<td>DSA File #: 7-C1</td>
</tr>
<tr>
<td>Contract Date:</td>
<td>DSA Application #:</td>
</tr>
<tr>
<td>NTP Date:</td>
<td>Campus:</td>
</tr>
<tr>
<td>QL #:</td>
<td>Project No., Name:</td>
</tr>
</tbody>
</table>

PRELIMINARY CHANGE AS FOLLOWS:

Within (7) days provide and submit to the Project Manager a complete and itemized proposal including but not limited to the following items: cost breakdown of Labor, Material, Equipment, Markup, Construction Schedule, etc. Provide either ADD or DEDUCT to the original Contract Amount.

<table>
<thead>
<tr>
<th>Scope of Work:</th>
<th>Ref. (Drawings, Specifications, Others):</th>
</tr>
</thead>
</table>

Final Cost of this PCO $0.00

The Contractor requests that time will be Increased: ______, Decreased: By ______ Working Days

NOTE: The Contractor waives any claim for further adjustments of the Contract Sum and Contract Time related to the changes in Work as described above.

1. REVIEWED & RECOMMENDED (Architect/Engineer of Record)

<table>
<thead>
<tr>
<th>Company Name:</th>
</tr>
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<tbody>
<tr>
<td>Address:</td>
</tr>
</tbody>
</table>

Stamp (when applicable) / Signature / Date

2. CONSTRUCTION MANAGER (CM) - (when applicable)

| Signature / Date |

3. PROJECT INSPECTOR (PI) - (when applicable)

| Signature / Date |

4. PROJECT MANAGER (PM)

| Signature / Date |

5. CONTRACTOR ACCEPTANCE

| Authorized Representative, Name & Title (PRINT) |

6. DISTRICT REPRESENTATIVE

| Signature / Date |

DSA APPROVAL (when applicable)

| Signature / Date |
CONTRA COSTA COMMUNITY COLLEGE DISTRICT
500 Court Street, Martinez, CA 94553

CHANGE ORDER No.: ____________________________

Contractor Name: ___________________________
Contract #: ________________________________
Contract Date: ______________________________
NTP Date: _________________________________
GL #: _________________________________

THE CONTRACT IS CHANGED AS FOLLOWS: (Attach Contractor Change Order Request or Proposal - if applicable)

<table>
<thead>
<tr>
<th>Original Contract Amount</th>
<th>$0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior Contract Adjustments</td>
<td>$0.00</td>
</tr>
<tr>
<td>Contract Sum Prior to this Change Order</td>
<td>$0.00</td>
</tr>
<tr>
<td>Adjustment Per This Change Order</td>
<td>$0.00</td>
</tr>
<tr>
<td>Revised Contract Amount</td>
<td>$0.00</td>
</tr>
</tbody>
</table>

Original Contract Period: Start Date: ____________ End Date: ____________
The Contract Time will be Increased: _______ Decreased: _______ By _______ Calendar Days
Revised Contract Completion Date: __________________________

NOTE: The Contractor waives any claim for further adjustments of the Contract Sum and Contract Time related to the above changes in Work.

1 - REVIEWED & RECOMMENDED (Architect/Engineer of Record)

Signature (when applicable) ___________________________ Signature Date ___________________________

2 - CONSTRUCTION MANAGER (CM) - (when applicable)

Signature / Date ___________________________

PROJECT INSPECTOR (PI) - (when applicable)
Signature / Date ___________________________

4 - PROJECT MANAGER (PM)
Signature / Date ___________________________

5 - CONTRACTOR ACCEPTANCE

Company Name: ___________________________
Address: ___________________________

Authorized Representative, Name & Title (PI/CM):
Signature / Date ___________________________

DISTRICT AUTHORIZED REPRESENTATIVE

C.O. NOT VALID WITHOUT Signature / Date: ___________________________

DSA APPROVAL (when applicable)

Signature / Date ___________________________

K:\Project Filing System\CCC-617-College Center Design\Phase 3.40 Const Docs\Phase 3.45 Spec & Prods\CCC-DIVISION D & 1 DRAFT\DIV D and 1 working templates\Forms & Logs_Templates\Change Order - CO.js
## Request For Information Log - RFI LOG

**CONTRA COSTA COMMUNITY COLLEGE DISTRICT**  
500 Court Street, Martinez, CA 94553

**Contractor Name:**

**Contract #:**

**Date Updated:**

### Table

<table>
<thead>
<tr>
<th>RFI No.</th>
<th>Requested By</th>
<th>Description</th>
<th>Date Submitted to AE for Review</th>
<th>Date Returned to Contractor</th>
<th>RFI Returned with All or PCO (other applicable)</th>
<th>RFI Reviewed and Replied To by:</th>
<th>Date Submitted to DSA</th>
<th>Date Returned from DSA</th>
<th>Distribution List</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
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Section 0130 - Page 12 of 29  
Administrative Forms

K:\Project Filing System\CODC-017-College Center Design\02-Design Over\02-40 Cost\Doc Phase\02-Specs & Profs\COD-017-College Center Design Over 02-40 Cost\DDW Phase 02-Specs & Profs\DDW\DDW-02-Specs & Profs & Logos Template & Logos Template RFI Logos
### Submittal Log

<table>
<thead>
<tr>
<th>Contractor Name</th>
<th>Contact #</th>
<th>Date Updated</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>DSA Pile #</th>
<th>DSA Application #</th>
<th>Campus</th>
<th>Project No. and Name</th>
</tr>
</thead>
</table>

| Submittal No. | Specification Section No. | Item No. | Description | Date Submitted to AEC or Reviewer | Request Return Date (per Sheet) | Date Returned to Contractor | No. of Submittals Returned | AEC Review/Comments | Date Submitted to DSA | Date of Return from DSA | Distribution List | Remarks |
|---------------|--------------------------|----------|-------------|----------------------------------|---------------------------------|-------------------------------|--------------------------|------------------|-----------------|------------------------|---------------------|-------------------|---------|
|               |                          |          |             |                                  |                                 |                               |                          |                  |                 |                        |                     |                   |         |

### Project Submittal Analysis

- Number of Submittals
- Rejected (R)
- Number of Open Defeats Approval Submittal
- Submittal - Make Correction (MC)
## CONTRA COSTA COMMUNITY COLLEGE DISTRICT

500 Cost Street, Martinez, CA 94553

### CHANGE ORDER Log

<table>
<thead>
<tr>
<th>CO #</th>
<th>Date Submitted to DSA</th>
<th>Date Returned from DSA</th>
<th>DSA Commands Approved</th>
<th>Review Rejected</th>
<th>Distribution List</th>
<th>Date of Issue</th>
<th>Amount Approved</th>
<th>Time Estimated (Calendar Days)</th>
<th>Remarks</th>
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</table>

**Total Approved Changes:** 8

### ADJUSTMENT TO CONTRACT AMOUNT/DATE

<table>
<thead>
<tr>
<th>Original Contract Amount</th>
<th>0.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Adjustment</td>
<td>0.00</td>
</tr>
<tr>
<td>Revised Contract Amount</td>
<td>0.00</td>
</tr>
<tr>
<td>Original Contract Completion Date</td>
<td></td>
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<tr>
<td>Number of Calendar Days Adjusted</td>
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<tr>
<td>Revised Contract Completion Date</td>
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</tbody>
</table>

K:\Project\Filing System\COCOC-G:\7th College Center Design\S1 Design\S1 Design Data\40 Core\Cost\Phase2\S1gt Space & Protoc\REV WTRN 2.5.1 DRAFT\v0.0 and 1 working Templat\Forms & Logs Templat\Change Order Log - CO Log.png Page 1 of 1
CONTRACTOR'S PROPOSAL FOR CONTRACT MODIFICATION

<table>
<thead>
<tr>
<th>Project No. and Name:</th>
<th>CONTRACT NO.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-612 STUDENT SERVICE CENTER REMODEL</td>
<td>0</td>
</tr>
<tr>
<td>Contractor:</td>
<td>PCO NO.:</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>SHORT DESCRIPTION OF CHANGE:</td>
<td>Description attached</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRIME CONTRACTOR'S WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Direct Materials</td>
</tr>
<tr>
<td>2. Sales Tax on Materials</td>
</tr>
<tr>
<td>3. Direct Labor</td>
</tr>
<tr>
<td>4. Not used</td>
</tr>
<tr>
<td>5. SUBTOTAL Materials and Labor (Add lines 1-4)</td>
</tr>
<tr>
<td>6. Rental Equipment</td>
</tr>
<tr>
<td>7. Sales Tax on Rental Equipment</td>
</tr>
<tr>
<td>8. Equipment Ownership and Operating Expenses</td>
</tr>
<tr>
<td>9. SUBTOTAL Equipment (Add Lines 6-8)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Prime Contractor's Work (Add Lines 5 and 9)</td>
</tr>
<tr>
<td>11. Overhead and Profit On Prime Material and Labor</td>
</tr>
<tr>
<td>12. Overhead and Profit On Prime Equipment</td>
</tr>
<tr>
<td>13. Total of all Subcontractor's Work (Line 10 of Sub Summary page)</td>
</tr>
<tr>
<td>14. Prime O&amp;P On Subcontractor's Work</td>
</tr>
<tr>
<td>15. Subcontractor O&amp;P All Mat'l and Labor (Line 11 of Sub Summary page)</td>
</tr>
<tr>
<td>16. Subcontractor O&amp;P All Equipment (Line 12 of Sub Summary page)</td>
</tr>
<tr>
<td>17. TOTAL COST (Add Lines 10-16)</td>
</tr>
</tbody>
</table>

Estimated time extension and justification: Work Days: 0

Prime Contractor's Comments:

Prime Contractor's Name:

Signature and Title of Preparer: Date:

---

1. Material (attach itemized quantity and unit cost plus sales tax)
2. Labor (attach itemized hours and rates)
3. Equipment (attach invoices)
13. If Subcontractor performed work, use Subcontractor's sheet to calculate costs. Subcontractor overhead and profit (if tiers cumulative) not to exceed fifteen percent (15%) of direct material, labor, and equipment on Subcontractor Summary sheet. This information propagates automatically to 13) and 14).
14. General Contractor's Overhead and Profit on Subcontractor work. No more than five percent (5%) of item (13) if work was performed by Subcontractor.

v. 10(2014)
**CONTRACTOR'S PROPOSAL FOR CONTRACT MODIFICATION**

**DATE:** January 0, 1900

| Project No. and Name: | L-612 STUDENT SERVICE CENTER REMODEL |
| CONTRACT NO.: | 0 |
| Subcontractor: | |
| PCO NO.: | 0 |

**SUBCONTRACTOR SUMMARY**

**SHORT DESCRIPTION OF CHANGE:**

<table>
<thead>
<tr>
<th>SUBCONTRACTOR'S WORK SUMMARY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Direct Materials</td>
</tr>
<tr>
<td>2. Sales Tax on Materials</td>
</tr>
<tr>
<td>3. Direct Labor</td>
</tr>
<tr>
<td>4. Not used</td>
</tr>
<tr>
<td>5. SUBTOTAL Materials and Labor (Add lines 1-4)</td>
</tr>
<tr>
<td>6. Rental Equipment</td>
</tr>
<tr>
<td>7. Sales Tax on Rental Equipment</td>
</tr>
<tr>
<td>8. Equipment Ownership and Operating Expenses</td>
</tr>
<tr>
<td>9. SUBTOTAL Equipment (Add Lines 6-8)</td>
</tr>
</tbody>
</table>

**SUMMARY**

| 10. Total Subcontractor Work (Add Lines 5 and 9) | $10,279.05 |
| 11. * O&P On All Subcontractor Material and Labor | $520.17 |
| 13. TOTAL SUBCONTRACTOR COST (Add Lines 10-12) | $11,480.35 |


---

1. Material (attach itemized quantity and unit cost plus sales tax)
2. Labor (attach itemized hours and rates)
3. Equipment (attach invoices)
4. If Subcontractor performed Work, use Subcontractor's sheets to calculate costs.
5. (11) and (12) Subcontractor overhead and profit (at tiers cumulative) not to exceed fifteen percent (15%) of direct material, labor, and ten (10%) on equipment on Subcontractor Summary sheets.
<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Materials</td>
<td></td>
<td></td>
<td>$1,000.00</td>
</tr>
<tr>
<td>Sales Tax on Materials</td>
<td>8.25%</td>
<td>$82.50</td>
<td></td>
</tr>
<tr>
<td>Direct Labor</td>
<td></td>
<td></td>
<td>$2,000.00</td>
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<tr>
<td>Rental Equipment</td>
<td></td>
<td></td>
<td>$6,000.00</td>
</tr>
<tr>
<td>Sales Tax on Rental Equipment</td>
<td>8.25%</td>
<td>$495.00</td>
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</tr>
<tr>
<td>Equipment Ownership and Operating Expenses</td>
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<tr>
<td>SUBTOTAL Materials and Labor (Add lines 1-4)</td>
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<td>$3,082.50</td>
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<tr>
<td>SUBTOTAL Equipment (Add Lines 6-8)</td>
<td></td>
<td></td>
<td>$6,495.00</td>
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<tr>
<td>TIER 1 Contractor's Work (Add Lines 5 and 9)</td>
<td></td>
<td></td>
<td>$9,577.50</td>
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<tr>
<td>Subcontractor's Work</td>
<td></td>
<td></td>
<td>$701.55</td>
</tr>
<tr>
<td>TOTAL COST (Add Lines 15-16)</td>
<td></td>
<td></td>
<td>$10,279.05</td>
</tr>
</tbody>
</table>

Subcontractor's Comments:

Subcontractor's Name:

Signature and Title of Preparer: Date:

[1] Material (attach itemized quantity and unit cost plus sales tax)
[2] Labor (attach itemized hours and rates)
[3] Equipment (attach invoices)
[4] If Subcontractor performed Work, use Subcontractor's sheets to calculate costs. Subcontractor overhead and profit (all tiers cumulative) not to exceed fifteen percent (15%) of direct material, labor, and equipment on Subcontractor Summary sheets.

v.10.2011
## Instructions for Preparing Contractor Proposal for Contract Modification

All contract modification proposals shall be addressed to the District and be received only from the Prime Contractor. Proposals must clearly state the conditions and scope of the modification and shall be accompanied by a breakdown of costs, as indicated. Lump sum costs will not be accepted in either the prime or sub-contractor’s breakdown of costs. The total cost for labor, material, and equipment for each item shall be transferred to the corresponding item on the front of this form.

**Title:** [Subcontractor’s Name]

**Contract No.:** [Contract Number]

**Date:** [Date]

### Breakdown of Direct Costs

<table>
<thead>
<tr>
<th>Work No.</th>
<th>Item of Work</th>
<th>Qty</th>
<th>Unit</th>
<th>Labor Cost</th>
<th>Material Cost</th>
<th>Total Cost</th>
<th>R or O</th>
<th>Est.</th>
<th>Rent</th>
<th>Total Rent</th>
<th>Item Total</th>
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<tbody>
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<td>$1,000.00</td>
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**Subcontractor’s Total:**

- **Total:** $3,000.00
- **Labor:** $3,000.00
- **Rent:** $500.00
- **Total Rent:** $3,500.00
- **Final Cost:** $6,500.00
CONTRACTOR'S PROPOSAL FOR CONTRACT MODIFICATION  

DATE: January 0, 1900  

Project No. and Name: L-612 STUDENT SERVICE CENTER REMODEL  

Tier 2 Subcontractor: Nobody2  

SHORT DESCRIPTION OF CHANGE: Description attached  

<table>
<thead>
<tr>
<th>TIER 2 SUBCONTRACTOR'S WORK</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. Direct Materials</td>
<td>$ 100.00</td>
</tr>
<tr>
<td>2. Sales Tax on Materials</td>
<td>8.25% of Line 1</td>
</tr>
<tr>
<td>3. Direct Labor</td>
<td>$ 200.00</td>
</tr>
<tr>
<td>4. Not used</td>
<td>NA</td>
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<tr>
<td>5. SUBTOTAL Materials and Labor (Add lines 1-4)</td>
<td>$308.25</td>
</tr>
<tr>
<td>6. Rental Equipment</td>
<td>$ 0.00</td>
</tr>
<tr>
<td>7. Sales Tax on Rental Equipment</td>
<td>8.25% of Line 5</td>
</tr>
<tr>
<td>8. Equipment Ownership and Operating Expenses</td>
<td>$ 300.00</td>
</tr>
<tr>
<td>9. SUBTOTAL Equipment (Add Lines 6-8)</td>
<td>$300.00</td>
</tr>
</tbody>
</table>

SUMMARY  

| 10. TIER 2 Contractor's Work (Add Lines 5 and 9) | $508.25 |
| 11. Total of all Subcontractor's Work (See Backup) | $93.30 |
| 12. TOTAL COST (Add Lines 10 and 11) | $701.55 |

Tier 2 Subcontractor's Comments:  

Tier 2 Subcontractor's Name:  

Signature and Title of Preparer:  

Date:  

[1] Material (attach itemized quantity and unit cost plus sales tax)  

[2] Labor (attach itemized hours and rates)  

[5, 7] Equipment (attach invoices)  

[10] If Subcontractor performed Work, use Subcontractor's sheets to calculate costs. Subcontractor overhead and profit (all tiers cumulative) not to exceed fifteen percent (15%) of direct material, labor, and equipment on Subcontractor Summary sheets.  

v.10/2011
CONTRACTOR'S PROPOSAL FOR CONTRACT MODIFICATION

Project No. and Name: L-612 STUDENT SERVICE CENTER REMODEL
Tier 3 Subcontractor:

SHORT DESCRIPTION OF CHANGE: Description attached

<table>
<thead>
<tr>
<th>TIER 3 SUBCONTRACTOR'S WORK</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Direct Materials</td>
<td>$25.00</td>
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<tr>
<td>2. Sales Tax on Materials</td>
<td>8.25%</td>
<td>$2.06</td>
</tr>
<tr>
<td>3. Direct Labor</td>
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<td>$50.00</td>
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<tr>
<td>4. Not used</td>
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<tr>
<td>5. SUBTOTAL Materials and Labor (Add lines 1-4)</td>
<td>$77.06</td>
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<tr>
<td>6. Rental Equipment</td>
<td>$15.00</td>
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<tr>
<td>7. Sales Tax on Rental Equipment</td>
<td>8.25%</td>
<td>$1.24</td>
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<tr>
<td>8. Equipment Ownership and Operating Expenses</td>
<td>$ -</td>
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<tr>
<td>9. SUBTOTAL Equipment (Add Lines 6-8)</td>
<td>$16.24</td>
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</tbody>
</table>

SUMMARY

10. TIER 3 Contractor's Work (Add Lines 5 and 9) $93.30

Tier 3 Subcontractor's Comments

Tier 3 Subcontractor's Name:

Signature and Title of Preparer: Date:

[1] Material (attach itemized quantity and unit cost plus sales tax)
[2] Labor (attach itemized hours and rates)
[3, 7] Equipment (attach invoices)
[4-8] If Subcontractor performed Work, use Tiered Subcontractor's sheets to calculate costs. Subcontractor overhead and profit (all tiers cumulative) not to exceed fifteen percent (15%) of direct material, labor, and equipment on Subcontractor Summary sheets.
Instructions for Preparing Contractor Proposal for Contract Modification

**Date:** January 20, 2000

**Contract No:** 0

**Breakdown of Direct Costs**

<table>
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<th>Item No.</th>
<th>Item of Work</th>
<th>O/B</th>
<th>Unit</th>
<th>Material</th>
<th>Total Cost</th>
<th>Unit Cost</th>
<th>Total Cost</th>
<th>Equipment</th>
<th>Rent Cost</th>
<th>Owner Cost</th>
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**Summary:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cont.</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td>$25.00</td>
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<tr>
<td>Rent Cost</td>
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<td>Owner Cost</td>
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DSA Appl. # 0117152

Contra Costa Community College District
Dialo Valley College
D-006 Replacement of Main Electrical Switchgear

Section 0130 - Page 26 of 29

Administrative Forms
# Contractor Production Report

**Contractor No.**
**Project Number and Name**
**Contractor**
**Superintendent**
**Weather**
**Weather**

## Work Performed Today

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Work Location and Description</th>
<th>Employer</th>
<th>Number</th>
<th>Trade</th>
<th>Hrs</th>
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</table>

- **Was a job safety meeting held this date?**
- **If yes, attach copy of minutes**
- **Were there any lost-time accidents this date?**
- **If yes, state description in separate report (OSHA report)**
- **Was a crane or lift or other equipment introduced today?**
- **If yes, attach description of incident and proposed action.**

## Safety Actions Taken Today/Safety Inspections Conducted

- **List safety actions taken today.**
- **Safety inspections conducted.**

## Equipment/Measuring to Be Incorporated in Job

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Activity No.</th>
<th>Submittal #</th>
<th>Description of Equipment/Measuring Received</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

## Construction and Plant Equipment On Site Today

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Activity No.</th>
<th>Owner</th>
<th>Description of Construction Equipment Used Today (and Make and Model)</th>
<th>Hours Used</th>
</tr>
</thead>
<tbody>
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## Remarks

<table>
<thead>
<tr>
<th>Schedule</th>
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<th>Remarks</th>
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</table>
SECTION 01400
QUALITY CONTROL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in
      this document, and provisions in the General Conditions and other Division 1 Specification
      Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
   A. Section 01010 – “Summary of Work”
   B. Section 01311 – “Project Management and Coordination”
   C. Section 01330 – “Submittal Procedures”
   D. Section 01410 – “Regulatory Requirements”
   E. Section 01411 – “Testing Laboratory Services”
   F. Section 01412 – “Hazardous Material”
   G. Divisions 2 through 33 Sections for Quality Control Requirements for the work in those sections.

1.3 SUMMARY
   A. This Section includes Administrative and Procedural Requirements for Quality Control and
      Quality Assurance Services includes, but not limited to, the followings:
      1. Quality assurance and control of installation.
      2. References.
      3. Inspection and testing laboratory services
      4. Manufacturers’ field services and reports
      5. Field sample
      6. DSA Project Inspector if applicable
      7. Inspection by the Division of the State Architect if applicable
      8. Conflicts

1.4 QUALITY ASSURANCE/CONTROL OF INSTALLATION
   A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions and
      workmanship, to produce Work of specified quality.
   B. Comply fully with manufacturers’ written instructions, including each step in sequence.
   C. When manufacturers’ instructions conflict with Contract Documents, request clarification
      from District’s Representative before proceeding.
D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. All Work shall be performed by persons qualified to produce workmanship of specified quality.

F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

G. Contractor’s Line of Authority: Contractor shall provide one person who shall be both knowledgeable and responsible for all work to be performed on the Project at all times during normal work hours. In Contractor’s absence, Contractor’s appointed representative shall be responsible for all directions given him and said directions shall be binding as if given to the Contractor. Contractor’s representative shall be responsible to coordinate all Work to be performed on the Project.

H. Shop and field work shall be performed only by mechanics skilled and experienced in the fabrication and installation of the work involved. All work on this Project shall be done in accordance with the best practices of the various trades involved and in accordance with the Contract Documents, approved shop drawings and these specifications.

I. All work shall be erected and installed plumb, level, square and true and in proper alignment and relationship to the work of other trades. All finished work shall be free from defects. The District’s Representatives reserve the right to reject any materials and workmanship that are not considered to be of the highest standards of the trades involved. Any such inferior material or workmanship shall be removed and replaced at no additional cost or time impact to the District.

J. The specifications and recommendations of the manufacturer whose materials are used shall be strictly adhered to during the application or installation of materials. Manufacturer’s specifications, installation instructions, and testing and startup directions shall be available for inspection on Site.

K. Any additional work beyond that specified or illustrated in the Contract Documents, or any modification thereto, that is necessary to obtain the guarantees specified in the Contract Documents shall be provided by the Contractor without any additional cost or time impact to the District.

1.5 REFERENCES

A. Conform to reference standards in force on the most recent date of issue of the approved Contract Documents.

B. When specified reference standards conflict with Contract Documents, request clarification from District’s Representative before proceeding.

C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

D. The Contractor shall be responsible for being current and knowledgeable for all building codes involved for all trades under his direction.

E. Provide all work and materials in full in accordance with the latest applicable Rules and Regulations of the California Code of Regulations Title 24 Building Code Standards, the State
Fire Marshal, Safety Orders of the Division of Industrial Safety, and any other applicable laws or regulations. Nothing in these plans or specifications is to be construed to permit Work not conforming to these Codes.

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

   1. 29 CFR 1910, Subpart A, Section 1910.7: Definitions and Requirements for a National Recognized Testing Laboratory.

H. NIST: National Institute of Standards and Technology.

I. Furnish all material and labor required to comply with these Rules and Regulations without any additional cost to District.

1.6 **MANUFACTURERS’ FIELD SERVICES AND REPORTS**

A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, testing, adjusting, and balancing of equipment as applicable, and to provide instructions when necessary.

B. Provide five (5) sets of Manufacturer’s Field Representative report to District and Architect for review within 5 days of field observation.

C. Manufacturer’s Field Service: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01330 (Submitittal Procedures.)

1.7 **FIELD SAMPLES**

A. Install field samples at the site for District and Architect review as required by individual Specifications Sections.

B. Samples accepted by the Architect in writing represent the quality level required for the Work.

C. Where a field sample is specified in individual sections to be removed, clear area after field sample has been accepted by Architect.

1.8 **PROJECT INSPECTOR**

A. District will employ a Project Inspector in accordance with the regulations of the DSA and subject to the provision of Part 1, Title 24, CCR.

B. Project Inspector’s authority, rights and duties shall be as set forth in Section 4-342, Part 1, Title 24, CCR.

C. The Project Inspector shall make semi-monthly reports in writing to the Architect with copies forwarded to District, Project Manager, and the DSA in accordance with Section 4-337, Part 1, Title 24, CCR.

D. The Project Inspector shall notify the Division of the State Architect:
   1. When work is started on project.
2. Minimum (2) working days in advance of time when foundation trenches will be complete and ready for footing forms.

3. Minimum (2) working days in advance for first placing of concrete.

4. When work is suspended for period of more than two weeks.

E. The Project Inspector shall keep records of certain phases of construction that shall be maintained on the project site until completion. Upon completion, these records shall be copied, with the original delivered to the District for the permanent school records and the copy forwarded to the Architect. The record shall include, but is not limited, to the following:

1. The time and placing of concrete and the time and date of removal of forms in each portion of the structure.

2. Weighmasters tickets delivered with each load of concrete delivered to site.

3. Identification marks of welders, lists of defective welds, and manner of correction of defects.

4. Certification of grounding of electrical system.

F. The Project Inspector shall monitor the work of Special Inspectors and testing laboratories to ensure testing program is satisfactorily completed.

G. The Project Inspector shall notify the Contractor in writing of deviations from Contract Documents. Copies of such notice shall be forwarded immediately to the Architect, Project Manager, District and the Division of the State Architect (DSA).

H. The Project Inspector shall make and submit Verified Reports in accordance with Section 4-336, Part 1, Title 24, CCR. Verified Reports shall be submitted directly to the Division of the State Architect with a copy forwarded to the Architect.

I. The Project Inspector shall prepare detailed statements of fact regarding materials, operations and other related issues when requested by the Construction Manager. Such statements shall be submitted directly to the Construction Manager with a copy forwarded to the Architect.

J. Contractor shall cooperate with all Project inspectors. Provide access to the work at all times whether it is in preparation or progress. Provide proper facilities for access and inspection.

K. Perform work with the knowledge of the Inspectors. Cover no work prior to inspection.

L. Notify Inspectors in writing at least (2) working days prior to expected time for operations requiring inspection.

M. If work is performed on Saturdays, Sundays, Holidays or beyond normal working hours, the Inspectors will be paid at overtime rates by the District. The cost of the Inspectors’ premium time will be deducted by the District from the Contract Sum by Change Order.

N. The Contractor shall pay the cost of the Inspector’s salary for the time the Inspector is required on the project beyond the allotted Contract Time. The cost of the Inspector’s salary shall be in addition to liquidated damages outlined in Supplementary Conditions and will be deducted by the District from the Contract Sum by Change Order.
1.9 INSPECTION BY THE DIVISION OF THE STATE ARCHITECT

A. Work will be monitored and observed through periodic site visits by the Division of the State Architect Field Inspector according to Section 4-334, Part 1, Title 24, CCR.

1.10 CONFLICTS

A. Contractor shall comply with rules of documents interpretation as indicated in Contract General Conditions including, but not limited to the following items:

1. Contract Documents take precedence over statutory requirements or standard when requiring materials of higher quality or performance, or larger sizes or capacity, or greater protection, safety or quantity than required by said codes or standards.

2. This shall not operate to allow deviations from code requirements, prior approvals and other provisions as specified.

3. Modifications to published statutory requirements currently adopted or enforced by regulating agencies having jurisdiction shall take precedence over said published requirements.

B. Conflicts within Contract Documents and/or between Project Manual (including specifications) Drawings, Addenda: The more stringent requirement shall govern.

C. Subcontractor, supplier, and installer work may be called for in any section of the Contract Documents; Project Manual Specifications, Drawings and Addenda. Work by any one discipline is not limited to any specification section of the Project Manual, Drawings, Addenda, and Contract Documents shall be bid in total and not in parts.

D. If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding. Contractor shall, within (15) working days, notify the Architect in writing for the context of requirements.

E. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Contractor shall, within (15) working days, notify any uncertainties to the Architect and District for a decision before proceeding.

1.11 QUALITY CONTROL, GENERAL

A. District will provide inspections, tests, and similar quality control services specified to be performed by independent agencies, except where indicated as Contractor's responsibility. Costs for District-provided inspections and tests are not included in Contract Sum.

1. District will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Where tests and inspections are indicated as Contractor's cost and/or responsibility, provide quality-control services specified and those required by authorities having jurisdiction

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   a. Contractor shall not employ same entity engaged by District, unless agreed to in writing by District.

2. Testing of equipment, systems, components, assemblies, and other non-structural elements of the Work that require testing shall be performed in accordance with the Contract Documents and Manufacturer's recommended testing protocols. The Contractor shall submit Manufacturer's Installation Instructions and Manufacturer's recommended tests in accordance with Section 01330, Submittal Procedures, prior to installation and testing of equipment, systems, components, assemblies, and other non-structural elements of the Work. Test results shall be recorded and submitted original Manufacturer's documents.

3. Notify Project Inspector and testing agencies, at least (5) working days or as indicated otherwise in advance of time when Work that requires testing or inspecting will be performed.

4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Re-inspecting:

1. Where quality-control services are Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaces or is necessitated by Work that failed to comply with the Contract Documents.

2. Where quality-control services are District's responsibility, costs for retesting and re-inspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, by way of a deductive Change Order.

D. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work
2. Incidental labor and facilities necessary to facilitate tests and inspections
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Preliminary design mix proposed for use for material mixes that require control by testing agency.
6. Security and protection for samples and for testing and inspecting equipment at Project site.

E. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities. Provide timely notice of the Work’s readiness for all required tests and inspections.

F. Testing and Inspection Log: The Contractor shall provide a detailed list of all Tests and Inspections required by the Contract Documents for each of the Project Phases. Submit the Test and Inspection Log with the submittal of the Master CPM Schedule.
1. Distribution: Distribute schedule to District, Architect, Project Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.12 QUALITY CONTROL: LABORATORY, TESTS, AND REPORTING REQUIREMENTS

A. Construction materials testing laboratories must be accredited by a laboratory accreditation authority and will be required to submit a copy of the Certificate of Accreditation and Scope of Accreditation.
1. The laboratory’s scope of accreditation must include the appropriate ASTM standards (E 329, C 1077, D 3666, D 3740, A 880, E 543) listed in the technical sections of the specifications.

B. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

C. Laboratory Accreditation Authorities: Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at: http://ts.nist.gov/ts/htdocs/210/214/214.htm the American Association of State Highway and Transportation Officials (AASHTO) program at http://www.transportation.org/aashto/home.nsf/frontpage , International Accreditation Services, Inc. (IAS) at http://www.iasonline.org, the American Association for Laboratory Accreditation (A2LA) program at http://www.a2la.org/.

D. Capability Check: The District retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician’s testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract.

E. Test Results: Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item test or analyzed conforms or fails to conform to specified requirements.
1. If the item fails to conform, notify the District immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable.
2. Test results must be signed by a testing laboratory representative authorized to sign certified test reports.

3. Furnish the signed reports, certifications, and other documentation to the District via the QC Manager.

4. Furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the District. Attach a copy of the summary report to the last daily Contractor Quality Control Report of each month.

1.13 NOTIFICATION ON NON-COMPLIANCE

A. The District will notify the Contractor of any detected non-compliance with the Contract. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the District may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of claim for extension of time for excess costs or damages by the Contractor.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work constitutes acceptance of existing conditions by the Contractor.

B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:
   1. Date test or inspection was conducted.
   2. Description of the Work tested or inspected.
   3. Date test or inspection results were transmitted to Architect.
   4. Identification of testing agency or special Inspector conducting test or inspection.

B. Maintain test and inspection log at project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect and Project Manager’s reference during normal working hours.

3.3 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.
C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.4 PREPARATION AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes. See also Section 01730, Cutting and Patching.

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor’s responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01400
SECTION 01410
REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
   A. Divisions 2 through 28 Sections for Regulatory requirements for the work in those sections.

1.3 SUMMARY
   A. This Section includes: regulatory requirements applicable to the Contract Documents and the Project and Work.
   B. Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest printed edition of each adopted by the regulatory agency in effect at the time of the opening of Proposals, except as may be otherwise specifically stated in the Contract Documents.
   C. No change order shall be considered for any change in any applicable federal, state or local code or regulation if similar language existed in an alternate applicable regulation in force at the time of opening of Bids.
   D. Contractor shall not allow design or construction of any conditions wherein the finished Work will not comply with current applicable codes. No change order shall be considered by District for the Work correction of any Work not complying with code.
   E. This section shall cover 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.

1.4 REFERENCES TO REGULATORY REQUIREMENTS
   A. Code, laws, ordinances, rules and regulations referred to shall have full force and effect as though printed in full in these Specifications. Code, laws, ordinances, rules and regulations are not furnished to Contractor because Contractor is assumed to be and shall be familiar with these requirements, including readily available access to these requirements. The listing of applicable codes, laws, and regulations for hazardous waste abatement Work in the Contract Documents is supplied to Contractor as a courtesy and shall not limit Contractor’s responsibility for complying with all applicable laws, regulations or ordinances having application to the Work. Where conflict among the requirements or with these Specifications occurs, the most stringent requirements shall be used with no change in Contract Sum or Contract Time.
   B. Contractor shall conform to all applicable federal, state, and local codes, laws, ordinances, rules and regulations, whether or not referenced in the Contract Documents.
   C. Precedence:
1. Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.

2. Where Contract Documents require or describe products or execution of better quality, higher standard or greater size than required by applicable codes, ordinances and standards, Contract Documents shall take precedence so long as such increase is legal.

3. Where no requirements are identified on Contract Documents, comply with all requirements of applicable codes, ordinances and standards of governing authorities have jurisdiction.

1.5 REGULATORY REQUIREMENTS

A. All statutes, ordinances, laws, rules, codes, regulations, standards, and lawful orders of all public authorities have jurisdiction of 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 California Code of Regulations ("CCR").

B. This Project shall be governed by applicable regulations, including, without limitation, the State of California’s Code Section Group 1, 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. All special inspections per Section 4-333(c).

3. Contractor shall submit verified reports per Section 4-365 & 4-343(c).

4. Administration
   a. Duties of the Architect & Engineers shall be per Section 4-333(a) & 4-341.
   b. Duties of the Contractor shall be per Section 4-343.
   c. Verified Reports per Section 4-336.

5. Contractor shall keep and make available a copy of Part I and II of the most current version of Title 24 at the Site during construction.

6. Contractor shall notify the Division of State Architect ("DSA") upon the start of construction per Section 4-334 if applicable.

7. Addenda and Change Documents per Section 4-338.

1.6 CODES

A. Codes that apply to Contract Documents include, but are not limited to, the following:


5. California Elevator Safety Construction Code, Part 7, Title 24 C.C.R.
7. Public Safety, Title 19, California Code of Regulations, State Fire Marshal Regulations
13. California Code of Regulations (CCR):
   a. Title 8, Industrial Relations (Cal/OSHA Standards).
   b. Title 24, State Access Compliance.
14. California Air Resources Board (CARB), and in particular Rule 1113.
16. State Water Resources Control Board Waste Discharge Requirements
17. County ordinances and regulations.
18. Other codes as specified.

1.7 LAWS, ORDINANCES, RULES, AND REGULATIONS

A. During prosecution of Work to be done under Contract Documents, comply with applicable laws, ordinances, rules and regulations, including, but not limited to, the following:

1. Federal:
   b. 29 CFR, Section 1910.1001, Asbestos
   c. 40 CFR, Subpart M, National Emission Standards for Asbestos
   d. Executive Order 11246
   e. Federal endangered Species Act
   f. Clean Water Act
2. State of California:
   a. California Code of Regulations, Titles 5, 8, 19, 21, 22, 24 and 25
   b. California Public Contract Code
   c. California Health and Safety Code
   d. California Government Code
   e. California Labor Code
   f. California Civil code
   g. California Code of Civil Procedure
   h. CPUC General Order 95, Rules for Overhead Electric Line Construction
i. CPUC General Order 128, Rules for Construction of Underground Electric Supply and Communications systems
j. Cal/OSHA
k. OSHA: Hazard Communications Standards
l. California Endangered Species Act
m. Water Code

3. State of California Agencies:
   a. State and Consumer Services Agency
   b. Office of the State Fire Marshall
c. Not used
d. Bay Area Air Quality Management District
e. San Francisco Bay Regional Water Quality Control Board
f. Division of the State Architect

4. Local Agencies:
   a. City of Pleasant Hill, California
   b. Contra Costa County Fire Department

5. Other Requirements:
   b. References on Drawings on in specifications to “code” or “building code” not otherwise identified shall mean the codes specified in this Section 1410 together with all additions, amendments, changes, and interpretations adopted by code authorities of the jurisdiction.

B. Contractor shall have immediate access to all of the foregoing.

C. Other Applicable Laws, Ordinances and Regulations:
   1. Work shall be accomplished in conformance with all applicable laws, ordinances, rules and regulations of federal, state, and local governmental agencies and jurisdictions having authority over the Project.
   2. Work shall be accomplished in conformance with all rules and regulations of public utilities and utility districts.
   3. Where such laws, ordinances, rules and regulations require more care or greater time to accomplish Work, or require better quality, higher standards or greater size of products, Work shall be accomplished in conformance to such requirements with no change to the Contract Time and Contract Sum, except where changes in laws, ordinances, rules and regulations occur subsequent to the time of opening of the Proposals.

D. Under California Government Code Section 930.2 et. Seq. and Public Contract Code Section 7105(d)(2), neither the Contract Claims Procedure nor the Change Order Procedure may be modified, waived, or otherwise not complied with, absent a written change order that explicitly and expressly makes such modifications.

1.8 CONFLICTS

A. Between reference regulatory requirements: Comply with the one establishing the more stringent requirement.
B. Between referenced regulatory requirements and Contract Documents: Comply with the one establishing the more stringent requirement.

1.9 COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT

A. Contractor acknowledges that, pursuant to the Americans with Disabilities Act (ADA), programs, services and other activities provided by a public entity to the public, whether directly or through a contractor, must be accessible to people with disabilities. Contractor shall provide the services specified in the Contract Documents in a manner that complies with the ADA and any and all other applicable federal, state and local disability rights legislation. Contractor agrees not to discriminate against people with disabilities in the provision of services, benefits, or activities provided and further agrees that any violation of this prohibition on the part of Contractor, its employees, agents or assigns shall constitute a material breach of the Contract Documents.

PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION
Not Used.

END OF SECTION 01410
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SECTION O1411
TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS
   A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in
      this document, and provisions in the General Conditions and other Division 1 Specification
      Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
   A. Section 01010 – “Summary of Work”
   B. Section 01400 – “Quality Control Requirements”
   C. Not used
   D. Section 01410 – “Regulatory Requirements”
   E. Section 01412 – “Hazardous Material”
   F. Section 01770 – “Contract Closeout Procedures”
   G. Division 2 through 33 Sections for Special Inspections, tests required and standard for testing.

1.3 SUMMARY
   A. This section describes the requirements and procedures for work involving the testing laboratory.

1.4 REFERENCES
   A. CBC - California Building Code.
   B. CCR - California Code of Regulations.
   C. ANSI/ASTM D3740 – Practice for Evaluation of agencies Engaged in Testing and/or Inspection of
      Soil and Rock as Used in Engineering Design and Construction.
   D. ANSI/ASTM E329 – Standard Recommended Practice for Inspection and Testing Agencies for
      Concrete, Steel and Bituminous Materials as Used in Construction.

1.5 REGULATORY REQUIREMENTS
   A. Testing, sampling and preparing samples will be in accordance with the standards referenced in
      individual specification sections and in the applicable sections of CBC State Chapters.
   B. Testing and submitting test reports will conform to provisions of Section 4-335, Part 1, Title 24, CCR.
   D. Laboratory shall maintain a full-time registered Engineer on staff to review services.
   E. Laboratory authorized to operate in State in which Project is located.
F. Testing Equipment shall be calibrated at reasonable intervals with devices of accuracy traceable to either NSB Standards or accepted values of natural physical constants.

1.6 SELECTION AND PAYMENT

A. The District will employ and pay for the services of testing laboratory and/or testing agencies acceptable to the Division of the State Architect to conduct required tests and inspections for the Project.

1. Soils: The testing laboratory will observe excavating, grading, and filling operations and to provide testing of soil materials as required by the Division of the State Architect and as specified in the Contract Documents.

2. Other Construction: The testing laboratory will conduct tests, inspections, and special inspections as required by the Division of the State Architect and as specified in the Contract Documents.

B. Retesting: When initial tests indicate non-compliance with the Contract Documents, subsequent retesting caused by the non-compliance shall be performed by the same testing agency and the costs thereof will be deducted by the District from the Contractor’s Contract Sum by Change Order.

C. Retesting Covered Work: Re-examination of previously tested and inspected work may be ordered by the District, Architect, or by the Project Inspector. The Contractor shall uncover such work if retesting is ordered. If work is found in accordance with Contract Documents, the District will pay costs of uncovering, removing, retesting and replacing. If work is found not in accordance with Contract Documents, the District will deduct the cost of retesting from the Contract Sum by Change Order and the Contractor will bear the costs of uncovering, removing and replacing work.

D. Testing and inspecting performed for Contractor’s convenience, such as testing and inspection to establish equivalence of substitutions, equivalence of repairs to damaged materials, and testing and inspecting to expedite the operations, shall be the Contractor’s responsibility.

1. The Contractor shall employ a licensed professional engineer of the discipline required to develop a testing program which will establish equivalency.

2. The Contractor shall submit the testing program to the Architect District and Project Manager for review.

3. The Contractor shall arrange testing in accordance with the accepted testing program to be performed by the District’s testing laboratory.

4. The costs of testing done by the District’s testing laboratory for the Contractor will be deducted from the Contract Sum by Change Order.

5. The Contractor may not arrange for testing upon portions of the work already completed except with the written consent of the District and Architect.

E. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.

F. The District, Architect and Project Inspector shall have the right to make tests at any time on materials or work done whether those materials are specified or substituted items.
1.7 Not used.

1.8 LABORATORY REPORTS

A. Test/Inspection Reports:
   1. Reports will comply with Section 4-335(d), Part 1, Title 24, CCR.
   2. Include every test and inspection made regardless of whether such tests and inspections indicate that the material and procedures are satisfactory or unsatisfactory.
   3. Include records of special sampling operations as required.
   4. Indicate that materials were sampled and tested in accordance with requirements of CCR regulations and Construction Documents.
   5. Indicate specified design strength of materials such as masonry, concrete and steel.
   6. State whether or not materials and procedures comply with requirements of the Construction Documents.
   7. Submit copies of reports to Division of the State Architect, Project Manager, District, Architect, Project Inspector, Structural Engineer, Civil Engineer, Soils Engineer and Contractor within 14 days of tests. Submit copies of reports of non-complying materials and procedures immediately.

1.9 Not used

1.10 CONTRACTOR RESPONSIBILITIES

A. Package and deliver to laboratory at designated location adequate samples of materials proposed to be used which require testing. Samples shall be selected by laboratory personnel. Allow proper time for selecting samples, and making tests or considerations.

B. Cooperate with laboratory personnel, and provide access to work and to manufacturer's facilities.

C. Provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples as selected by laboratory personnel at the site or at source of products to be tested, to facilitate tests and inspections, and for storage and curing of test samples.

D. Schedule all tests and inspections with the testing and inspections firm and to notify Project Manager and Project Inspector a minimum of 3 working days prior to expected time for operations requiring inspection and testing services. Do not allow work to be covered prior to inspection and testing.

E. Cooperate fully with the testing laboratory's personnel and with special inspectors in inspection any part of the construction and in taking any samples of materials required to be tested. Provide access to the work. The Contractor's personnel shall furnish and cut or prepare all samples in the presence of either the testing laboratory personnel or the special inspectors and secure the witness's initial on each sample prepared.

F. Notify the testing laboratory to send a bonded messenger to pick up the initialed samples the same day the samples were prepared. Alert the testing laboratory 3 working days in advance as to the times and location of the required sampling, tests and inspections so as to not delay the
work of the project, and make sure that the required sampling, tests inspections are promptly completed.

1.11 Not used

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION
Not Used

END OF SECTION 01411
SECTION 01412
HAZARDOUS MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract documents shall be reviewed for applicable provisions related to the provisions in this document, and provision in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
B. Section 01311 – “Project Management and Coordination”
C. Section 01420 – “References”
D. Divisions 2 through 16 Sections for Hazardous Materials requirements for the work in those Sections.

1.3 SUMMARY
A. This Section describes Project requirements applicable to Work the unexpected discovery of hazardous materials, hazardous waste, asbestos and asbestos-containing materials, lead-based paint, polychlorinated biphenyls, petroleum-contaminated soils and materials, construction and demolition debris and any other hazardous substance or hazardous waste. This Section supplements the requirements elsewhere in the Contract Documents.

1.4 DISCOVERY OF HAZARDOUS MATERIALS
A. In the event the Contractor encounters or suspects the presence on the job site of material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous by § 25249.5 of the California Health and Safety Code, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the District and the Architect in writing, whether or not such material was generated by the Contractor or the District. The Work in the affected area shall not thereafter be resumed, except by written agreement of the District and the Contractor, if in fact the material is asbestos, polychlorinated biphenyl (PCB), or other hazardous material, and has not been rendered harmless. The Work in the affected area shall be resumed only in the absence of asbestos, polychlorinated biphenyl (PCB), or other hazardous material, or when it has been rendered harmless by written agreement of the District and the Contractor.
B. If hazardous materials are encountered, they shall be handled in accordance with applicable local, state and federal regulation which may include: (1) CCR Title 8, Division 4, Chapter 4, Sections 5163 through 5167 and 5192 (Hazardous Waste Operations and Emergency Response); (2) CCR Title 22, Division 4.5, Chapters 10 through 13 and 18 (Environmental
Health Standards for Management of Hazardous Waste); and (3) CCR Title 23, Division 3, Chapter 15 (Discharges of Hazardous Waste to Land).

C. Should the discovery of contaminants cause delay to Contractor’s operation, extension of Contract Time will be granted by District in accordance with Section 00700 (General Conditions) and Section 01310 (Construction Scheduling.) Contractor may not be entitled to damages or additional payment due to such delays. District may, if it believes appropriate in its sole discretion, grant an extension of Contract Time.

D. The Contractor shall take all measures to avoid and/or mitigate delays due to Hazardous Materials/Waste finds such as; avoiding the area of the find and proceeding with other work on the project; developing “work around” plans; and documenting his best efforts to avoid and/or mitigate delays. See Section 01310 (Construction Scheduling) regarding requirement to demonstrate Time Impacts.

1.5 SUBSURFACE HAZARDOUS MATERIALS

A. If Contractor encounters surface contamination, the following provisions and precautionary measures shall be implemented during construction.

1. Contractor’s personnel shall be alert for and cease work in the area and immediately report to District’s Representative any detectable chemical odors, unusual debris, or discolored soil.

1.6 HAZARDOUS MATERIAL WORK LIMITATIONS

A. In the event that the presence of hazardous materials is suspected or discovered on the Site (except in cases where asbestos and other hazardous material work is the Contractor’s responsibility), the District shall retain an independent testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required. The Contractor shall not be required to perform without consent any Work in the affected area of the Site relating to asbestos, polychlorinated biphenyl (PCB), or other hazardous material, until any known or suspected hazardous material has been removed, or rendered harmless, or determined to be harmless by District, as certified by an independent testing laboratory and approved by the appropriate government agency.

1.7 INDEMNIFICATION BY CONTRACTOR FOR HAZARDOUS MATERIAL CAUSED BY CONTRACTOR

A. In the event the hazardous materials on the Project Site is caused by the Contractor, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the District for any additional costs incurred as a result of Contractor’s generation of hazardous material on the Project Site. In addition, the Contractor shall defend, indemnify and hold harmless District and its agents, officers, and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with, arising out of, or relating to, the presence of hazardous material on the Project Site.

1.8 TERMS OF HAZARDOUS MATERIAL PROVISION

A. The terms of this Hazardous Material provision shall survive the completion of the Work and/or any termination of this Contract.
1.9 NON-UTILIZATION OF ASBESTOS MATERIAL

A. NO ASBESTOS OR ASBESTOS-CONTAINING PRODUCTS SHALL BE USED IN THIS CONSTRUCTION OR IN ANY TOOLS, DEVICES, CLOTHING, OR EQUIPMENT USED TO EFFECT THIS CONSTRUCTION.

B. Asbestos and/or asbestos-containing products shall be defined as all items containing, but not limited to, chrysotile, amosite, anthophyllite, tremolite, and actinolite.

C. Any or all material containing greater than one-tenth of one percent (> .1%) asbestos shall be defined as asbestos-containing material.

1.10 REMOVAL OF CONTRACTOR INSTALLED ASBESTOS MATERIALS

A. All Work or materials found to contain asbestos or Work or material installed with asbestos-containing equipment will be immediately rejected and this Work will be removed at no additional cost to the District.

1. Decontamination and removal of Work found to contain asbestos or Work installed with asbestos-containing equipment shall be done only under supervision of a qualified consultant, knowledgeable in the field of asbestos abatement and accredited by the Environmental Protection Agency.

2. The asbestos removal contractor shall be appropriately licensed and registered, qualified in the removal of asbestos and shall be approved by the asbestos consultant, who shall have sole discretion and final determination in this matter.

3. The asbestos consultant shall be approved by the District, who shall have sole discretion and final determination in this matter.

1.11 NATURALLY OCCURRING ASBESTOS

A. To protect construction workers and members of the public from exposure to known areas of naturally-occurring asbestos (NOA), all ground disturbing activities will be undertaken in accordance with all applicable Cal-OSHA standards, contained in Title 8 of the California Code of Regulations (CCR). In addition, any ground-disturbing activity in an area that meets one or more of the applicability criteria for the Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying and Surface Mining Operations, as adopted by the California Air Resources Board (CARB), is subject to the requirements therein. Per Section 93105 (b) of the ATCM, these criteria are as follows:

1. The area to be disturbed is located in a geographic ultramafic rock unit; or

2. The area to be disturbed has naturally-occurring asbestos, serpentine, or ultramafic rock as determined by the owner/operator, or the Air Pollution Control Officer (APCO); or

3. Naturally-occurring asbestos, serpentine, or ultramafic rock is discovered by the District, a registered geologist, or the APCO in the area to be disturbed after the start of any construction, grading, quarrying, or surface mining operation.
PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION
Not Used.

END OF SECTION 01412
SECTION 01416
SPECIAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in
      this document, and provisions in the General Conditions and other Division 1 Specification
      Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
   A. Section 01010 – “Summary of Work”
   B. Section 01330 – “Submittal Procedures”
   C. Section 01740 – “Warranties and Guaranties”
   D. Section 01780 – “Project Record Documents”
   E. Section 01820 – “Demonstration and Training”
   F. Divisions 2 through 33 Sections for Contract Closeout Procedure requirements for the work in
      those Sections.

1.3 SUMMARY
   A. In Compliance with CEQA requirements, the District conducted an Initial Study to ascertain if
      the project may have an effect on the environment. The Initial Study identified potential
      impacts on the environment. However, all potential impacts of the proposed Project can be
      avoided or reduced to a less-than-significant level by implementation of the following
      mitigation measures. Contractor shall conform with the following mitigation measures,
      including but not limited to, the following:
      1. Noise Control
      2. Dust Control
      3. Traffic Control
      4. Spill Prevention, Control and Countermeasures
      5. Tree Protection
      6. Migratory Bird Protection
      7. Cultural Resources Protection
   B. In no case shall the restrictions identified in this Section limit the Contractor's responsibility for
      compliance with all Federal, state, and local safety ordinances and regulations.

1.4 NOISE CONTROL
   A. The intent of this Section is to minimize construction noise within construction areas, lay-down
      areas, and communities adjacent to the construction site. To this end, the Contractor and all
      subcontractors, suppliers, and vendors, are required to comply with all applicable noise
      regulations, specification requirements, and the noise level limits specified herein.
B. The Contractor shall use equipment with efficient noise-suppression devices and employ other noise abatement measures such as enclosures and barriers necessary for the protection of the public, as necessary.

C. The Contractor shall schedule and conduct operations in a manner that will minimize, to the greatest extent feasible, the disturbance to the public in areas adjacent to the Work and to occupants of buildings in the vicinity of the Work.

D. Noise Control Measures. Contractor shall implement the following noise-control measures to reduce and control noise generated from construction, demolition, and construction related activities:

1. Restrict noise-producing construction activities to between 7:00 a.m. and 7:00 p.m. on weekdays. If construction is scheduled for Saturdays or Sundays to avoid disrupting college operations, restrict noise-producing construction activities to between 9:00 a.m. and 5:00 p.m. Construction on Sundays shall be avoided, if possible, and there will be no construction on public holidays without prior written request submitted to and written approval returned by the District, at its sole discretion. A decision by the District to deny Sunday or holiday work shall not be deemed to cause a delay in the Contract Time. When activities must occur outside the hours specified above, conform with notification requirements of this Section and utilize local barriers around equipment and other noise attenuating devices if necessary to limit noise to acceptable levels.

2. Comply with all City of Pleasant Hill requirements regarding both allowable hours of Work and noise level limitations.

3. All construction equipment shall have appropriate mufflers, intake silencers, and other required noise-control features, shall be properly maintained and in compliance with State standards.

4. Vehicles and other gas or diesel powered equipment shall be prohibited from unnecessary warming up, idling, and engine revving.

5. Impact tools shall utilize "quiet technology" to minimize noise.

E. Secure written permission from Project Manager at least three (3) working days prior to using noisy and vibratory equipment, such as jackhammers, concrete saws, impact tools, and high frequency electrical equipment. Cooperate with District if the use of noisy equipment becomes objectionable to college employees and/or students.

F. The work must be conducted so that nearby residents and college operations in surrounding facilities and classrooms will not be disturbed at any time during any Phase of the Work including, but not limited to, the following requirements:

1. Do not use loud vocal or mechanical signals. Use of outside speakers, loud radios and similar devices are prohibited.

2. Work shall be performed in a manner to prevent nuisance conditions such as noise which exhibits a specific audible frequency or tone (e.g., backup alarms, poorly maintained equipment, brake squeal, etc.) or impact noise (e.g., jackhammers, hoe rams). The District will make any final interpretation concerning whether or not nuisance noise conditions exist. Only the District representatives and specifically designated College representatives have the authority to stop the Work until nuisance noise conditions are resolved, without additional Contract Time or compensation for the Contractor.
1.5 DUST CONTROL
A. Contractor shall implement dust control measures to protect air quality during construction to control dust emissions generated during construction, implement the following Bay Area Air Quality Management District (BAAQMD) measures for construction emissions of particulate matter over 10 microns in size (PM10).

1.6 TRAFFIC CONTROL
A. Contractor shall implement traffic control to minimize the effects of construction traffic on the campus and surrounding residential areas, as appropriate.
B. Contractor shall notify the District, Architect, Project Manager, Project Inspector, Campus Police Department, city and county agencies, as applicable, a minimum of five (5) working days in advance of performing work which necessitates closing or interfering with traffic on public thoroughfares, parking areas, driveways and walks. Obtain written permission prior to effecting such closures and interruptions.

1.7 SPILL PREVENTION, CONTROL AND COUNTERMEASURES
A. Contractor shall implement Spill Prevention, Control and Countermeasures to minimize the potential for and effects from spills of hazardous, toxic or petroleum substances during construction and demolition activities.
B. The federal reportable spill quantity for petroleum products, as defined in 40 CFR 110, is any oil spill that includes any of the following:
   1. Violates applicable water quality standards.
   2. Causes a film or sheen on or discoloration of the water surface or adjoining shoreline.
   3. Causes a sludge or emulsion to be deposited beneath the surface of the water or adjoining shorelines.
C. If a spill is reportable, notify the District’s Representative and take action to contact appropriate safety and clean-up crews.
   1. A written description of reportable releases must be submitted to the District’s Representative and to the San Francisco Bay Regional Water Quality Control Board (RWQCB). This submittal must contain a description of the spill, including the type of material and an estimate of the amount spilled, the date of the release, an explanation of why the spill occurred and a description of the steps taken to prevent and control future releases. Document the releases on a spill report form.
   2. If a reportable spill has occurred and results determine that project activities have adversely affected surface water or groundwater quality, the District will engage a registered environmental assessor at Contractor’s expense for a detailed analysis to identify the likely cause of contamination. This analysis will conform to American Society for Testing and Materials (ASTM) standards and will include recommendations for reducing or eliminating the source or mechanisms of contamination.
   3. Based on this analysis, the Contractor shall select and implement measures to control contamination, with a performance standard that groundwater quality must be returned to baseline conditions. These measures will be subject to approval by the District.
1.8 TREE PROTECTION

A. Definitions:
   1. Dripline: If applicable, the area on the ground from the trunk of any tree to the point directly below the outermost tips of the foliage of that tree.
   2. Root Protection Zone ("RPZ"): If applicable, the areas enclosed with tree protection fencing as designated on the drawing(s).
   3. Tree damage: If applicable, tree damage shall include, but not limited to, the following: significant injury to the root system or other parts of a tree including burning, application of toxic substances, damaging through contact with equipment or machinery, changing the natural grade within the Dripline or RPZ, compacting the soil within the Dripline or RPZ, interfering with the normal water requirements of the tree, unauthorized trenching or excavating within the Dripline or RPZ, or unauthorized removal of more than 1/3 of the live wood, foliage or roots.

B. Root Protection: No storage of materials or equipment will be allowed within the Dripline. Whenever possible, excavation shall be on a radial line, diverging from the tree trunk. For items of Work delayed materially beyond Date of Substantial Completion, provide update submittal within 14 Days after acceptance, listing date of acceptance as start of warranty period.

C. Exposure to harmful substances: No storage or dumping of any substances that may be harmful to trees shall occur at any location on the Site.

D. Where construction is to be performed in the vicinity of trees and shrubbery, the Work shall be carried on in a manner that will cause minimum damage. District will designate trees that are to be removed. Under no circumstances are additional trees to be removed without written permission from District. Trees and shrubbery that are not to be removed shall be protected from injury or damage resulting from Contractor's operations.

E. Any tree that is removed without District's permission or is irreparably damaged, in the opinion of District, shall cost Contractor in damages [$100.00] per square inch of cross section, measured at 4 ½ feet above ground, but not less than [$250.00], such cost to be deducted from monies due or to become due under the Contract. If tree protection is not performed or is not performed adequately and District determines that a tree has been irreparably damaged, Contractor shall pay the same amount of damages as for unauthorized removal of a tree. Contractor shall immediately report all tree damage to District, so that District may determine applicable damages.

1.9 MIGRATORY BIRD PROTECTION

A. If applicable, conduct tree removal and building demolition outside of the migratory bird nesting season. The typical nesting season for migratory birds in this part of California is April 15 through July 31.

B. If tree removal or building demolition must take place during the nesting season, these activities shall be preceded by a survey for nesting migratory birds. If bird nests are discovered in the trees or on the buildings, they shall not be removed while the nest(s) are active.

1.10 CULTURAL RESOURCES PROTECTION

A. If buried cultural resources, such as chipped or ground stone, historic debris, building foundations or human bones or paleontological resources are discovered inadvertently during
ground-disturbing activities, Contractor shall avoid any further disturbance of the materials and immediately discontinue earthwork within 100 feet of the find. Contractor shall notify District’s Representative immediately upon encountering cultural resources. Contractor shall be prepared to move on to another location or phase of work, allowing sufficient time for District’s Representative to evaluate the nature and significance of the find and implement appropriate management procedures.

B. In the event that prehistoric human remains are encountered, further excavation or disturbance of the site shall cease immediately, pursuant to Health and Safety Code 7050.5. Contractor shall notify District’s Representative immediately upon encountering human remains. Contractor shall move on to another location or phase of Work to allow proper assessment of the situation.

C. If human remains of Native American origin are discovered during project construction, it will be necessary to comply with State laws relating to the disposition of Native American burials, which fall under the jurisdiction of the NAHC (Public Resources Code (PRC) Section 5097. Consequently, if any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby areas reasonably suspected to overlie adjacent human remains:

1. Until the Contra Costa County Coroner has been informed and has determined that no investigation of the cause of death is required;
2. If the remains are of Native American origin;
   a. The descendents of the deceased Native American(s) have made a recommendation to the landowner or the person responsible for the excavation work regarding means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98 or
   b. The NAHC has been unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified by the NAHC.

PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION
Not Used.

END OF SECTION 01416
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SECTION 01420
REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
D. Section 01410 – “Regulatory Requirements”
F. Section 01770 – “Contract Closeout Procedures”
G. Division 2 through 33 for References requirements for the work in those Sections.

1.3 INDUSTRY STANDARDS
A. Applicability of Standards: Unless the Contract Documents specify more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.

C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not contained within the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source and make them available on request.

E. Abbreviations and Acronyms for Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research’s "Encyclopedia of Associations" or in Columbia Books’ "National Trade & Professional Associations of the U.S."
PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION
Not Used.

END OF SECTION 01420
SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
B. Section 01311 – “Project Management and Coordination”
C. Section 01505 – “Construction Waste Management”
D. Section 01710 – “Cleaning Requirements”
E. Section 01770 – “Contract Closeout Procedures”
F. Divisions 2 through 33 Sections for specific requirements for Temporary Facilities and Controls for the Work in those Sections.

1.3 REQUIRED TEMPORARY FACILITIES AND CONTROLS
A. Contractor shall provide and maintain all temporary facilities, utilities, and controls as required to perform the Work and as required herein. Materials, installation, and maintenance of temporary utilities and facilities shall be in compliance with all applicable local and State regulatory requirements. Remove temporary utilities and facilities, including associated materials and equipment, when no longer required. Restore and recondition existing facilities used during construction and areas of the Site, roads, driveways, parking lots, landscaping, and any other existing improvements, either damaged or disturbed by the installation of temporary facilities or utilities to their original condition. Remove and properly dispose of debris resulting from removal and reconditioning operations.

B. Contractor shall furnish and install requirements for temporary utilities, facilities, security, and protection which include but are not limited to the following:

1. Temporary Electric Power and Lighting
   a. The District will pay for electric power required to complete the Work. The installation and removal of all temporary distributions of power throughout the Site shall be the sole responsibility of the Contractor without adjustment to the Contract Price or the Contract Time. The Contract Price shall not be adjusted on account of any disruption, reduction or elimination of electrical power service to the Site, unless the same is caused by the District’s non-payment of undisputed utility charges for such electrical power service. Contractor shall provide power outlets for construction operations, with branch wiring and distribution boxes located as required to complete the Work.
b. Contractor shall provide and maintain electrical power at the Site for construction purposes, for temporary facilities and trailers, and for any other site offices or trailers required by the Contract Documents. Contractor shall provide all necessary wiring and appurtenances for connection to District’s system. Connect to District power at location(s) as directed by District.

c. Contractor shall provide and maintain distribution of temporary electrical power and lighting to the Work and for use by the Project Inspector and District Project Manager.

d. Contractor shall provide temporary power main service disconnect and over current protection at convenient locations and as required by governing codes.

e. The Contractor shall be responsible for providing temporary facilities as required to deliver power service from the point of connection to the point(s) of intended use.

f. Contractor shall verify characteristics of District power available for temporary service use, and provide all transformers and/or other equipment necessary to modify District power for temporary use by the Contractor. Contractor shall pay all costs associated with any necessary modifications to District power for temporary use on the Work.

g. The Contractor shall provide, install, and maintain temporary electrical lighting wherever necessary to provide illumination for the proper performance and/or observation of the Work. Where required, a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work shall be provided.

2. **Temporary Water**

   a. The District will furnish and pay for water during the course of the work to the extent water is available on the Site. The Contractor shall be responsible for providing all temporary facilities required to deliver District water from the point of connection to point of intended use on the Project.

   b. Contractor shall be allowed to utilize water from the District for domestic use only. Water shall not be provided nor used for dust control, street cleaning, cleaning tools, or vehicle washing. Water used for such purposes shall be provided by the Contractor at his expense.

   c. Contractor shall provide and maintain necessary temporary water supply connections, pipes, hoses, nozzles, and fittings required. Before final acceptance, all temporary water supply components installed by Contractor shall be removed in a manner approved by District’s Representative.

   d. Unnecessary waste of water will not be permitted. Special hydrant wrenches shall be used for opening and closing fire hydrants, in no case shall pipe wrenches be used for this purpose. Obtain approval of governing agency prior to opening any fire hydrant.

   e. Contractor shall provide and use backflow preventers on water lines at point of connection to any District water supply. Backflow preventers shall comply with requirements of California Uniform Plumbing Code. The installation and removal of all temporary backflow preventers on the Site shall be the sole responsibility of the Contractor without any adjustment to either the Contract Price or the Contract Time.
Before final acceptance, all temporary connections and piping installed by Contractor shall be removed in a manner approved by District's Representative.

f. Contractor shall provide and make potable water available for human consumption. Contractor shall provide and maintain suitable quality water service required for construction operations.

3. Temporary Fences

a. Temporary Fencing: Contractor shall provide temporary fencing around specified construction areas for safety and protection. Provide chain link fencing not less than eight (8) feet in height, complete with metal posts and required bracing, anchorage, visual screening, and with truck and pedestrian gates. All vehicle and Pedestrian gates and openings shall have gates secured after hours of operation.

b. Contractor shall provide padlocks used for securing all gates. Padlocks shall be designed to prohibit cutting of shackle. Contractor shall coordinate keying strategy with District.

c. Contractor shall be responsible for locking gates and shall be secured with minimum 3/8 inch thick, 30 grade coil chain, minimum 5/16 inch cable. Gates shall be kept closed and locked at all times when not in use.

d. All existing fences affected by the Work shall be maintained by Contractor until Final Completion of Project. Fences which interfere with construction operations shall not be relocated or dismantled until District gives written permission to do so, and the timing of fence relocation or dismantling has been agreed upon. Where fences must be maintained across the construction easement, adequate gates shall be installed. Site Enclosure Fence: Contractor shall furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gate.

e. Contractor will be responsible for maintaining security by limiting number of keys and restricting distribution to authorized personnel.

f. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft and similar violation of security.

g. Contractor shall provide secure lockup for stored materials and equipment which are of value or attractive for theft.

h. Contractor shall be responsible for project security for materials, tools, equipment, supplies and completed and partially completed Work.

i. On completion of the Work across any tract of land, Contractor shall restore all fences to their original or to a better condition, and to their original locations.

4. Temporary Protection of Public and Private Property

a. Contractor shall protect, shore, brace, support and maintain all existing underground utilities including but not limited to the following: all pipes, conduits, drains and
other underground construction uncovered or otherwise affected by construction operations.

b. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences and other surfaces structures affected by construction operations, together with all sod and shrubs in yards, planting areas, and medians, shall be restored to their original condition, wherever affected by construction operations. All replacements shall be made with new materials.

c. Contractor shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges and other public or private property, regardless of location or character, which may be caused by transporting equipment, materials, or workers to or from the Work, Site or any part thereof, whether by Contractor or Subcontractors. Contractor shall be solely responsible without adjustment of the Contract Price or the Contract Time to make satisfactory and acceptable arrangements with the District, or the agency or authority having jurisdiction over the damaged property, concerning its repair or replacement or payment of costs incurred in connection with the damage.

d. All fire hydrants and water control valves shall be kept free from obstruction and available for use at all times.

5. **Temporary Sanitary Facilities**

a. Contractor shall provide and maintain temporary sanitary toilets for use of all workers throughout the course of the Work. At a minimum, sanitary facilities shall be located at the Contractor staging area(s) and adjacent to Work areas.

b. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the Project, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least (1) toilet will be furnished for each (15) persons. Contractor shall enforce the use of such sanitary facilities by all personnel at the Site.

c. Contractor shall comply with all minimum requirements of the Contra Costa Health Department or other public agency having jurisdiction.

d. Maintain temporary facilities in a sanitary condition at all times during the Project.

e. Contractor will keep sanitary facilities free from graffiti.

f. Use of toilet facilities in the Work under construction shall not be permitted.

g. Contractor is not permitted to use existing campus toilet facilities.

h. All Portable toilets shall be located within fenced areas of the Project Site

i. Contractor shall be responsible for providing access to the temporary toilet facilities.

6. **Temporary Barriers and Enclosures**

a. Contractor shall provide barriers to prevent unauthorized entry to construction areas to allow for District’s use of the Site, and to protect existing facilities and adjacent improvements from damage during construction operations.
b. Contractor shall provide barricades as required by the Contract Documents, governing agencies, and/or field conditions in order to protect public access pathways to existing buildings scheduled to remain open during any Phase of the Work.

c. Contractor shall protect vehicular traffic, stored materials, Site, and existing structures from damage.

d. Contractor shall provide and maintain temporary enclosures to prevent public entry to any construction area, and to protect all persons using other existing buildings and portions of the Site and/or Premises Contractor shall maintain safe access to all existing facilities to remain in operation during any Phase of the Work.

7. Temporary Pollution Control
   
a. Contractor shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris and other substances resulting from construction activities. No sanitary wastes shall be permitted to enter any drain or watercourses other than sanitary sewers. No sediment, debris or other substance shall be permitted to enter sanitary sewers without authorization of the receiving sanitary sewer service and all possible Best Management Practices (BMPs) shall be taken to prevent such materials from entering any drain to watercourse. Rate of discharge for storm water may be not increased by the Project during or following construction.
   
b. In the event that dewatering of excavations is required, Contractor shall obtain the necessary approval and permits for discharge of the dewatering effluent from the local jurisdiction. Contractor shall be responsible for assuring that water quality of such discharge meets the appropriate permit requirements prior to any discharge.
   
c. Contractor shall comply with the District Storm Water Pollution Prevention Plan for this Project.

8. Construction Aids
   
a. Contractor shall furnish, install, maintain and operate all construction aids as required for the performance of the Work. Such construction aids include, but are not limited to, elevators and hoists, cranes, temporary enclosures, swing staging, scaffolding, and temporary stairs.

9. Erosion Control
   
a. Contractor shall comply with the District Storm Water Pollution Prevention Plan for this Project if applicable.
   
b. Contractor shall prevent soil erosion on the Site and adjacent property resulting from its construction activities to the maximum extent practical, including implementation of Best Management practices. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation or other operations that will disturb the natural protection.
   
c. Work shall be scheduled to expose areas subject to erosion for the shortest possible time and natural vegetation shall be preserved to the greatest extent practicable. Temporary storage, temporary construction buildings and temporary Field office buildings shall be located and construction traffic routed to minimize erosion. Contractor shall provide temporary fast-growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.
10. Vehicular and Pedestrian Traffic Controls
   a. The college campus is an active site, with vehicular and pedestrian traffic occurring at all times of the day and all days of the week. Contractors shall coordinate with District’s Representative concerning vehicular traffic associated with the construction in order to minimize disruption to college operations. Delivery trucks and large equipment shall enter the Contractors access gate and shall use the route mutually agreed upon between District and Contractor at the beginning of each Phase of work. Contractor shall provide signage directing construction and delivery traffic to this gate. Contractor shall provide information regarding sign types, size, material, text and locations to be reviewed and approved by the District Representative prior to installation.
   b. Contractor shall keep all required fire department and emergency vehicle access paths free from obstruction at all times during the Project.

11. Temporary Signage
   a. Signage must be reviewed and approved by the District and the Campus prior to installation. Contractor shall use an experienced sign company to produce all temporary signs. Install signs where indicated in Contract Documents, and as required by the District. Unauthorized signs are not permitted.
   b. Contractor shall provide temporary directional way-finding signs around the Project site to guide faculty, students, and visitors to safely navigate around construction activities at the Project site and to warn faculty, students, and visitors of potential safety hazards. Contractor shall provide a minimum of six (6) way finding signs mounted to existing walls at locations to be determined by the District and Contractor prior to the start of work at the Project Site. Signs proposed by the Contractor shall be reviewed and approved by the District and Campus prior to fabrication and installation by Contractor.
   c. In addition to way-finding signs, additional safety sign types shall include, but not be limited to: Danger/Construction Area/No Trespassing; Caution/Demolition Work in Progress; Do Not Enter/Authorized Personnel Only; Warning/Hard Hat Required Beyond this Point; Eye Protection Required Beyond this Point; Danger/Flammable Materials/ No Smoking Within 25 Feet; Danger/Keep Gate Closed; Caution/Laser Operation in Use; Caution/Overhead Work in Progress; Power Actuated Tools in Use; All Visitors Report to Job Trailer; Eye Wash Station; Authorized Access Only; Danger/No Trespassing; Caution/Construction Traffic; Caution/Pedestrian Traffic; Building Closed, and Contractor Deliveries. All signs shall be in both English and Spanish; and shall be in a quantity needed and applicable for the safety of faculty and students. The District, at its discretion, may request additional signage be provided by the Contractor. A sample safety sign type is attached at the end of this section for general guidance, but final proposed signs by Contractor shall be reviewed and approved by the District and Campus prior to fabrication and installation.
   d. Contractor shall maintain and touch-up signs so they are legible at all times.

PART 2 – PRODUCTS
2.1 MATERIALS
   Not used

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate contractor facilities where they will serve Project adequately and result in minimum interference with performance of Work. Relocate and modify facilities as required by progress of the Work during entire project including all phases of project.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. Contractor shall verify and coordinate all relocation of facilities with the District, Project Manager.

END OF SECTION 01500
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SECTION 01505
CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in
      this document, and provisions in the General Conditions and other Division 1 Specification
      Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
   A. Section 01010 – “Summary of Work”
   B. Divisions 2 through 33 Sections for Construction and Demolition Waste Management
      requirements for the work in those Sections.

1.3 SUMMARY
   A. The District has established that this Project shall generate the least amount of waste possible
      and that processes that ensure the generation of as little waste as possible due to error, poor
      planning, breakage, mishandling, contamination, or other factors shall be employed.
   B. Of the inevitable waste that is generated, as many of the waste materials as economically
      feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

1.4 WASTE MANAGEMENT GOALS FOR THE PROJECT
   A. The District has established that this Project shall minimize the creation of construction and
      demolition waste, and shall divert a minimum of 75% of Project generated waste from landfills.
      Factors that contribute to waste such as over packaging, improper storage, ordering error, poor
      planning, breakage, mishandling, and contamination, shall be minimized. Of the inevitable
      waste that is generated, as many of the waste materials as economically feasible shall be
      reused, salvaged, or recycled. Waste disposal in landfills shall be minimized. Both recycled and
      waste need to be logged and documented by volume and weight.
   B. Diversion Goals: A minimum 50% of total Project waste shall be diverted from landfill. The
      following waste categories, at a minimum, shall be diverted from landfill. These materials
      include, but not limited to:
      1. Landscape and land clearing debris (green wood materials)
      2. Asphalt pavement
      3. Gravel and aggregate products
      4. Concrete
      5. Masonry scrap and rubble (brick, concrete, masonry, stone)
      6. Metals (ferrous and nonferrous)
      7. Clean wood (dimensional lumber, sheet goods, millwork, scrap, pallets)
8. Plastics (films, containers, PVC products, polyethylene products)
9. Asphalt/Bituminous roofing
10. Insulation Materials
11. Glass (un-tempered)
12. Door and window assemblies
13. Carpet and carpet pad
14. Fibrous acoustic materials
15. Ceiling Tiles
16. Plumbing fixtures and equipment
17. Mechanical equipment
18. Lighting fixtures and electrical components
19. Cardboard packing and packaging
20. Furniture
21. Sheet Rock
22. Electronic Waste
23. Universal Waste
24. Paper

1.5 REFERENCES AND RESOURCES

A. This information is provided for Contractor’s convenience only, and the District does not warrant its accuracy. County specific information is available on the Contra Costa County Waste Reduction and Recycling web page at http://www.co.contra-costa.ca.us/depart/cd/recycle/index.html. Additional information may also be found at the county conservation web page at http://www.cccounty.us/index.aspx?NID=285. Refer to the Contra Costa County Builder’s Guide to Reuse & Recycling and the Contra Costa County Recycling Guide. Both are available from Contra Costa County. Contact Lorna Thomson at 925-674-8823 (lorna.thomson@dcd.cccounty.us) for assistance in the management of construction & demolition debris.

B. The recyclers listed below provided for the convenience of Contractor. No preference is given to the recyclers listed below. Contractor shall contact any additional resources as required to complete the work. Some of the names and numbers may be out of date, and Contractor shall not rely on the information presented in this Section in preparing its Bid or its Waste Management Plan.

1. Cardboard:
   Contact: National Recycling Corporation (510) 268-1022; California Waste Solutions (510) 836-6200; Community Conservation (510) 524-0113. May find the public will remove if made available.

2. Clean, untreated, dimensional wood and pallet wood:
   Contact: California Waste Solutions (510) 836-6200, Waste Management, Inc. (916) 374-2711.
3. Usable Palettes  
   Contact: Return to product vendors or recycle: Industrial Pallet (510) 489-4050.

4. Beverage containers:  
   Contact: California Waste Solutions (510) 836-6200.

5. Metals from banding, ductwork, piping, rebar, roofing, steel studs, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze:  
   Contact: Alliance Metals (510) 547-2408; Aaron Metals (510) 569-6767; DC Metals (510) 836-2655; Lakeside Non-Ferrous Metals, (510) 444-5466; Waste Management, Inc., (916) 374-2711.

6. Carpet and pad:  
   Contact: Return to manufacturer; donate large remnants to Habitat for Humanity (510) 251-6304 or other non-profit.

7. Paint:  
   Contact, paint recycles: E-Coat, Kelly Moore (916) 921-0165.
   Contact, hazardous waste management: Alameda County Household Waste Management Program (800) 606-6606; Safety Clean (510) 832-7942.

8. Insulation:  
   Check with manufacturer or installer for take-back programs.

9. Brick:  
   Contact, (whole bricks): A Bygone Era; Ohmega Salvage (510) 843-7368.

10. Gypsum Board:  
    Contact: Zanker Resource Management (408) 263-2383.

C. The following sources provided for references:
   1. BuildingGreen.com
   2. California Integrated Waste Management Board
   3. EPA Office of Solid Waste and Energy Response

1.6 QUALITY ASSURANCE:
   A. Regulatory Requirements. Comply with applicable requirements of the State of California, local ordinances and regulations concerning management of construction, clearing, and inert materials.
   B. Disposal Site, Recyclers and Waste Materials Processors. Use only facilities properly permitted by the State of California, and/or by local authorities where applicable.

1.7 WASTE DIVERSION DOCUMENTATION
   A. Provide the District with delivery receipts for the recovered materials and waste materials sent to the permitted recycling facilities, processing facilities, or landfill with the following information on a form to be approved by the District:
      1. Name of firm accepting the recovered materials or waste materials
2. Specify type of facility (e.g. retail facility, recycler, processor, Class III landfill, MRF)
3. Location of the facility
4. Type of materials
5. Net weights (or volume) of each type of material
6. Date of delivery

B. Application for Progress Payments: Contractor shall submit with each Application for Progress Payment a Summary of the project waste generated. Failure to submit this information shall render the Application for Payment incomplete and shall delay Progress Payment. The District and its representatives shall not be responsible for delaying Progress Payments. With each Application for Payment, submit required Progress Documentation, including:
   1. manifest,
   2. weight tickets,
   3. receipts,
   4. and invoices specifically identifying the project and waste material.

PART 2 - PRODUCTS
Not Used

PART 3 - EXECUTION

3.1 STORAGE AND HANDLING

A. Site Storage
   1. Remove materials for recycling and recovery from the work locations to approved containers or storage area as required. Failure to remove waste or recovered materials will be considered cause for withholding payment and termination of Contract.
   2. Position containers for recyclable and recoverable waste materials at a designated location on the Project Site. If materials are sorted on site, also provide a sorting area and necessary storage containers.
   3. Change-out loaded containers for empty containers, as demand requires.
   4. If recovered materials are stored on-site for project duration provide adequate security from pilferage.

B. Handling
   1. Deposit indicated recyclable, and recoverable materials in storage areas or containers in a clean (no mud, adhesive, solvents, petroleum contamination), debris-free condition. Do not deposit contaminated materials into the containers until such time as such materials have been cleaned.
   2. Insure all recovered materials are made safe for handling and storage.
   3. If the contamination chemically combines with the material so that it cannot be cleaned, do not deposit into the recycle containers. In such case, request resolution by the C&D Quality Manager for disposal of the contaminated material. Directions from the C&D Quality Manager do not relieve the Contractor of responsibility for compliance with all
legal and regulatory requirements for disposal, nor shall such directions cause a request for modification of the Contract.

3.2 PROJECT CONDITIONS

A. Site Condition:

1. Signs and instructions should be clear, and easy to understand. All recycling containers should be clearly labeled and lists of acceptable and unacceptable materials will be posted throughout the site. Whenever possible, they should be in multiple-languages, especially in Spanish, and in graphic symbols.

2. The Contractor shall ensure the safety of all personnel involved in the waste management process.

3. A site management plan shall be created including: work areas, materials processing areas, materials storage and disposal areas, worker hand-washing and changing stations, first aid and medical information.

END OF SECTION 01505
SECTION 01540
SITE SECURITY AND SAFETY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS
A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in
this document, and provisions in the General Conditions and other Division 1 Specification
Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
A. Section 01010 – “Summary of Work”
B. Section 01311 – “Project Management and Coordination”
C. Section 01410 – “Regulatory Requirements”
D. Section 01412 – “Hazardous Materials”
E. Section 01416 – “Special Procedures”
F. Section 01500 – “Temporary Facilities and Controls”
G. Section 01770 – “Contract Closeout Procedures”
H. Section 01780 – “Project Record Documents”
I. Divisions 2 through 33 Sections for Site Security and Safety requirements for the work in
those Sections.

1.3 SUMMARY
A. This Section specifies the requirements for Site safety and security.

1.4 CONTRACTOR RESPONSIBILITIES
A. The Contractor is constructive owner of Project site.
B. The 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 protection of all
materials delivered and work performed until completion and final acceptance by the District.
C. All work shall be solely at the Contractor’s risk, with the exception of damage to the work
caused by "acts of God" as defined in Public Contract Code Section 7105(b)(2).
D. The Contractor shall be solely responsible for initiating, maintaining and supervising all safety
programs required by applicable law, ordinance, regulation or governmental orders in
connection with the performance of the Contract, or otherwise required by the type or nature
of the Work.
E. Without limiting or relieving the Contractor of its obligations hereunder, the Contractor shall require that its Subcontractors similarly initiate and maintain all appropriate or required safety programs.

F. Contractor shall take, and require all subcontractors to take, all necessary precautions for safety of workers on the Work 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.

G. In addition to meeting all requirements of OSHA, Cal-OSHA, state, and local codes, Contractor shall furnish, erect and properly maintain at all times, as directed by District or Architect or required by conditions and progress of work, all necessary safety devices, safeguards, construction canopies, signs, audible devices for protection of the blind, safety rails, belts and 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.

H. The Contractor and Subcontractors shall continuously protect the Work, the District’s property, and the property of others, from damage, injury, or loss arising in connection with operations under the Contract Documents. The Contractor and Subcontractors, at their own expense, shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the District.

I. Contractor shall maintain protection as necessary to protect the Work, as a whole and in part, and adjacent property and improvements from accidents, injuries or damage.

J. Contractor shall protect the Work, material, and/or equipment to be incorporated therein, whether in storage on or off the Site, and under the care, custody, or control of the Contractor or the Contractor’s Subcontractors.

K. 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, such violation shall be corrected promptly.

L. Contractor shall require that Subcontractors participate in, and enforce, the safety and loss prevention programs established by the Contractor for the Project, which will cover all Work performed by the Contractor and its Subcontractors.

1.5 SAFETY PROGRAM

A. Prior to commencing Work at the Site, Contractor shall submit a Safety Program Plan specifically tailored for this Project and this Site that has been reviewed and approved by an Industrial Hygienist certified by the American Board of Industrial Hygiene or a Certified Safety Professional. The Safety Program Plan shall include the name, certification number, and certification seal of the Industrial Hygienist or Certified Safety Professional. Comply with the Safety Program and all applicable federal, state, and local regulation codes, rules, law and ordinances during the course of the Work.

B. The Contractor’s Safety Program Plan shall include all actions and programs necessary for compliance with California or federally statutorily mandated workplace safety programs, including without limitation, compliance with the California Drug Free Workplace Act of 1990 (California Government Code SS 8350 et seq).
C. Plan shall comply with the requirements of the Occupational Safety and Health Act, and other applicable federal, state and local standards.

D. Contractor shall keep copies of all health and safety-related plans on the Project Site at all times.

E. Receipt and/or review of the Safety Program Plan by District or Architect shall not relieve Contractor of any responsibility for complying with all applicable safety regulations.

F. It is essential that Contractor and each Subcontractor implement an effective and vigorous site specific Safety Program for the Work.

G. The Contractor shall have sole responsibility for Project safety, and shall be solely responsible for providing a safe workplace

H. Safety Program Plan Components:

1. Injury and Illness Prevention Program (IIPP): Conforming to the General Industrial Safety Orders (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 3203), and the California Labor Code (Section 6401.7).

2. Site-Specific Safety and Health Plan (SSHP): This Plan shall describe the health and safety procedures that shall be implemented during the Work in order to ensure safety of the public and those performing the Work. Follow the guidelines for a SSHP listed in CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5192, Item (b)(4)(f).

3. Permit-Required Confined Space Program: (CCR Title 8, Division 1, Chapter 4, Subchapter 7, Section 5157). Permit-required space entry is allowed only through compliance with a permit-required confined space program meeting the requirements of Section 5157 of the General Industrial Safety Orders. During entry operations, or at the conclusion of entry operations, verbally notify Engineer of the permit space program followed, and of any hazards confronted or created in permit-required spaces during entry operations.

4. A written and certified workplace hazard assessment as required by OSHA and Cal OSHA, updated on a regular basis, and maintained on site. The certified hazard assessment shall be made available immediately upon request by the District, the Architect, or the Inspector of Record.

I. Supply sufficient hard hats to properly equip all employees, workers, and visitors. Hard hats shall be mandatory as per CAL OSHA Construction Safety orders.

J. Whenever an exposure exists, appropriate personal protective equipment (PPE) shall be used by all affected personnel. Contractor shall provide PPE to all personnel under Contractor’s direction and responsibilities.

K. After review by District and Architect, the implementation and enforcement of all Safety-related plans shall become the responsibility of the Contractor and Site Safety Officer. The Contractor shall notify the District in writing of any changes to Safety-related plans.

1.6 SAFETY PRECAUTIONS

A. The Contractor shall be solely responsible for initiating and maintaining reasonable precautions for safety of, and shall provide reasonable protection to prevent damage injury or loss to:

1. Employees on the Work and other persons who may be affected thereby
2. The Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor’s Subcontractors or Sub-subcontractors

3. Other property or items at the site of the Work, or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction. The Contractor shall take adequate precautions and measures to protect existing roads, sidewalks, curbs, pavement, utilities, adjoining property and improvements thereon (including without limitation, protection from settlement or loss of lateral support) and to avoid damage thereto. Without adjustment of the Contract Price or the Contract Time, the Contractor shall repair, replace or restore any damage or destruction of the foregoing items as a result of performance or installation of the Work.

4. The Contractor shall at all times maintain good housekeeping practices to reduce the risk of fire damage.

5. Good housekeeping practices shall be maintained continually on all areas of the Project Site and the Work. District may request that the Contractor hire additional staff or help until housekeeping in a work or storage area is improved. All scrap materials, rubbish and trash shall be removed daily and shall not be permitted to be scattered on adjacent property.

B. Suitable storage space shall be provided outside immediate building areas for storing flammable materials and paints.

C. A fire extinguisher shall be available at each location where cutting or welding is being performed. Where electric or gas welding or cutting work is done, interposed shields of incombustible material shall be used to protect against fire damage due to sparks and hot metal. When temporary heating devices are used, a watchman shall be present to cover periods when other workmen are not on the premises.

D. The Contractor shall provide fire extinguishers in accordance with all OSHA and Cal OSHA requirements, and the recommendations NFPA Bulletins Nos. 10 and 241.

1.7 REQUIREMENTS FOR EXISTING SITES

A. Provide substantial barricades around any shrubs or trees indicated to be preserved.

B. Deliver materials to building area over route(s) designated by Architect.

C. Take preventive measures to eliminate objectionable dust, noise, or other disturbances.

D. Confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits or directions of Architect; and not interfere with the Work or unreasonably encumber premises or overload any structure with materials; and enforce all instructions of District and Architect regarding signs, advertising, fires, and smoking and require that all workers comply with all regulations while on the Project site.

E. Take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed by accident, they shall be replaced by a licensed land surveyor or civil engineer, and all lawfully required maps and records shall be filed with county and local authorities at no cost to the District. All related filing and plan check fees shall be paid by Contractor.
F. 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. All permits, licenses, or inspection fees required for such repair Work shall be obtained and paid for by Contractor.

G. The Contractor, at Contractor's expense, will remove all mud, water, or other elements as may be required for the proper protection of existing improvements, and prosecution of the Work.

H. Protect all other property at the Site or adjacent thereto as required, such as trees, shrubs, lawns, walks, pavement, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

1.8 SAFETY AND EMERGENCY CONDITIONS

A. Emergency Action: In an emergency affecting the safety of persons or property, the Contractor shall take any action necessary, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided herein. Emergency conditions shall be any condition at the Site which has the actual or potential for significant adverse effects to persons or property, whether or not resulting from the Contractor's operations.

B. Accident Reports: The Contractor shall promptly report in writing to the District all accidents arising out of or in connection with the Work, which caused death, personal injury, or property damage, giving full details and statements of any witnesses. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported immediately by telephone or messenger to the District and Campus Police Department.

C. The District's Representatives and Project Inspector, as appropriate, shall be notified of the existence of such a condition, but shall not be called upon to perform any emergency service. The fact that the District may not respond to the emergency condition shall not be used as an excuse by the Contractor to neglect immediate action; nor will the District or its Representatives be liable for any resulting condition. The fact that a representative of the Contractor may not be present when emergency conditions occur shall not relieve the Contractor from an immediate response to the situation which shall return the disruption to normalcy.

D. If the emergency circumstances are not the result of any fault or neglect of the Contractor, the Contract time shall be adjusted to reflect the actual direct effect of such actions to the then critical path of the Construction Progress Schedule. The foregoing notwithstanding, adjustments of the Contract Price or the Contract Time for actions taken by the Contractor in response to emergency circumstances shall be subject to the Contractor's strict compliance with all other applicable provisions of the Contract Documents relating to notices and time for delivery of notices.

1.9 SAFETY SIGNS AND BARRICADES

A. The Contractor shall erect and maintain, as required by existing conditions and conditions resulting from performance of the Contract, reasonable safeguards for safety and protection
of property and persons, including, without limitation, posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Districts and users of adjacent sites and utilities.

B. Contractor shall properly protect the Work:
   1. With lights, guard rails, fencing, temporary covers and barricades.
   2. Enclose excavations with proper barricades.
   3. Brace and secure all parts of the Work against to protect against inclement weather and to prevent accidents.

C. Provide such additional forms of protection that may be necessary under during the course of the Work.

D. Contractor shall provide and maintain in good condition all protective measures required to adequately protect the public from hazards resulting from the Work. When regulated by Building Code, Cal OSHA, or other authority, such legal requirements for protection shall be considered as minimum requirements. Contractor shall be responsible for the protection in excess of such minimum requirements as required.

E. Contractor shall prevent unauthorized persons from the entering the Work Site(s).

1.10 CONTROL OF SITE

A. Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances are present on the Project Site. Contractor shall immediately remove from the Site and terminate from this Project the employment of any employee found in violation of this provision.

1.11 SITE SECURITY

A. Contractor shall take and be fully responsible for all reasonably required measures to protect and maintain the security of persons, existing facilities, and property at the Site, including prevention of theft, loss, and/or vandalism by persons lawfully present on the Site, including non-working times. Contractor’s measures shall include, at a minimum, maintaining a log of all persons entering and leaving the Site, who they represent, what they are delivering, and to whom.

B. No claim shall be made against District by reason of any act of an employee or trespasser, and Contractor shall repair all damage to District’s property resulting from Contractor’s failure to provide adequate security measures.

C. Contractor shall maintain a lock on all Construction access gate at all times. Contractor shall appoint one person to monitor access through the gate and maintain the sign-in/out list. Alternatively, Contractor may provide a full-time security guard at the gate to control access and maintain the sign-in/out list. The sign in/out list shall be available to District at anytime upon request. If District determines that the gate has been left unlocked, Contractor shall, if requested by District, provide a full time guard at no additional expense to the District.

D. The Contractor and the Subcontractors shall use only those ingress and egress routes designated by the District, observe the boundaries of the Site designated by the District, park only in those areas designated by the District, which areas may be on or off the Site, and
comply with any parking control program established by the District, such as furnishing license plate information and placing identifying stickers on vehicles.

E. Contractor shall supply all security fencing, barricades, lighting, and other security measures as required to protect and control the Site.

F. The Contractor shall be responsible for providing security services for the Site as needed for the protection of the Site and as determined in the District’s sole discretion.

1.12 OPERATORS OF MOBILE EQUIPMENT SAFETY

A. Under Federal and State Safety requirements, Contractor must certify that all operators of mobile equipment including but not limited to forklifts, cranes, man-lifts, scissor and boom lifts, and similar equipment are required to have been trained and/or certified on the proper operation of such equipment. Copies of equipment training and certification records shall be forwarded, upon request, to District, Project Manager and Architect.

1.13 SAFETY REQUIREMENTS

A. Contractor shall meet and comply with requirements of current local, State and Federal regulations.

B. Contractor shall meet and comply with the following rules:

1. The Contractor will provide and maintain at the Site first-aid supplies that comply with the current Occupational Safety and Health Regulations.

2. Hard hats shall be worn at all times. (This includes welders when using welding hoods)

3. Sleeved shirts shall be worn at all times. (No tank tops)

4. If required, Fire Retardant Clothing (FRC) shall be supplied by Contractor for all their employees.

5. One Hundred Percent (100%) Fall Protection Policy: All subcontract employees shall comply with Fall Protection Policy. The Policy simply states “Anytime employees are working from an unprotected elevation of six (6) feet or more, fall protection must be used.” Working, as stated above, means while traveling, stationary, or anytime exposed to a fall from a surface not protected by approved handrails, cable or some other approved fall elimination device. Adherence to this policy is a requirement of your Subcontract.

C. Hazards Control:

1. When use or storage of any hazardous materials or equipment, or unusual method is necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall notify the District any time that explosives or hazardous materials are expected to be stored on Site. Location of storage shall be coordinated with the District and local fire authorities.

2. Store volatile wastes in covered metal containers and remove from premises daily.

3. Prevent accumulation of wastes that create hazardous conditions.

4. Provide adequate ventilation during use of volatile or noxious substances.

D. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
1. Do not burn or bury rubbish or waste material on the Site.
2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
3. Do not dispose of wastes into streams or waterways.

E. Provide accident information on the forms provided by Contractor. This information shall be provided on the same day as the occurrence of said incident, and shall be submitted to District within a reasonable time.

1.14 ADDITIONAL SAFETY CONTROLS

A. According to industry practices, it is the responsibility of the Contractor and subcontractors of every tier to exercise reasonable care to prevent work-related injuries and property and equipment damage at the Project site, as well as minimize risk to the public and third-party property. The Contractor, all sub-contractors, suppliers, and installers shall undertake loss control prevention practices according to the requirements set forth by federal, state and city laws, statutes, and the specific procedures developed for this Project.

B. Contractors and subcontractors participating in the project will be expected to comply with the following safety and loss control requirements:

1. All sub-contractors, suppliers, and installers shall identify their contact person(s) to the Contractor.
2. Follow District procedures regarding dealing with the media, including, but not limited to, TV, Radio, and Newspaper.
3. All construction employees will be required to be attired in workpants, shirt and appropriate boots or closed toe shoes.
4. Smoking is prohibited on the Project site.
5. Controlling access to the construction site is a very high priority, and Contractors will be required to take whatever preventative measure, such as barriers, fencing, etc., as outlined in the contract specifications.
6. Construction personnel cannot enter District property other than the construction site unless accompanied by District personnel, and they are allowed only ‘incidental’ contact with students. Violations of these requirements by any construction employee will result in a mandatory background check of that employee – including fingerprinting – as required by state law.
7. Fall protection is mandatory on all projects in accordance with CAL OSHA, OSHA and any other Local, State, and Federal appropriate code and requirements.
8. Personal radios, headsets, walkmans and CD players are not allowed on the job-site.
9. All Contractors must attend the pre-construction safety meeting.
10. No sexual reference or preference shall be permitted on any piece of clothing or the hardhat. Any employee observed disregarding this policy shall be removed from the job site until further notice from the District.

11. Contractor personnel and subcontractor personnel at all levels will refrain from interacting with campus staff or students unless required to prevent an unsafe situation. Personnel found speaking to staff or students for any reason unrelated to the Work or Safety shall be removed from the site and not be allowed to return.
12. All contractors’ employees shall park in their designated parking area. Any sticker attached to the employees’ vehicle that displays any form of sexual preference or reference shall be removed prior to parking at the site. Each employee will provide their license plate number to the Contractor. Any employee disregarding this policy shall be removed from the site until further notice from the District.

13. The Contractor shall control the break time activities of the employees to assure the cleanup of all soda cans, food wrappers, plastic bottles, or food containers from the break area. Such areas shall be cleaned immediately after the break and all waste placed in trash receptacles.

14. Theft or willful damage to any property of the District, student, or other campus or District personnel will be prosecuted fully by the District.

15. No guns, switchblades, or knives with blades greater than two inches shall be allowed on the job site. Any employee disregarding this policy shall be removed from the site until further notice from the district.

C. The Contractors and all sub-contractors, suppliers and installers participating in the Project will further be expected to comply with the following safety and loss control requirements:

1. The Emergency Response Plans (with particular emphasis on access and egress routes).

2. Any Contractors’ employee observed providing or selling cigarettes or other smoking materials to students shall be removed from the job site until further notice from the District.

3. All Contractors will agree to conduct and fund post-injury drug screening of their employees. Those employees failing the test will be removed permanently from the job site.

4. The District has the right to instruct the Contractor to correct an unsafe act or condition. If the Contractor fails to correct the unsafe act or condition within the requested time frame, the District or its representative may have the condition corrected and bill the non-compliant contractor for the costs associated with the correction.

5. The District may require a follow-up meeting or contact if there is a death, serious and willful claim, serious disabling injury, adverse loss experience, major fire, or serious third party claim.

6. Any contractor displaying, in the opinion of the Contractor or District, a repeated disregard for safety can be removed from the job-site.

D. All Contractors will advise those non-English speaking employees in their native language either in a written format or via an interpreter of these policies.

1.15 HAZARD COMMUNICATION PROGRAM SAFETY

A. Contractor shall have a copy of the Contractor’s Hazard Communication Program which shall be forwarded to the District, Project Manager and Architect, and a copy is required to be in the possession of the Contractor on the Site. Documentation of employee Hazard Communication Training must be established by the Contractor prior to commencement of work.

B. Any potential hazardous material or chemical brought onto the project is required to be accompanied by a Material Safety Data Sheet (MSDS). Copies of the MSDS shall be
forwarded to the District, Architect, Project Manager and Project Inspector before the product is brought onto the project.

C. Contractor is required to have material safety data sheets available in a readily accessible place at the job 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 properly label any substance brought into the job site, and require 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.

D. Contractor is required to comply with the provisions of California Health and Safety Code section 25249, et seq., which requires the posting and giving of notice to persons who may be exposed to any chemical known to the State of California to cause cancer. The Contractor agrees to familiarize itself with the provisions of this section, and to comply fully with its requirements.

E. Contractor shall notify the District, Architect, Project Manager and Project Inspector before any chemical/material creating noxious or toxic fumes is used.

1.16 SHORING AND STRUCTURAL LOADING

A. The Contractor shall not impose structural loading upon any part of the Work under construction or upon existing construction on or adjacent to the Site in excess of safe limits, or loading such as to result in damage to the structural, architectural, mechanical, electrical, or other components of the Work.

B. The design of all temporary construction equipment and appliances used in construction of the Work and not a permanent part thereof, including, without limitation, hoisting equipment, cribbing, shoring, and temporary bracing of structural steel, is the sole responsibility of the Contractor. All such items shall conform with the requirements of governing codes and all laws, ordinances, rules, regulations, and orders of all authorities having jurisdiction.

C. The Contractor shall take special precautions, such as shoring of masonry walls and temporary tie bracing of structural steel work, to prevent possible wind damage during construction of the Work. The installation of such bracing or shoring shall not damage the Work in place or the Work installed by others. Any damage which does occur shall be promptly repaired by the Contractor at no cost to the District.

1.17 SAFETY AND ELECTRICAL STANDARDS

A. The Contractor shall comply with all safety and electrical standards to ensure that all its employees are protected by Ground Fault Circuit interrupters as required, throughout the course of the Contractor’s work.

B. The Contractor is responsible for installation of any and all temporary power service for the project and shall provide it with Ground Fault Interrupter Protection with no additional cost to the District.

1.18 HAZARDOUS SUBSTANCES

A. No asbestos or asbestos-containing products shall be used in this construction or in any tools, devices, clothing, or equipment used to effect this construction. See Section 01412, Hazardous Materials.
B. The Contractor shall not receive, use or store at the Site any hazardous substance unless contained in a container labeled with the original label applied by the Manufacturer of such substance. The Contractor shall maintain at the Site and forward to the District, Architect, Project Manager and Project Inspector copies of the most current material safety data sheets with respect to each hazardous substance received, used or stored at the Site by the Contractor.

C. The Contractor shall immediately forward to the District, Architect, Project Manager and Project Inspector any updated material safety data sheets.

D. The Contractor shall properly label and inform the District, Architect, Project Manager and Project Inspector of, any pipes or piping systems containing hazardous substances used or maintained at the Site by the Contractor. Prior to the receipt of such materials at the Site, the contractor shall submit a list of all materials which the Contractor intends to receive, use or store at the Site that are classified as hazardous substances pursuant to applicable federal, state or local Employee or Community Right to Know statutes, regulations or requirements.

1.19 SAFETY SURVEYS

A. Inspector of Record may conduct periodic safety surveys of the project. Any safety discrepancy observed will be reported to the appropriate Contractor Site Safety Representative for immediate correction.

B. District, Architect, and/or Inspector of Record safety surveys do not, without any limitation, relieve the Contractor of their primary responsibility to self-inspect the Work and equipment, and to conduct the Work in a safe manner.

C. Contractor shall provide the District, Architect, and Project Inspector with Monthly Contractor Accident Statistics Reports.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01540
SECTION 01572

STORM WATER POLLUTION PREVENTION — LESS THAN AN ACRE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED DOCUMENTS SPECIFIED IN OTHER SECTIONS

A. Section 01010 – “Summary of Work”
B. Section 01015 – “Project Phasing”
C. Section 01050 – “Field Engineering”
D. Section 01330 – “Submittal Procedures”
E. Section 01410 – “Regulatory Requirements”
F. Divisions 2 through 33 Sections for Storm Water Prevention Plan requirements for the work in those sections.

1.3 SUMMARY OF WORK

A. Contractor is advised that the Work disturbs less than one acre of land and therefore is not subject to the requirements of the Statewide General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (CGP), issued by the State Water Resources Control Board (SWRCB). However, BMPs indicated in the BMP Handbook needed to prevent or minimize storm water pollution shall be submitted to the District as a BMP Plan, and implemented at no extra cost to the District.

B. If at any time during construction the disturbed area exceeds one acre, the requirements of the SWRCB will be enforced including the development of a SWPPP.

C. Within two weeks after Award of Contract by the District, the Contractor shall submit to the District one copy of the SWPPP or BMP Plan for review. After the District’s approval, the Contractor shall provide approved copies of the SWPPP or BMP Plan as follows: one copy each to the District’s Construction Inspector, District’s Construction Manager, District Architect, and District’s Civil Engineer.

D. See General Conditions Article 13.12, Storm Water Pollution Prevention, for other requirements when applicable.

1.4 STORM DRAIN NOTICE
A. Storm drains discharge directly to creeks and the Bay without treatment. Discharge of pollutants (any substance, material, or waste other than uncontaminated storm water) from this Project into the storm drain system is strictly prohibited by the California Regional Water Quality Control Board’s (RWQCB) Water Quality Control Plan.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide all materials and equipment necessary to fulfill all requirements of the Storm Water Pollution Prevention Plan or BMP Plan during execution of the Work or any Phase of the Work.

2.2 REPORTS AND LOGS

A. Provide and maintain all report, logs, and other data as required by the Storm Water Pollution Prevention Plan or BMP Plan. Make copies available to governing agencies and/or District as requested.

2.3 CONTACT INFORMATION

A. Provide the name and contact information for the individual responsible for implementing and updating, as required, the SWPPP or BMP Plan.

PART 3 - EXECUTION

3.1 COMPLIANCE

A. Comply with all requirements of the Storm Water Pollution Prevention Plan or BMP Plan during the Work or any Phase of the Work.

3.2 PERSONNEL TRAINING

A. The Contractor shall train its employees working on the Project on the requirements contained in this Section and in the SWPPP or BMP Plan. The Contractor shall document this training in writing and make copies available to the District as requested.

B. The Contractor shall inform all Subcontractors of the SWPPP or BMP Plan requirements contained in this specification and include appropriate Subcontract provisions to ensure that these requirements are met.

END OF SECTION 01572
SECTION 01785
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 1 Specification Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS

A. Section 01010 – “Summary of Work”
B. Section 01740 – “Warranties and Guaranties”
C. Section 01770 – “Contract Closeout Procedures”
D. Section 01780 – “Project Record Documents”
E. Divisions 2 through 33 Sections for Operation and Maintenance Data requirements for the work in those Sections.

1.3 SUMMARY

A. This section includes administrative and procedural requirements for Operation and Maintenance (O&M) data and documents.

1.4 FORMAT

A. Contractor shall compile O&M manuals for all building equipment including mechanical, plumbing and electrical equipment, commissioned or not.
B. Submit O&M Data specifically applicable to this contract and a complete and concise depiction of the provided equipment, product, or system, stressing and enhancing the importance of system interactions, troubleshooting, and long-term preventative maintenance and operation. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01330 SUBMITTAL PROCEDURES.

1. Package Quality. Documents must be fully legible. Poor quality copies and material with hole punches obliterating the text or drawings will not be accepted.

2. Package Content. Data package content shall be as shown in the paragraph titled "Schedule of Operation and Maintenance Data Packages." Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission.

3. Changes to Submittals. Manufacturer-originated changes or revisions to submitted data shall be furnished by the Contractor if a component of an item is so affected subsequent to acceptance of the O&M Data. Changes, additions, or revisions required by the Architect or District Project Manager for final acceptance of submitted data, shall be
submitted by the Contractor within 30 calendar days of the notification of this change requirement.

1.5 SYSTEMS COVERED

A. The Contractor shall supply the required information for all systems identified in the technical specification sections and in this section. A separate manual or chapter shall be provided for each applicable system, including but not limited to:
   1. Emergency Generator Systems
   2. Switchgear, Transformers, Panel boards, Motor Control Centers and Motor Starters
   3. Public Address, Closed Circuit TV, Communication and Telephone Systems
   4. Building Management/Temperature Control System (BMS)
   5. Fuel System
   6. Doors and Hardware
   7. Power monitoring systems

1.6 COMPUTER PROGRAMS

A. When any equipment requires operation by computer programs, submit copy of original program on CD, with a hard-copy and an electronic copy (Adobe PDF format) of all user manuals and guides for operating the programs. Program shall be Windows XP compatible. Provide required licenses to District at no additional cost.

1.7 SUPPLEMENTAL DATA

A. Contractor shall prepare written text and/or special drawings to provide necessary information when manufacturer’s standard printed data is not available and/or additional information is necessary for a proper understanding and operation and maintenance of equipment or systems, or when it is necessary to supplement data included in the manual or Project documents.

1.8 SCHEDULE OF INFORMATION FOR OPERATION AND MAINTENANCE DATA PACKAGES

A. Supply all of the following, when and where applicable, for each O&M data package:
   1. Safety precautions
   2. Operator prestart
   3. Startup, shutdown, and post-shutdown procedures
   4. Normal operations
   5. Emergency operations
   6. Operator service requirements
   7. Environmental conditions
   8. Lubrication data
   9. Preventive maintenance plan and schedule
   10. Cleaning recommendations
   11. Troubleshooting guides and diagnostic techniques
   12. Wiring diagrams and control diagrams
13. Maintenance and repair procedures
14. Removal and replacement instructions
15. Spare parts and supply list
16. Special tools required to service or maintain the equipment
17. Corrective maintenance man-hours
18. Product submittal data
19. O&M submittal data
20. Parts identification
21. Warranty information
22. Personnel training requirements
23. Testing equipment and special tool information
24. Testing and performance data
25. Installing Subcontractor information

PART 2 – PRODUCTS
Not Used.

PART 3 – EXECUTION
Not Used.

END OF SECTION 01785
SECTION 01820

DEMONSTRATION AND TRAINING PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
   A. All Contract Documents shall be reviewed for applicable provisions related to the provisions in
      this document, and provisions in the General Conditions and other Division 1 Specification
      Sections shall apply to this Section without limitation.

1.2 RELATED REQUIREMENTS SPECIFIED IN OTHER SECTIONS
   A. Section 01010 – “Summary of Work”
   B. Section 01770 – “Contract Closeout Procedure”
   C. Division 2 through 33 Sections for Demonstration and Training requirements for the work in
      those Sections

1.3 SUMMARY
   A. This Section includes administrative and procedural requirements for instructing District’s
      personnel, including the following:
      1. Demonstration of operation of systems, subsystems, and equipment
      2. Training in operation and maintenance of systems, subsystems, and equipment
      3. Demonstration and training videos

1.4 SUBMITTALS
   A. At completion of training, provide two complete training manuals for the District’s use.
   B. Attendance Record: For each training module, provide list of participants and length of
      instruction time.

1.5 QUALITY ASSURANCE
   A. Instructor Qualifications: A factory-authorized service representative or District approved
      equivalent, complying with requirements in Section 01400 (Quality Control Requirements,) and
      experienced in operation and maintenance procedures and training for Project specific systems
      and equipment.
   B. Contractor shall coordinate instruction schedule and verify availability of educational materials,
      instructor’s personnel, audiovisual equipment, and facilities needed to avoid delays.
   C. For instruction that must occur outdoors, review weather forecast and provide alternatives if
      conditions are unfavorable.

1.6 COORDINATION
   A. Contractor shall coordinate instruction schedule with District Project Manager.
B. Provide written notice (15) working days in advance to Project Manager, District and Architect prior to any scheduling instruction sessions. District Project Manager shall furnish Contractor with names and positions of intended participants.

PART 2 - PRODUCT

2.1 INSTRUCTION PROGRAM

A. Program Structure: Contractor shall develop and provide instruction program that includes group training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:

1. Electrical service and distribution including, but not limited to, the following:
   a. Transformers
   b. Switchboards
   c. Circuit breakers
   d. Relays
   e. Panelboards
   f. Uninterruptible power supplies
   g. Motor controls
   h. Metering devices
   i. BAS monitoring devices
   j. Sump pumps
   k. Lighting Fixture equipment and controls

B. Training Modules: Contractor shall develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:

1. Review basis of system design
2. Operational requirements and criteria, including:
   a. System, subsystem, and equipment descriptions
   b. Operating standards
   c. Regulatory requirements
   d. Operating characteristics
   e. Limiting conditions
   f. Performance curves
3. Detailed review of documentation, including:
   a. Emergency manuals and procedures
   b. Operations manuals and procedures
   c. Maintenance manuals and procedures
   d. Identification systems
   e. Warranties and Guarantees
   f. Maintenance service agreements and similar continuing commitments
g. Normal shutdown instructions  

h. Required sequences for electric or electronic systems  

i. Special operating instructions and procedures  

j. Troubleshooting and diagnostics  

k. Test and inspection procedures  

PART 3 - EXECUTION  

3.1 PREPARATION  

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.  

B. Set up as required at instructional location.  

END OF SECTION 01820
SECTION 02 41 13
SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

B. Refer to other sections to determine extent of related work, and coordinate work to produce complete project.

1.02 WORK DESCRIPTION

The work shall consist of the removal of asphaltic concrete paving, concrete ditch, curb and gutter, catch basins and energy dissipator box, trees, underground utilities, and miscellaneous existing facilities and any incidental demolition and removal which may be required to complete the work indicated by the drawings and specifications. Designated items to be salvaged including yard light and light standard, shall be stored on site or at District’s approved locations as directed by the District’s Representative. Items to be salvaged are to be utilized by the District.

No work required under this section which affects the operation and/or use of existing systems or facilities shall be commenced until a schedule for shutdowns or interruptions of service has been approved by the District’s Representative.

Prior to start of demolition work, erect necessary barricades and secure gates as required to separate construction site from existing facilities or public area for safety of works, tenants, occupants and others.

1.03 APPLICABLE PUBLICATIONS

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

A. State of California: California Construction Safety Orders.

1.04 PERMITS

The Contractor shall obtain the necessary permits and licenses for disposal of debris.

Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear

Section 02 41 13 - Page 1 of 4
Selective Site Demolition
1.05 DUST CONTROL

Contractor shall take appropriate action to check the spread of dust and to avoid the creation of a nuisance in the surrounding areas. Comply with all dust regulations imposed by local air pollution agencies.

1.06 PROTECTION

A. Buildings and Facilities: Protect existing work that is to remain in place, or is to be reused, by temporary covers, bracing and/or supports. Repair items damaged during performance of the work or replace in kind with new material.

B. Barricades and Lights: Where directed, where required for protection or personnel, where required for public safety, or as required by law, substantial barricades shall be provided for the areas where demolition work is being performed. In addition, battery powered warning lights shall be maintained on such barricades whenever visibility is restricted and at night.

C. Regulations: Local fire, security and safety regulations shall be followed. Blasting will not be permitted. Fires and burning will not be permitted. Any damage facilities, structures or other property that is not to be demolished shall be replaced or renewed at the Contractor’s expense. California Construction Safety Orders regarding demolition shall be followed.

1.07 MATERIAL STORAGE

A. Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Dispose excess soil material and waste materials as specified.

PART 2 - PRODUCTS

2.01 MATERIALS FOR REPAIR AND REPLACEMENT WORK

Materials for repair or replacement work shall match existing material in quality, design and finish. Where existing material cannot be matched, the Contractor shall provide material acceptable to the District’s Representative.
PART 3 - EXECUTION

3.01 DEMOLITION

A. General: Waste material of all types shall be disposed off the site at legal dump sites.

B. Concrete: Concrete shall be removed as required or as directed. Reinforcing bars and dowels shall be burned or cut off flush unless otherwise noted on the drawings. Concrete shall be sawcut where adjacent work is to remain in place. Cuts shall be deep enough to preclude spalling of exposed edges and surfaces during removal operations. Saw cuts shall be made at nearest existing score joint where new Portland cement concrete construction interfaces with existing.

C. Asphalt Pavement: Asphalt concrete pavement shall be saw cut to a true line, rough or ragged edges shall be neatly trimmed back to the true vertical plane.

D. Piping: Piping and appurtenances shall be removed as indicated on the drawings and as required to accommodate the new work. If existing piping is to be abandoned in place, the cut ends shall be filled with sand, lean concrete or grout, capped and sealed.

3.02 REPAIR WORK

Portions of existing work which have become exposed, cut, damaged or altered in any way during the demolition work shall be finished and restored in an approved manner to match the existing adjacent work. Excavations, holes and depressions shall be filled and the areas leveled to finished adjacent grade. Fill shall be compacted as specified in Section 32 12 16, Asphalt Concrete Paving.

3.03 CLEAN UP

The areas affected by the work under this Contract shall be kept clean to permit safe pedestrian and vehicular traffic. Upon completion of demolition operations, areas involved shall be cleaned of all debris and construction materials.

END OF SECTION 02 41 13
SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.02 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

1. Section 312000 "Earth Moving" for fill and drainage under slabs-on-grade.

1.03 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.

1. Location of construction joints is subject to approval of the Contra Costa Community College District.

E. Product Data Information/Manufacturer Specifications of the following items shall be submitted to the Engineer of Record for review prior to procurement or installation:
1. Sika Swellstop for waterstop.
2. Sikadur 32 for adhesive and bonding agent.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data:
   1. Approved Special Inspector
   2. Approved Testing Lab
   3. Certified Reinforcement Welders

B. Welding certificates.

C. Material Certificates: For each of the following, signed by manufacturers:
   1. Cementitious materials.
   2. Admixtures.
   3. Form materials and form-release agents.
   4. Steel reinforcement and accessories.
   5. Waterstops.
   6. Curing compounds.
   7. Floor and slab treatments.
   10. Vapor retarders.
   11. Flexible foam expansion joint filler.
   12. Joint sealant.
   14. Filter Fabric
   15. Repair materials.

D. Material Test Reports: Obtain from a qualified testing agency for the items listed below.
1. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

E. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer, detailing fabrication, assembly, and support of formwork.
   1. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal.

F. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

G. Field quality-control reports.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
   1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
   1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

   2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage to the rebars as well as their coatings.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.
1.08 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 30.

2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.

2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.01 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301

2. ACI 117

2.02 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:

   a. High-density overlay, Class 1 or better.
b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.

c. Structural 1, B-B or better; mill oiled and edge sealed.

d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.


B. Rough-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. Forms for Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.

D. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to resist plastic concrete loads without detrimental deformation.

E. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.


G. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

H. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.


I. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.

1. Furnish units that leave no corrodbile metal closer than 1 inch to the plane of exposed concrete surface.

2. Furnish ties that, when removed, leave holes no larger than 1 inch in diameter in concrete surface.

3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.03 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

B. REINFORCEMENT ACCESSORIES
1. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

2. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60, plain-steel bars, ASTM A 775/A 775M epoxy coated.

3. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.

4. Zinc Repair Material: ASTM A 780/A 780M.

5. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

6. 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.

7. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

8. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.04 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Materials:


2. Fly Ash: ASTM C 618, Class F.

3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.


C. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source


2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494, Type A.

2. Retarding Admixture: ASTM C 494, Type B.

3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

4. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.

6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

E. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C.

F. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.

G. Water: ASTM C 94 and potable.

2.05 WATERSTOPS

A. Waterstop shall be Sika Swellstop, a highly versatile, strip-applied waterstop for nonmoving concrete joints as manufactured by Sika Corp.

2.06 VAPOUR RETARDERS

A. Sheet Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 10 mils (0.25 mm) thick.

B. Bituminous Vapor Retarder: 110-mil-thick, semiflexible, seven-ply sheet membrane consisting of reinforced core and carrier sheet with fortified asphalt layers, protective weathercoating, and removable plastic release liner. Furnish manufacturer's accessories, including bonding asphalt, pointing mastics, and self-adhering joint tape.

1. Water-Vapor Permeance: 0.0011 grains/h x sq. ft. x inches Hg; ASTM E 154.

2. Tensile Strength: 140 lbf/inch; ASTM E 154.

2.07 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

F. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

G. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.08 RELATED MATERIALS


B. Reglets: Fabricate reglets of not less than 0.022-inch- thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

C. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

2.09 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.

2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.

4. Compressive Strength: Not less than 3000 psi at 28 days when tested according to ASTM C 109.
B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.

1. Cement Binder: ASTM C 150, Portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.

2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.

4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.10 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than Portland cement in concrete as follows:

1. Fly Ash: 25 percent.


4. Combined Fly Ash or Pozzolan and Slag Cement: 50 percent Portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.

5. Silica Fume: 10 percent.

6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

7. Combined Fly Ash or Pozzolans, Slag Cement, and Silica Fume: 40 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

C. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.

D. Admixtures: Use admixtures according to manufacturer’s written instructions.

1. Use plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.

4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.11 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Slabs-on-Grade: Normal-weight concrete.
   1. Minimum Compressive Strength: 3000 psi at 28 days.
   2. Maximum W/C Ratio: 0.45
   4. Slump Limit: 4 inches, plus or minus 1 inch.
   5. Air Content: 2 percent, plus or minus 1.0 percent at point of delivery for 3/4-inch nominal maximum aggregate size.

2.12 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
   1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
   1. For mixer capacity of 1 cu. yd or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
   2. For mixer capacity larger than 1 cu. Yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
   3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

2.13 ADHESIVE AND CONCRETE BONDING AGENT

A. Adhesive and concrete bonding agent shall be Sikadur 32, Hi-Mod, a multi-purpose, 2-component, 100% solids, and moisture-tolerant structural epoxy adhesive as manufactured by Sika Corp.
2.14 WATERPROOFING MEMBRANE

A. Waterproofing membrane shall be Sikalastic 320 NS, a single component, liquid applied, bitumen modified, coal tar free, moisture cured polyurethane waterproofing membrane nonsag consistencies.

PART 3 - EXECUTION

3.01 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
   2. Class B, 1/4 inch, Class C, 1/2 inch, Class D, 1 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
   1. Install keyways, reglets, recesses, and the like, for easy removal.
   2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer or smooth exterior corners and edges of permanently exposed concrete to match adjacent existing concrete wall or slab as occurs. Otherwise, chamfer all exterior corners and edges.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer’s written instructions, before placing reinforcement.

3.02 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.

2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3. Install dovetail anchor slots in concrete structures as indicated.

3.03 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to resist being damaged by form-removal operations, and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.

2. 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 are not acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.04 SHORING AND RESHORING INSTALLATION

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. In multistory construction, extend shoring or reshoring over a sufficient number of stories to distribute loads in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members without sufficient steel reinforcement.

C. Plan sequence of removal of shores and re-shore to avoid damage to concrete. Locate and provide adequate reshoring to support construction without excessive stress or deflection.

3.05 VAPOR-RETARDER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to ASTM E 1643 and manufacturer’s written instructions.

   1. Lap joints 6 inches and seal with manufacturer’s recommended tape.

B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder according to manufacturer’s written instructions.

3.06 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI’s "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

   1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

   1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.07 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

   1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.

   2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.

4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.

5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.

6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade (i.e. walkway slab): Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.

2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in the drawings.

3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.08 WATERSTOP INSTALLATION

A. Flexible Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.
B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, primer, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable. Provide minimum concrete coverage per manufacturer to prevent spalling of concrete due to expansion of waterstops.

3.09 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Contra Costa Community College District.

C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
   1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is 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 not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
   2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
   3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

E. Deposit and consolidate concrete 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.
   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.

3.10 FINISHING FORMED SURFACES

A. Retain types of formed finishes required in this article. Coordinate finishes retained with finish schedule or indicate location of each finish on Drawings.

B. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view such as soil retaining side of retaining wall, and the wing wall back-to-back with an existing concrete wall.

C. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view including but not limited to front face of the retaining wall, guard wall at the top of the retaining wall and the inside faces of the two wing walls of the new utility shed.

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.

3.11 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Re-straighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, and wall surfaces exposed to view.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and re-straighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces indicated.
2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:

   a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.

   b. Specified overall values of flatness, F(F) 45; and of levelness, F(L) 35; with minimum local values of flatness, F(F) 30; and of levelness, F(L) 24.

3. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.-long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch.

D. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated. While concrete is still plastic, slightly scarify surface with a fine broom.

   1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

E. Broom Finish: Apply a broom finish to exterior concrete slabs, platforms, steps, ramps, and elsewhere as indicated.

   1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with the Engineer of Record before application.

3.12 MISCELLANEOUS CONCRETE ITEM INSTALLATION

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

   1. Coordinate sizes and locations of concrete bases with actual equipment provided.

   2. Construct concrete bases as specified on construction drawings unless otherwise indicated, and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for seismic anchor support.

   3. Minimum Compressive Strength: 3000 psi at 28 days.

   4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate. As indicate in drawing.

6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.13 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
   a. Water.
   b. Continuous water-fog spray.
   c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
   a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings or penetrating liquid floor treatment.
b. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.

3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.14 JOINT FILLING

A. Prepare, clean, and install joint filler according to manufacturer's written instructions.

1. Defer joint filling until concrete has aged at least one month. Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.

C. Install flexible foam expansion joint filler 1” deep in formed joints. Apply joint sealant around all edges of joint and trim joint sealant flush with top of joint after hardening.

3.15 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Contra Costa Community College District. Remove and replace concrete that cannot be repaired and patched to District's approval.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part Portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar matches surrounding color.
Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.

3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.

1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.

3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.

5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.

6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Engineer’s and DSA’s prior approval.

F. Repair materials and installation not specified above may be used, subject to Engineer of Record's and DSA’s prior approval.
3.16 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a special inspector or qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.

C. 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.
   8. Verification of concrete strength meets or exceeds strength specified in construction documents.

D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
   1. Testing Frequency: Obtain one composite sample for each day’s pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
   2. Slump: ASTM C 143; 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.
   3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day’s pour of each concrete mixture.
   4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
   5. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day’s pour of each concrete mixture.
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.

7. Compressive-Strength Tests: ASTM C 39; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.

   a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.

   b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.

8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.

9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

10. Test results shall be reported in writing to Contra Costa Community College District, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Contra Costa Community College District but will not be used as sole basis for approval or rejection of concrete.

12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Engineer of Record.

13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

E. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

END OF SECTION 03 30 00
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.02 SUMMARY

A. Section Includes:
   1. Man-gate Fabrication
   2. Embedded Steel.

B. Products furnished, but not installed, under this Section include the following:
   1. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete.
   2. Steel weld plates and angles for casting into concrete for applications where they are specified in other Sections.
   3. Miscellaneous attachment and fasteners for piping and fencing.

C. Related Requirements:
   1. Section 03 30 00 "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, slotted-channel inserts, wedge-type inserts, and other items cast into concrete.
   2. Section 33 41 00 – Storm Utility Drainage Piping
   3. Section 32 31 13 – Chain Link Fences and Gates

1.03 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturer’s written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including
sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.04 ACTION SUBMITTALS

A. Product Data: For the following:
   1. Paint products;
   2. Anchor bolts;
   3. Steel pipe sleeves;
   4. Concrete inserts including but not limited to slotted-channel and wedge-type inserts;
   5. Steel posts, plates or steel angles;
   6. Structural steel;
   7. Welding electrodes;
   8. Mechanical fasteners.

B. Sustainable Design Submittals:
   None

C. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
   1. Custom Metal Switchgear.
   2. Steel Framing for Fencing.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For professional engineer.

B. Mill Certificates: Signed by stainless-steel manufacturers, certifying that products furnished comply with requirements.

C. Welding certificates.

D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
E. Research/Evaluation Reports: For post-installed anchors, from ICC-ES.

F. Metal deck: Manufacturer’s certification that metal deck meeting ANSI/SDI RD-2010 and is a member of Steel Deck Institute.

1.06 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code - Steel."

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. Retain applicable subparagraphs below.

2. AWS D1.1, "Structural Welding Code - Steel."


4. AWS D1.6, "Structural Welding Code - Stainless Steel."

5. AISI S100-12, North American Specification for the Design of Cold-Formed Steel Structural Members


7. ANSI/SDI RD-2010, Standard for Steel Roof Deck

1.07 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

B. Delivery, Storage, and Handling: Protect materials from corrosion, deformation, and other damage during delivery, storage and handling.
PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

NONE

2.02 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Steel Plates, Shapes (other than W and WT), and Bars: ASTM A 36.

C. Steel Shapes including wide flanges and WT shapes: ASTM A992

D. Stainless-Steel Sheet, Strip, and Plate: ASTM A 240 or ASTM A 666, Type 304.

E. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.

F. Steel Tubing: ASTM A 500, cold-formed steel tubing.

G. Steel Pipe: ASTM A 53, Standard Weight (Schedule 40) unless otherwise indicated.

2.03 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

1. Provide stainless-steel fasteners for fastening aluminum.

2. Provide stainless-steel fasteners for fastening stainless steel.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 325, Type 3; with hex nuts, ASTM A 563, Grade C3; and, where indicated, flat washers.

D. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1.
E. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.

1. Hot-dip galvanizes or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.

F. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.

G. Cast-in-Place Anchors in Concrete: Either threaded type or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A 47 malleable iron or ASTM A 27 cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F 2329.

H. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors.

1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.


2.04 MISCELLANEOUS MATERIALS

A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

B. Water-Based Primer: Emulsion type, anticorrosive primer for mildly corrosive environments that is resistant to flash rusting when applied to cleaned steel, complying with MPI#107 and compatible with topcoat.

C. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.

D. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.

E. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

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

H. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, concrete with a minimum 28-day compressive strength of 3000 psi.

2.05 FABRICATION, GENERAL

A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

D. Form exposed work with accurate angles and surfaces and straight edges.

E. Weld corners and seams continuously to comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.

G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.06 FINISHES, GENERAL

A. Finish metal fabrications after assembly.

B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.07 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153 for steel and iron hardware and with ASTM A 123 for other steel and iron products.

1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.

C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

1. Shop prime with primers.

   a. Primer system shall Pigmented Polyurethane System:

      1) Primers coat shall be Alkyd anti-corrosive, quick dry: S-W Pro-Cryl Universal Primer, B66-310 Series, at 2.0 to 4.0 mils (0.051 to 0102mm) dry, per coat.

      2) Intermediate Coat: Polyurethane, two-component, pigmented, matching topcoat.

      3) Topcoat: Polyurethane, two-component, pigmented, gloss: S-W Pro Industrial Waterbased Acrolon 100 Polyurethane, B65-720 Series, at 2.0 to 4.0 mils (0.051 to 0.102 mm) dry, per coat.

D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:


3. Other Items: SSPC-SP 3, "Power Tool Cleaning."
E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of crack; and measured from established lines and levels.

B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlap.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.

D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:

1. Cast Aluminum: Heavy coat of bituminous paint.
3.02 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.03 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.

B. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint.

C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

D. Welding: Inspect welds according to AWS D1.3

END OF SECTION 05 50 00
SECTION 26 00 10
GENERAL ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

A. This project is to replace the existing indoor 5kV metal-clad switchgear metal-with new standard outdoor (non-walk-in) metal clad switchgear located in an outdoor equipment pad on the south side of Engineering Technology Building in the existing lawn area adjacent to the existing outdoor 21 kV Power Circuit Breaker. Related electrical work includes, but not limited to, new outdoor pad mounted transformer (T-1), underground electrical ductbanks, manholes with sump pumps, cables, splices, terminations, grounding system and testing. Also, disconnect and removal of cables and related materials in existing manholes. Civil site work includes, but not limited to, excavation, concrete equipment pad, equipment anchoring, trenching, storm drain relocation, pavement repair and landscape restoration. Furnish, install and test required equipment, materials and incidentals for a fully operating and functioning electrical distribution system.

The switchgear equipment provides electrical distribution power to the entire campus. Safety and continuity of power during construction are of paramount importance in the process of installing new switchgear and removal of existing switchgear. The Contractor and District shall work together to coordinate the actual timing of the work sequence on the official Notice-to-Proceed and calendar day requirements. The District reserves the right to vary the sequence and timing of work upon written notice to Contractor. Coordinate with Division 1 for campus power interruption. Provide a minimum of ____ hours advanced notice requiring campus power interruption.

B. Work Sequence:

1. Perform all civil, structural and underground electrical work including installing new cables, etc.

2. Furnish and Install new 5kV outdoor walk-in metal clad switchgear.

3. Furnish and install new outdoor pad mounted oil-filled transformer

4. Field Verify (by using electrical instruments) existing feeder circuits in manholes 1, 2, 2-1, 3 and 3-1 and update single lines and manhole drawings.

5. Scheduled campus power interruption to energize new switchgear and to re-energized existing switchgear.

6. Acceptance Testing of new switchgear, transformer T1 and new feeder cables number 1 and 3.

7. De-energize existing transformer T22 and TPV1 and remove existing cables from T22 and TPV1 to nearest upstream manholes, boxes.

8. Provide temporary power for T22.
9. Install new underground conduits and related site work to intercept existing conduits for T22 and TPV1.

10. Install, test and energize new cables and terminations for T22 and TPV1.

11. Scheduled campus power interruption as required to connect existing and new feeder cables 2 and 4; 5 and 7; and 6 and 8.

12. With all campus loads tied to new switchgear, disconnect and remove (and properly dispose) existing switchgear and related system components including existing cables, etc.

13. Remove temporary wiring and connections. Return all separable connectors and junction points to DVC Buildings and Grounds.

14. All campus power interruption must be scheduled in advance and pre-approved by the District. The Contractor shall submit for approval, proposed total number (of shut-downs), sequence and duration of each campus power interruption within 45 calendar days after the Notice-to-Proceed date. Refer to Section 01140, “Work Restrictions” of Division 01, General Requirements for additional information, restrictions, schedule and procedures.

15. Provide Fire Watch during all scheduled campus power interruption in accordance with California Fire Code, Section 907.1, California Building Code 2016, 403.12.1, NFPA 101 and local Contra Costa County Fire Protection District (CCCFPD) Fire Watch requirements. Any conflicts among the codes will be determined by CCCFPD. Contractor shall submit proposed fire watch plan (after coordinating with the CCCFPD) for approval by CCCFPD. CCCFPD contact: Steven Rupnow, Fire Inspector 1, email: srupn@cccfpd.org phone: (925) 941-3543

1.02 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.03 REFERENCES

A. The equipment specified herein shall conform to the applicable provisions of Public Law 91-54, the Constitution and Laws of the State of California, and the latest edition in effect at the time of bid of the following codes:

1. 29 CFR Part 1926, Safety and Health Regulations for Construction, Department of Labor.

2. 29 CFR Part 1910, Occupational Safety and Health Standards, Department of Labor.


5. Lists of Inspected Appliances, Equipment and Materials by Underwriters Laboratories (UL).
6. Approved Equipment List by Factory Mutual (FM).

7. California Administrative Codes, including, but not limited to the following:
   a. Title 8 - Chapter 4, Subchapter 5 - Low Voltage Electrical Safety Orders.
   b. Title 8 - Chapter 4, Subchapter 5 - High Voltage Electrical Safety Orders.
   c. Title 19, Chapter 1.
   d. Title 24, Part 2.
   e. Title 24, Part 6, Division T-19.


11. Insulated Cable Engineers Association (ICEA).

12. Institute of Electrical and Electronics Engineers (IEEE).


14. Underwriter's Laboratory (UL).

B. Where differences exist between codes affecting this work, the code affording the greatest protection shall govern.

C. Nothing in the drawings and specifications shall be construed to permit work not conforming to applicable laws, ordinances, rules, and regulations. Where the drawings and specifications exceed requirements of applicable laws, ordinances, rules, and regulations, the drawings and specifications shall take precedence. Where drawing and specification requirements are in conflict, the specification requirement shall apply.

D. It is not the intent of drawings or specifications to repeat requirements of codes except where necessary for completeness or clarity.

E. If the contractor observes that the drawings and specifications are at variance with the codes, he shall notify the District’s Consulting Project Manager in writing at once.

1.04 EXAMINATION OF SITE

A. The Contractor shall examine the site and familiarize itself with all conditions that may affect the work in order to prepare a responsive bid. Failure to do so shall not lessen the Contractor's responsibility or entitle the Contractor to additional compensation for work not included in the Contractor's bid.
1.05 RULES AND REGULATIONS

A. Codes:

1. Refer to Regulatory Requirements Section 01410, Division 01.

B. Drawings:

1. See Section 01010 – Summary of Work, Part 1, Inconsistencies in Contract Document. If any part of the drawings or these Specifications are not clear, the Contractor shall apply to the District’s Representative for his interpretation and shall have all such questions answered before proceeding with the work.

C. Maintenance and Operating Instructions:

1. Arrange for manufacturers' representatives to instruct District operating and maintenance personnel in the use of any equipment requiring operation and maintenance. Arrange for all personnel to be instructed at one time. Pay all costs for such service.

2. Maintenance and operating instructions and training for all equipment will be provided by the equipment vendor and the Contractor.

3. Refer to Section 01785, Operations and Maintenance Data for additional requirement.

D. Manufacturer's Directions:

1. Follow manufacturers' directions covering points not shown on the drawings or specified herein. Manufacturers' directions do not take precedence over Drawings and Specifications. Where these are in conflict with the Drawings and Specifications, notify the District’s Representative for clarification before performing the work.

E. Shop Drawings:

1. The Contractor shall submit for approval shop drawings prepared in accordance with Section 01330, “Submittals” and as required by other sections of these specifications.

F. Protection of Equipment:

1. Care shall be exercised during construction to avoid damage or disfigurement to equipment of any kind. All equipment shall be protected from dust and moisture prior to and during construction. The Contractor is cautioned that concrete finishing, painting, etc., shall not proceed if around unprotected equipment.

2. Where required or directed, construct temporary protection for equipment and installations so as to protect same from dust and debris caused by construction.

3. All protection shall be substantially constructed with the use of clean canvas, heavy plastic, visqueen and plywood as required and made tight and dust proof as directed.

4. The Contractor shall repair by spray or brush painting, after properly preparing the surface, all scratches or defects in the finish of the equipment. Only identical paint furnished by the equipment manufacturer shall be used for this purpose.
5. Provide temporary heating circuits to switchgear while in storage or prior to operation.

6. Failure of the Contractor to protect the equipment as outlined herein shall be grounds for rejection of its installation.

1.06 REVIEW OF MATERIALS

A. Materials and Equipment: All materials and equipment shall be new. All materials and equipment for which tests have been established by Underwriters Laboratories, Inc. shall be approved by the Underwriter’s Laboratories and shall bear its label of approval.

1. In lieu of Underwriters Laboratories, Inc. approval, consideration will be given to certified test reports of an adequately equipped, recognized independent test laboratory competent to perform such testing indicating conformance to all requirements of the applicable Underwriters Laboratories, Inc. (UL) Standards.

2. Unless otherwise indicated in writing by the District’s Representative, the materials to be furnished under this Specification shall be the standard products of manufacturers regularly engaged in the production of such equipment equal to or superior to material specified, and shall be the manufacturer’s latest standard design that complies with the Specification requirements.

B. Approval of Materials:

1. A complete list of materials and equipment proposed shall be submitted to the District’s Representative for approval. The list shall include for each item: manufacturer, manufacturer’s catalog number, type or class, rating, capacity, size, etc.

2. The Contractor shall submit a brochure containing catalog cuts or drawings and data for, but not limited to, the following items:
   a. Outdoor medium voltage power switchgear (including circuit breakers).
   b. Medium voltage cable, splices, elbows, and termination kits.
   c. 15kV, 600V cable and connectors.
   d. Conduit and conduit fittings.
   e. Grounding materials.
   g. 48VDC Battery System
   h. Panelboards

3. Refer to other divisions of the specification sections for other submittal requirements.

4. Before installation of the equipment, the Contractor shall submit for approval detailed construction drawings for each item of fabricated equipment. All drawings shall be to scale
and fully dimensioned and shall provide sufficient detail to clearly indicate the arrangement of the equipment and its components.

5. Installation of any approved substituted equipment is the Contractor's responsibility, and any changes required to the work included under other divisions for installation of approved substituted equipment shall be made to the satisfaction of the District's Representative and without change in contract price. Approval by the District's Representative of substituted equipment and/or dimension drawings does not waive these requirements.

PART 2 - PRODUCTS

2.01 GENERAL

A. In addition to material and equipment specified, the Contractor shall also provide incidental material required to effect a complete installation. Such incidental material includes solder, tape, caulking, mastic, gasket and similar items.

B. Materials and equipment shall be uniform throughout the installation. Equipment of the same type shall be of the same manufacturer. All material and equipment shall be new. Equipment for which tests have been established by Underwriters Laboratories, Inc., shall have been approved by the UL and shall bear its label of approval.

PART 3 - EXECUTION

3.01 TESTS

A. Upon completion of the electrical construction work, perform tests and provide test reports as specified in this and other sections.

1. All tests shall be made in the presence of the District and/or his representative. The application or interruption of power shall be programmed and directed by the District’s Representative.

2. The Contractor shall submit to the District’s Representative three (3) copies of all tests results, certified in writing, witnessed, signed and dated, immediately upon completion of the tests. Any unsatisfactory condition revealed by these test results, or unsatisfactory methods of tests and/or testing apparatus and instruments, shall be corrected by the Contractor to the satisfaction of the District’s Representative.

3. The District’s Representative reserves the right to require that the Contractor perform and repeat any tests that are deemed necessary to complete or check the tests or the certified records of the Contractor at any time during the course of the work. The Contractor shall correct any unsatisfactory portion of his work that is revealed by the tests.

3.02 IDENTIFICATION

A. Equipment: Properly identify circuit breakers and other devices on switchboards, motor disconnect switches, starters, time clocks, and other apparatus used for operation of, or control of circuits, appliances or equipment by means of engraved white on black laminated plastic nameplates screw mounted on or above each device.
B. All feeder cables in manhole shall be identified and tagged in accordance with this specification section.

C. Phasing of Conductors: Maintain existing phase sequence and rotation during cable and switchgear installation. Refer to Section 26 05 13, “Medium Voltage Cable” for additional requirement on phasing.

1. The conductors shall be identified using plastic or metal labels, factory colored wires or by using color bands or tape intended for the purpose and approved for wet, outdoor applications at all terminations, junctions and wherever the conductors are accessible in pull boxes. The color coding shall be the following:

   a. 4.16 kV Conductors:
      1) Phases identified with tags. Conductors are not color coded, but identified as "A Phase", "B Phase", or "C Phase".

   b. 480V or 480/277V Circuits:
      1) A Phase - Brown
      2) B Phase - Yellow
      3) C Phase – Purple
      4) Neutral - Natural Gray

   c. 208/120V Circuits:
      1) A Phase - Black
      2) B Phase - Red
      3) C Phase - Blue
      4) Neutral – White

   d. Ground - Green

2. Feeder circuit cables (21kV and 4.16kV) shall be identified with embossed metal or plastic labels with 1-1/2 to 2-inch high characters, polyethylene, with black on yellow characters, in polyethylene holder, attached to cable by two nylon self-locking ties, permanently attached to the feeder circuit cables. Feeder circuits shall be identified with the circuit number, cable size, voltage, phase conductor and “From” and “To” as identified on the single line diagram drawings. Almetek Industries, Type E-Z tags or approved equal.

3. Branch circuit identification shall be by use of wrap-around labels such as manufactured by Brady, Thomas and Betts, or equal. Labels shall be placed on conductors at all outlets (switch, receptacle, fixture, etc.), panel boards, junction boxes, relays, disconnect switches, motor starters, and controls. Branch circuit conductors shall be identified with the circuit number.

4. Installation of new or reconnection of existing cables must be performed in such a way as to maintain existing phase rotation. Contract shall verify phase rotation on all new feeder cables and ensure proper phase sequence. Contractor shall correct any improper phase rotation and sequence at no cost to the District.
3.03 NOISE AND VIBRATION

A. During construction, the Contractor shall cooperate in reducing objectionable noise or vibration. If noise or vibration is a result of improper material or installation, these conditions shall be corrected at no cost to the District.

3.04 GENERAL INSTALLATION METHODS

A. Carpentry, Cutting, Patching and Core Drilling:

1. Provide carpentry, cutting, patching, sawcutting, and core drilling required for installation of material and equipment specified in this division.

2. Do not cut, core or drill structural members. Prior to sawcutting and core drilling, perform X-ray scanning (using ground penetrating radar instruments) to locate structural members, rebars, etc. to avoid while sawcutting and core drilling.

B. Waterproof Construction:


2. Provide waterproof NEMA 3R enclosures for all equipment or devices mounted outside or otherwise exposed to the weather.

C. Sleeves, Conduit Stubs, and Slab Penetrations:

1. Provide sleeves flush with wall surfaces and of ample size of all conduits passing through exterior walls and at other locations shown on drawings. Seal annular openings between sleeve and conduit with mastic.

2. Extend conduit stubs through floor six inches above finished floors.

3. Seal openings around conduit penetrations through slabs with mastic.

D. Painting of Electrical Equipment and Hardware:

1. Provide moisture resistant paint for exterior painting ANSI 61-Grey.

2. Provide colors as directed by the District's Representative or as specified herein.

3. Refer to individual Sections for equipment to be painted.

END OF SECTION 26 00 10
SECTION 26 05 13
MEDIUM VOLTAGE CABLE

PART 1 - GENERAL

1.01 SUMMARY

A. This section covers the requirements for the installation of single conductor, 15 kV rated, 133% insulation, solid dielectric power cable, including the labor, material, equipment and testing services necessary to complete the electrical work as indicated on the drawings and as called for in this specification. Note that the distribution voltage in the campus is 4.16kV. The work shall include, but not be limited to, the following:

1. Furnish three single-conductor cables of the size and length called for on the drawings, including AWG, 600V insulated, color green, copper ground conductor as indicated.

2. Furnish the material needed to terminate the cable to the equipment and 3-4 point junctions as shown on the drawings.

3. Furnish the splicing materials and splice the cables where required in accordance with the drawings.

4. Furnish material required to ground the medium voltage cable shielding

5. Perform electrical tests in accordance with the National Electrical Testing Association procedures for medium voltage cable after the installation has been completed.

6. When any 4.16kV circuits are disconnected from electrical equipment and then reconnected to either the same electrical equipment, or different electrical equipment, the phasing must be maintained. Following re-energization, the phasing will be checked and verified. It found to be incorrect; it shall be corrected by the Contractor at no cost to the District.

1.02 RELATED SECTIONS AND DOCUMENTS

A. Section 26 00 10: General Electrical Requirements

B. Section 26 08 00: Electrical Acceptance Testing

C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.03 REFERENCE STANDARDS

A. All cable herein specified shall be manufactured and tested in accordance with all requirements of the latest editions of the following codes, standards, and references. When reference is made within this specification to a particular section or part of these standards, the referenced requirement shall take precedence over other standards covering the same material.

a. ASTM B-3
b. ASTM B-8
c. ASTM B-496

   1. ANSI/NFPA 70 (National Electrical Code)

C. Association of Edison Illuminating Companies (AEIC):
   1. AEIC CS6-87

D. Insulated Cable Engineers Association (ICEA):
   1. ICEA Pub. No. S-93-639 Shield Power Cable 5-46kV

E. Institute of Electrical and Electronics Engineers (IEEE):
   1. IEEE 48 Test Procedures and Requirements for High-Voltage Alternating Current Cable Terminations

F. National Electrical Manufacturers' Association (NEMA):
   1. NEMA WC 47 Ethylene-Propylene-Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

G. National Electrical Testing Association (NETA):

H. Underwriters' Laboratories, Inc. (UL):
   1. UL 1072

1.04 SUBMITTALS REQUIRED FROM THE CONTRACTOR

A. The Contractor's submittal shall include the following information:
   1. Diameter of cable.
   2. Weight of cable in pound per foot.
   3. Complete description of cable and insulation production compound code number.
   4. Trade name.
   5. Written warranty.
6. Recommended splicing and termination methods.
7. Recommended bending radius.
8. Confirmation that the cable meets the requirements of paragraph 2.02.G.1.
9. Date of manufacturing.

1.05 INFORMATION REQUIRED FROM THE CONTRACTOR

A. After approval by the District Representative of cable to be used, the Contractor shall in accordance with Section 01330, “Submittals Procedures”, of this specification, submit the following documents:

1. Certified test reports on the tests required in for each cable reel.
2. Proof that cable has been manufactured within six months of award of contract.
3. The manufacturer's recommended splicing and termination procedures.
4. Following fabrication, the District’s Representative reserves the right to have a factory inspection and witness testing of the cable. The Contractor shall notify the District Representative in writing at least two weeks prior to shipment of the cable from the factory to allow for factory inspection by the District Representative. The District Representative will provide the Contractor with a written waiver if factory inspection and witness testing of the cable is not to be performed by the District Representative.

1.06 CABLE SPLICER QUALIFICATIONS

A. Subject to compliance with these specifications, the following company shall be capable as medium voltage cable splicer:

1. High Voltage Splicing Company, Danville, CA. 94526
   Tel No: (925) 838-7979
2. Submit Cable Splicing Firm and qualifications for approval.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The cable manufacturer shall supply evidence demonstrating a minimum of ten years of production experience in triple extrusion of EPR insulation in medium voltage cable production. The EPR insulation shall be compounded in an enclosed, continuous, low shear, high intensity super clean process.

B. The cable shall be manufactured by one of the following companies:

1. General Cable
2. Okonite;
3. Pirelli;
4. Southwire
5. Or approved equal.

2.02 15 KV CABLE

A. General: This specification describes the requirements for 15 kV, 133% insulation, shielded, single conductor power cable for use in campus 4.16kV power distribution. Cable shall be insulated with a high quality, heat, moisture, impact, ozone, and corona resistant thermosetting ethylene propylene rubber. It shall have a polyvinyl chloride (PVC) compound jacket; oil and moisture-resistant and shall be suitable for use in wet or dry locations in conduit, underground duct systems, cable tray, direct burial and aerial installations. The cable shall be manufactured within 6 months of installation.

B. Conductors:

1. Conductor material shall be annealed uncoated copper in conformance with ASTM B-3.

2. Conductors shall be either concentric stranded in conformance with ASTM B-8 or compact-round-stranded in conformance with ASTM B-496.

3. Stranding shall be Class B unless otherwise specified.

C. Conductor Shield: The conductor strand shield shall be either a 2.5 mil thick extruded EPR semiconducting material in conformance with Paragraph 2.7, ICEA S-68-516 or an extruded energy suppression and stress control material having the necessary characteristics to perform the function of the semiconducting material. A non-metallic semiconducting tape shield is not acceptable.

D. Insulation:

1. Insulation shall be an ethylene propylene rubber compound rated at 105°C for continuous normal operation, 140°C for emergency overload conditions, and 250°C for short circuit conditions.

2. The insulation material shall meet or exceed the electrical and physical requirements specified in ICEA S-93-639/NEMA WC74 and S-97-682.

3. The average insulation thickness shall be not less than 220 mils; the minimum thickness at any point shall not be less than 90% of the specified average thickness.

E. Insulation Shielding:

1. General: The insulating shield shall consist of EPR semiconducting non-metallic, extruded covering, in conformance with Paragraph 4.1.1.1, ICEA S-93-639, directly over the insulation and a non-magnetic metal tape, in conformance with Paragraph 4.1.1.2, ICEA S-93-639, directly over the semiconducting covering. Substitution of a non-metallic semiconducting tape for the extruded covering is not acceptable. Cables using the extruded energy suppression and stress control material for the strand shield may use the same material instead of the semiconducting material for the 15-kV insulation shield.
2. Semiconducting Insulation Cover: The extruded covering shall be at least 2.5 mils thick and shall be in intimate contact with the insulation, but shall be removable without damaging the insulation and leaving no residue that cannot be readily removed.

3. Metal Tape Shield: The metal tape shield shall be 5.0 mil bare copper or other nonmagnetic metal of equivalent conductance. The tape shall be electrically continuous without joints, soldering, or brazing.

F. Overall Jacket:
   1. The cable overall jacket shall be polyvinyl chloride (PVC) compound which is mechanically rugged; oil and moisture-resistant and in conformance with ICEA S-93-639/NEMA WC74 and UL 1072.
   2. The overall jacket shall be free stripping from the shielding tape.
   3. The minimum average thickness of the overall jacket shall not be less than 80 mils, and the minimum thickness shall not be less than 72 mils.

G. Electrical and Physical Tests:
   1. Qualification tests in compliance with Section B, AEIC CS6-79 are required.
   2. The materials used in construction of the cables shall be tested in compliance with the applicable paragraphs of ICEA S-93-639.
   3. The completed cables shall successfully pass the following tests prescribed in ICEA Publication S-93-639:
      a. Par. 6.5 - Aging
      b. Par. 6.23 - Discharge Residence
      c. Par. 6.27 - Voltage
      d. Par. 6.28 - Insulation Resistance
      e. Par. 6.29 - Partial Discharge Extinction (Corona) Level
   4. Test methods and frequency of tests (for tests in G-2 and G-3 above) shall be as prescribed in Part 6 ICEA S-93-639.

H. Cable Identification: The following information shall be indicated, by means of a surface legend printed in compatible ink of contrasting color, at intervals not to exceed 24 inches over the entire length of the cable:
   1. Manufacturer's name.
   2. Conductor material.
   3. Conductor size.
   4. Maximum rated voltage.
5. Insulation material.


7. Shielded or non-shielded.

8. Date of manufacture.

I. Reel Identification: Each reel shall have printed on it or shall have a weatherproof (metal or plastic) tag firmly attached indicating:

1. Manufacturer's name.

2. Conductor size.

3. Insulation type and thickness.


5. Temperature rating.


7. Manufacturer's type.

8. Voltage class.

9. Purchaser's purchase order number and item number.

10. Cable weight.

11. Reel weight.

12. Shielded or non-shielded.

13. Date of manufacture.

J. Shipment: The cable shall be shipped in continuous lengths as specified by the Contractor. The shipment shall be made on carefully inspected, non-returnable reels if possible. Cable ends shall be securely fastened to the reel using polypropylene rope ties. Metal ties shall not be used. Cable ends shall be completely sealed against moisture and contaminants. The cable on the reel shall be protected with plyboard or tekboard lagging held securely in place with steel banding.

K. Conductor and Shield Continuity: Each length of completed cable shall be tested for conductor and shield continuity.

L. Reports: Certified copies of production tests specified in Section 2.02.G shall be furnished for each shipment of cable.

2.03 CABLE TERMINATIONS

A. The cable terminations shall be manufactured by one of the following companies:
1. Elastimold
2. Raychem;
3. 3M;

B. Power distribution connectors are rated 15kV (8.3kV maximum continuous line to ground 100% insulation system operation voltage), fully shielded.

C. Deadbreak Junctions are 3 or 4-points, 600 ampere, copper contacts.

D. The terminations shall be IEEE 48, Class 1, molded rubber cable termination in kit form with stress cone, ground clamp, non-tracking rubber skirts, utilizing molded elastomer, wet process porcelain, pre-stretched, and heat-shrinkable, utilizing factory performed components to the maximum extent practicable, rather than tape build-up. Terminations shall have a basic impulse level of 110 kV.

E. The terminations shall be provided with a 60-inch length of copper braid or wire for terminating the cable conductor shield to the ground cable and to the station ground.

2.04 CABLE SPLICES

A. The cable splices shall be manufactured by one of the following companies:

1. Elastimold
2. Raychem;
3. 3M;

B. The splices shall be IEEE 404 and 592. Splice kits may be of the heat-shrinkable type, of the premolded splice and connector type, the conventional taped type, or the resin pressure-filled overcast tape type.

C. Provide 15kV 200Amps loadbreaks and 600Amps rated non-loadbreak elbow connectors and their related accessories as shown on the drawings and as specified herein by Elastimold or approved equal.

2.05 MEDIUM VOLTAGE SEPARABLE CONNECTORS

A. Provide ESNA-type connectors with insulated bushings. Elastimold, (Non-Load Break). Provide capacitance test point. Connectors shall satisfy requirements of IEEE 386 and shall be designed for use with the specific cable and type of installation required. The manufacturer shall provide all components and at least two copies of complete directions for assembling, and putting the unit into service, (one of which shall be submitted for record).

B. Stress Cones (Raychem) will be required at switchgear, etc.

2.06 LABELS

A. The labels shall be manufactured by one of the following companies:

1. Almetek Industries, Type E-Z-Tag;
2. Seton;
3. or equal.

B. Description: Cable circuit labels shall be 1-1/2-inch high, polyethylene, with black on yellow characters, in a polyethylene holder, attached to the cable by two nylon self-locking ties.

2.07 FIREPROOFING TAPE

A. The fireproofing tape shall be manufactured by one of the following companies:

1. 3M;
2. Plymouth;
3. or equal.

B. The fireproofing tape shall consist of a flexible, conformable fabric having one side coated with a flame retardant, flexible, polymeric coating and/or a chlorinated elastomer not less than 0.050-inch thick and shall weigh not less than 2.5 pounds per square yard. The tape shall be noncorrosive to cable sheath, shall be self-extinguishing, and shall not support combustion. The tape shall not deteriorate when subjected to oil, water, gases, salt water, sewage or fungus.

C. Fireproofing tape shall be applied to all cables installed in manhole.

D. Fireproofing tape may be applied to each single conductor or may be applied to three conductors as a three phase set. 10 feet before entry to an equipment, fireproofing tape shall be applied to each single conductor to facilitate termination.

2.08 PHASE SEQUENCE

A. Installation of new or reconnection of existing cables must be performed in such a way as to maintain existing phase sequence. Prior to and following work, phasing will be checked and verified by the Contractor using NETA methods. If phase sequence is incorrect, then Contractor shall correct the phase sequence at no cost to the District.

PART 3 - EXECUTION

3.01 CABLE INSTALLATION

A. Cables shall be pulled per the specified pulling point and pulling direction. Cable ends shall be sealed against moisture after pulling. Pull ropes shall be non-metallic to prevent cutting of duct materials.

B. Installation of Cables in Manholes and Handholes: The cable shall not be installed utilizing the shortest route, but shall be looped along those walls providing the longest route and the maximum spare cable lengths. The cables shall be formed to closely parallel walls, not to interfere with duct entrances, and shall be supported on brackets and cable, porcelain or maple block clamps insulators. In existing manholes and handholes where new ducts are to be terminated or where new cables are to be installed, the existing installation of cables, cable supports and grounding shall be modified as required for a neat installation of all cables properly arranged, supported and clamped.
C. Split wire-basket cable grips shall be used to restrain conductors in manholes on downhill duct runs.

D. Identification of Cables in Manholes and Handholes: Identify cables using plastic tie-tags as the cable enters and again as the cable leaves the manhole.

E. The Contractor shall furnish for approval two (2) copies of the splicing and termination procedures he intends to use. Splices shall be suitable for continuous immersion in water and shall be made only in accessible locations in manholes or handholes. Maintain existing phase rotation after splicing in the new sections of cables.

F. Splicing shall be done by a qualified Contractor specializing in medium-voltage splicing and testing, using experienced cable splicers having the qualifications specified in Paragraph 1.05, above.

G. Splices in Shielded Cables:

1. Splices in shielded cables shall include covering the spliced area with metallic tape, or material similar to the original cable shield, and by connecting it to the cable shield on each side of the splice. Ground the metallic tape on the splice as follows: connect to an AWG No. 10 solid.

2. Copper wire brought out in a watertight manner and terminated at a ¾-inch by 10-foot ground rod. The wire shall be trained to the sides of the enclosure in a manner to avoid interference with the working area. The ground wire shall also be connected to the ground rod.

H. The AWG No. 4/0 copper-conductor ground wire shall be bonded to the grounding system at each end.

I. The cable shield shall be grounded at both terminations by connecting the ground strap or lead provided with the termination kit and to both the ground conductor and to the station ground.

J. Cables in manholes and main switchgear shall be fireproofed by means of fireproofing tape. Strips of fireproofing tape approximately 1/16-inch thick by 3 inches wide shall be wrapped tightly around each cable spirally in a half-lapped wrapping, or in two butt-joined wrappings with the second wrapping covering the joints in the first. The tape shall be applied with the coated side toward the cable and shall extend one inch into the ducts. To prevent unraveling, the fireproofing tape shall be random wrapped the entire length of the fireproofing with pressure sensitive glass cloth tape. Application of fireproofing tape over multiple conductors of the same circuit is acceptable. 10 feet before entry to an equipment, fireproofing tape shall be applied to each single conductor to facilitate termination.

K. Performing phasing tests for all cable installation in accordance with NETA 2013 and industry standard practices.

3.02 CABLE LABELING

A. The cables shall be tagged for phase identification (A, B or C) at both termination points and on either side of each splice.

B. At manholes, labels shall be attached to each circuit of incoming and outgoing cables as shown on the Manholes Details drawings.
3.03 TEST LABORATORY

A. The Contractor shall retain the services of a qualified independent testing laboratory for the purpose of performing inspections and tests on the cable installation in accordance with an approved cable testing procedure. The testing laboratory shall meet Federal OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907. Membership in the National Electrical Testing Association constitutes proof of qualification. The testing laboratory shall provide all material, equipment, labor and technical supervision to perform the tests and inspections. The tests and inspections shall determine the suitability for energization of the cable installation.

3.04 TESTING (NEW CABLE ONLY)

A. The Contractor shall notify the District Representative when the installation is available for acceptance tests. The District Representative shall witness the testing. Testing shall be performed at the following times:

1. After installation of the splices and terminations but before connection of the terminations to the equipment. Each conductor shall be individually tested with the other conductors grounded. All shields shall be grounded.

2. Refer to section 26 08 00, “Electrical Acceptance Testing” for additional requirement.

B. A DC high potential shall be applied in at least eight (8) equal increments until a maximum of 30 kV is reached. DC leakage current shall be recorded at each step after a constant stabilization time consistent with system charging current decay is reached. A graphic plot shall be made of leakage current (y axis) versus voltage (x axis) at each increment.

C. The tested conductor shall be raised to the maximum test voltage and held for 15 minutes. Readings of leakage current (y axis) versus time (x axis) shall be recorded and plotted at 30 second intervals for the first two minutes and then at each minute thereafter.

D. A shield continuity test shall be performed by the ohmmeter method. The ohmic value shall be recorded.

E. The test laboratory shall maintain a written record of the tests and furnish a copy of the report to the District Representative for review before termination of the cable. Upon completion of the project, the testing laboratory shall assemble and certify a final test report no later than ten (10) days after project completion. The District Representative shall receive three (3) copies of the final test report.

3.05 TESTING (FOR NEW CABLE SPILED TO EXISTING CABLE)

A. Perform a VLF (Very Low Frequency) cable testing at 4.16kV to ground for 30 minutes on each assembly.

END OF SECTION 26 05 13
SECTION 26 05 19  
LOW VOLTAGE WIRE AND CABLE

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Wire and Cable – Power, Control and Lighting Systems.
B. Wire and Cable – Grounding.
C. Wiring connections and terminations.

1.02 RELATED SECTIONS AND DOCUMENTS

A. Section 26 00 10: General Electrical Requirements
B. Section 26 08 00: Electrical Acceptance Testing
C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.03 CODES, STANDARDS AND REGULATORY REQUIREMENTS

A. All materials, assembly, installation, testing and commissioning shall meet the requirements of the latest edition of the following Codes and Standards, and Regulatory agencies. In case of the conflict between the requirements of the References, the most stringent shall apply.

1. NEMA WC 5 – Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy.
2. NFPA 70 – National Electrical Code.
4. Underwriters’ Laboratory (U.L.).
5. Insulated Cable Engineers Association (ICEA)

1.04 SUBMITTALS

A. Submit shop drawings and product data under the provisions of Section 01330, “Submittal Procedures”
B. Products, for which tests have been established by the Underwriter's Laboratories, Inc., shall be labeled or listed by that agency. If the products are listed or labeled by an equivalent testing
agency, the Contractor shall require written acceptance of the testing agency from the District’s Representative.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in unopened cartons, reels or bundles as appropriate, clearly identified with manufacturer's name, Underwriter's or other approved label, grade or identifying number.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. General Cable Corp.;
B. Okonite Co.;
C. Pirelli Cable;
D. or equal

2.02 POWER, CONTROL AND LIGHTING SYSTEM

A. Conductors: Single annealed copper stranded conductor, No. 12 AWG minimum for lighting and power circuits, and No. 14 AWG minimum for control circuits. All wires shall be stranded.

B. Insulation: Power and lighting conductors shall be 600-volt, Type XHHW or THHN. Conductors required to be rated 90 degrees C shall be Type RHH or THHN. Conductors shall be applied at their 75° C ampacity rating except for 60° C rated terminations.

2.03 GROUNDING SYSTEMS

A. Equipment Grounding: The equipment ground wire shall be of similar construction as specified in Paragraph 2.02. The insulation color shall be green unless as specified otherwise in Paragraph 2.04. The wire size shall comply with the requirements of NEC-250.

B. System Grounding Grid: The grounding grid system wire shall be bare stranded annealed copper conductor, and shall meet the requirements of ASTM B-8. The wire size shall be in accordance with the requirements of the project drawings and shall not be less than the size as required by NEC-250.

2.04 COLOR CODES

A. Color code power conductors of wiring systems by means of colored insulation for sizes No. 8AWG and smaller. Color code larger conductors with 1-inch wide cloth or plastic colored adhesive tape on each end of the cables:

<table>
<thead>
<tr>
<th></th>
<th>480Y/277 System</th>
<th>208Y/120V System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase A</td>
<td>Brown</td>
<td>Black</td>
</tr>
<tr>
<td>Phase B</td>
<td>Yellow</td>
<td>Red</td>
</tr>
<tr>
<td>Phase C</td>
<td>Purple</td>
<td>Blue</td>
</tr>
<tr>
<td>Neutral</td>
<td>Gray</td>
<td>White</td>
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Low Voltage Wire and Cable
B. Wrap tape not less than two full turns around conductor.

C. Color code must be strictly maintained for Normal System and each Stand-By System with Normal System colors carried through transfer switches to associated Standby System conductors.

D. Equipment Grounding: Any conductor intended solely for equipment grounding purposes shall be green in color. Conductors having white covering shall be used only for the grounded neutral conductors. This requirement applies to all power, lighting, and control circuits.

2.05 TRAY CABLES

A. Cables installed in trays shall be TC rated for such application. The cables shall be installed in accordance with the requirements of NEC-318.

PART 3 - EXECUTION

3.01 INSTALLATION – POWER, CONTROL AND LIGHTING SYSTEMS WIRING

A. All wiring shall be installed in compliance with the latest applicable National Electrical Code and all other applicable codes and standards as indicated elsewhere in these specifications.

B. Unless as shown otherwise on the construction drawings, no wiring shall be installed in exposed raceways without the specific written approval of the District’s Representative for each instance. Where specifically approved by the District’s Representative, surface metal raceway of an appropriate color or electrical metallic tubing painted to match the underlying surfaces shall be used for surface wiring.

C. All wiring shall be identified with permanent wire labels, using alphanumeric designations. All terminations shall be identically labeled for the same wire (i.e. common conductors terminated in multiple locations). Wire labels shall agree with the wire designations provided in the interconnection diagrams.

D. All power, control and lighting wiring shall be installed in raceways separate from the Class 1, 2 or 3-signal wiring raceways unless specifically permitted by NEC-725.

E. All wiring shall be fully enclosed in appropriate metallic electrical raceway, cable tray, or conduit. Wiring within enclosures shall be neatly bundled and strapped or fastened to sub-panels or enclosure surfaces. Wiring connected to hinged doors shall be bundled and sleeved in a flexible plastic tubing to permit opening and closing of the door without straining wiring and without abrasion of wire insulation.

F. No wiring shall be installed in ventilation ducts or plenums.

G. Each main and branch circuit shall have its own neutral conductor. Shared neutral conductors shall not be installed.

H. Tape: Scotch No. 33+, Okonite, or equal, vinyl plastic applied in not less than two half-lapped layers where other insulating methods are not specified.

I. Identify conductors in outlets, pull boxes, panelboards, and similar locations where conductors are accessible with Thomas and Betts, Brady, or equal, printed plastic adhesive tapes to show
circuit number. Wrap tapes at least two turns around conductor. Mark panel identification number with felt tip pen on Patrick and Co. Size 1, Type 11-172, Dennison Co., or equal, cloth or plastic tag and attach to entering conductors with nylon string. Use numbered adhesive tapes, tags or insulation color to permit identification of individual wire or cable for communication, alarm, and control conductors.

J. Conductor Lubricant: Wireze, Minerallac No. 100, or equal, for installation of conductors in conduits, except that no lubricant will be permitted on conductors of ground isolated circuits.

K. Conductors in Enclosures: Provide neat and workmanlike installation with conductors trained and served with T&B Ty-Rap, Virginia Plastics, or equal, nylon wire ties in panelboards, terminal cabinets, switchboards, gutters, equipment enclosures and similar locations.

3.02 SPICES AND TERMINATIONS

A. Stranded Conductor No. 10 AWG and Smaller: The following installation methods shall be followed for termination of the stranded conductors:

1. All wire strands shall remain intact after the insulation is removed for the purpose of connecting the stranded wire to an approved lug or device.

2. When landing wires at a terminal strip approved for stranded wire, all strands shall be enclosed within the terminal. (No strands shall protrude from the terminal connector.)

3. When using lugs for termination, all strands of the wire shall be contained in the barrel of the lug before crimping.

4. Stranded Wire shall be terminated only on devices and terminals that are approved for stranded wire. Number of wire shall not exceed one per termination. If the terminal is rated for more than one conductor, the number of wires shall not exceed two.

5. In the case of screw type termination points, the wire would be required to have an insulated locking fork or ring type lug approved for the wire size, crimped to the stripped conductor with an approved crimping tool for that particular lug.

B. Stranded Conductor No. 8 AWG and Larger: Use mechanically die-compressed connectors except where connectors of special form, such as on molded case circuit breakers, are furnished as an integral part of equipment. Compression die shall deform both connector and conductor to provide a homogeneous mass in compressed volume. Connectors and installation tools shall be products of same manufacturer. Use Thomas and Betts (T&B) and BNRdy or equal electrical connectors.

C. Splices at junction boxes shall be made with an approved, insulated, live spring type connector such as those manufactured by Scotchlock, 3M or Ideal.

D. Use Erico Products Thermal weld connectors or Cadweld or equal for underground splices, taps, “T” and “X” connections of bare grounding conductors, for connections to building steel members, and where grounding conductor connections are required.

3.03 INTERFACE WITH OTHER SYSTEMS

A. Identify each conductor with its circuit number or other designation indicated on Drawings.
B. All Signal wiring shall comply with Article 725, 760, or 800, of the NEC, as applicable.

3.04 INSPECTION AND TESTS

A. General: The electrical installation shall be inspected and tested to ensure safety to building occupants and operating personnel and conformity to Code authorities and contract documents. Field tests shall be performed in conformance with the National Electrical Testing Association (NETA) Standards. Also, refer to section 26 08 00, “Electrical Acceptance Testing” for additional requirement.

B. Measure and record insulation resistance of all power and control wiring installed by, or altered by, the Contractor.

1. The insulation resistance of each circuit phase-to-phase and phase-to-ground shall be measured. For circuits rated less than 600 volts, the resistance shall not be less than one megohm.

2. Systems rated above 240 volts shall be tested with a 1000-volt megohm meter; circuits rated 240 volts and below shall be tested with a 500-volt megohm meter. The D.C. potential shall be applied for 30 seconds.

3. Measure resistance of each ground rod to earth. This shall be made with a Biddle "MEG" tester. Report the results on technical data sheets supplied to the Contractor by the District’s Representative.

4. The contractor shall record test readings and shall submit to District’s Representative for review and acceptance approval before energizing respective circuits.

END OF SECTION 26 05 19
SECTION 26 05 26
GROUNDING AND BONDING

PART 1 - GENERAL

1.01 SUMMARY

A. Electrical power system grounding and bonding, including all electrical equipment installed under this Contract.

B. All metallic installation including fences, handrails, structure, members, manholes, pullboxes. Handholes and as indicated.

1.02 REFERENCES


E. UL 467 – Grounding and Bonding Materials and Equipment

1.03 RELATED SECTIONS AND DOCUMENTS

A. Section 26 00 10: General Electrical Requirements

B. Section 26 08 00: Electrical Acceptance Testing

C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.04 SYSTEM DESCRIPTION

A. Ground the electrical service system neutral in accordance with utility requirements.

B. Ground each separately-derived system neutral in accordance with NFPA 70 to nearest ground grid.

C. Provide communications-system grounding conductor in accordance with NFPA 70 at point of service entrance and connect separate grounding electrode.

D. Bond together system neutrals, service equipment enclosures, exposed non-current-carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing systems in accordance with NFPA 70.
1.05 **SUBMITTALS**

   A. Submit shop drawings and manufacturer's literature for ground rods, grounding clamps, connectors and ground well boxes.

   B. The results of electrical continuity and ground resistance tests, performed on the installed grounded grid and its components, shall be submitted to the District's Representative for review.

**PART 2 - PRODUCTS**

2.01 **MATERIALS**

   A. Products for which tests have been established by the Underwriter's Laboratories, Inc. shall have been approved by that body, or an equivalent testing firm, acceptable to the District's Representative, and shall bear its label of approval.

   B. Ground conductors shall be bare, stranded, soft-drawn copper securely connected and sized as shown on the drawings and as required by NEC.

   C. System neutral conductors shall have 600-volt insulation.

   D. Ground System Devices:
      
      1. Ground Rods: Grade 40HS, cone-pointed, copper-encased steel, 3/4-inch-diameter, minimum length 10 feet. Copper shall have a minimum wall thickness of 0.013-inch at any point on the rod.
      
      2. Ground Rod Connectors: Accessible; Burndy, Copperweld, or equal.
      
      3. Cable Connectors: Accessible; O.Z./Gedney, Burndy, Anderson or equal.
      
      4. Ground Rod and Cable Connectors: Not Accessible; Cadweld, Thermoweld, or equal.
      
      5. Grounding Bushings: O.Z. Type BL, Burndy, or equal.
      
      6. Copper Tubing Connectors: O.Z. Type ABG, Burndy, Gibbons, Anderson or equal.
      
      7. Enclosure Connectors: O.Z. Type QG or KG, Burndy, or equal.
      
      8. Feedthrough Lug: Burndy Type Q2B, O.Z./Gedney, or equal.
      
      9. Concrete Ground Box: Brooks Concrete Products 3-RT, or equal.
      
      10. Copper Mechanical Grounding Connector for Copper Cable to Flat Bus Bar: Burndy Type KC Servit Post, Anderson or equal.

   E. Exothermic Welds: Exothermic-welding kits of types recommended for materials being joined and installation condition for direct burial.
      
      1. Manufacturers: Burndy, Erica-Caldweld and ThermOweld or approved equal.
PART 3 - EXECUTION

3.01 INSTALLATION

A. Grounding conductors shall be installed from each raceway system, current-consuming device,
   panelboard, cabinet, motor controller, switch, etc. to the equipment grounding block, located in
   its panelboard, to form a continuous grounding system.

B. Provide a separate, insulated, equipment-grounding conductor in feeder and branch circuits.
   Terminate each end on a grounding lug, bus, or bushing.

C. Grounding all substation equipment and structures directly to the main ground grid.

D. Supplementary Grounding Electrode: Use driven ground rod on exterior of building.

E. Use 6 AWG or heavier copper conductor for communications service grounding conductor.
   Leave 10 feet of slack conductor at terminal cabinet.

F. Isolated Grounding Systems: Use insulated equipment grounding conductor and connect only to
   separate grounding electrode as shown on drawings.

G. Equipment, not shown grounded on the drawings but for which a ground connection is required
   by the National Electrical Code, shall be grounded.

H. There shall be 18 inches of soil cover over the ground grid unless noted otherwise on the
   drawings.

I. Ground rods shall be installed where shown on the drawings. Rods shall be driven to a depth of
   not less than 10 feet below grade unless noted otherwise on the drawings.

J. All metallic conduits, terminating at manholes and handholes, shall be grounded using UL
   approved grounding type bushings.

K. The ground resistance of substation ground grids, before connection to the existing ground rod at
   any other point, shall not be greater than 5 ohms, when measured by the three electrode method.

L. System neutrals shall be grounded by connection to the ground bus at one point only.
   Transformer neutrals shall be grounded by separate copper conductors sized to comply with the
   NEC.

M. Secondaries of current transformers shall be grounded at the closest terminal on a shorting type
   block.

N. Secondaries of potential transformers shall be grounded at the transformers.

O. Lighting fixtures shall be grounded in accordance with the NEC.

P. Structural steel for buildings and other structures shall be effectively connected to the ground
   mat.

Q. Metal enclosures for all electrical equipment (switches, transformers, switchgear, panels, etc.)
   shall be grounded at two places or as shown on drawings.
R. Metal fences and gates shall be grounded as shown on drawings and as required by IEEE C2.

S. Bond all other metal non-current carrying parts that are to serve as grounding conductors to ensure electrical continuity.

T. Grounding Manholes and Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, tinned-copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrink insulating sleeve from 2 inches above to 6 inches below concrete. Seal floor opening with waterproof, nonshrink grout.

U. Grounding Connections to Manhole Components: Bond exposed-metal parts such as inserts, cable racks, pulling irons, ladders, and cable shields within each manhole or handhole, to ground rod or grounding conductor. Make connections with No. 4 AWG minimum, stranded, hard-drawn copper bonding conductor. Train conductors level or plumb around corners and fasten to manhole walls. Connect to cable armor and cable shields according to written instructions by manufacturer of splicing and termination kits.

3.02 EXOTHERMIC WELDS

A. Provide exothermic welds as indicated and in accordance with manufacturer instructions.

3.03 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.

2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer’s written instructions.

3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal[, at ground test wells][, and at individual ground rods]. Make tests at ground rods before any conductors are connected.

4. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.

5. Perform tests by fall-of-potential method according to IEEE 81 on the main switchgear grounding system.

C. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

D. Resistance to ground of the main power system grounding electrode shall not exceed 5 ohms. Measure resistance to ground from system neutral connection, at service entrance to convenient
ground reference point, using a Wheatstone Bridge ohmmeter. In the event that the power system grounding electrode resistance to ground is greater than 5 ohms, additional ground rods shall be installed, by the Contractor, until the 5 ohm criteria is met.

END OF SECTION 26 05 26
PART 1 - GENERAL

1.1 RELATED SECTIONS AND DOCUMENTS

A. Section 26 00 10: General Electrical Requirements

B. Section 26 08 00: Electrical Acceptance Testing

C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.2 SUMMARY

A. Section Includes:
   1. Metal conduits and fittings, including GRC and PVC-coated steel conduit.
   2. Rigid nonmetallic duct.
   3. Duct accessories.
   5. Precast manholes.
   7. Utility structure accessories.

1.3 DEFINITIONS

A. Direct Buried: Duct or a duct bank that is buried in the ground, without any additional casing materials such as concrete.

B. Duct: A single duct or multiple ducts. Duct may be either installed singly or as component of a duct bank.

C. Duct Bank:
   1. Two or more ducts installed in parallel, with or without additional casing materials.
   2. Multiple duct banks.

D. GRC: Galvanized rigid (steel) conduit.
1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include duct-bank materials, including spacers and miscellaneous components.
   2. Include duct, conduits, and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
   3. Include accessories for manholes, handholes, boxes[, and other utility structures].
   4. Include underground-line warning tape.
   5. Include warning planks.

B. Shop Drawings:
   1. Precast or Factory-Fabricated Underground Utility Structures:
      a. Include plans, elevations, sections, details, attachments to other work, and accessories.
      b. Include duct entry provisions, including locations and duct sizes.
      c. Include reinforcement details.
      d. Include frame and cover design and manhole chimneys.
      e. Include ladder details.
      f. Include grounding details.
      g. Include dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
      h. Include joint details.

   2. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:
      a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
      b. Include duct entry provisions, including locations and duct sizes.
      c. Include cover design.
      d. Include grounding details.
      e. Include dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.5 INFORMATIONAL SUBMITTALS

A. Product Certificates: For concrete and steel used in precast concrete manholes and handholes, as required by ASTM C 858.

B. Source quality-control reports.

C. Field quality-control reports.
1.6 MAINTENANCE MATERIALS SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

1.8 FIELD CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions, and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Refer to Division 1 for power interruption notification requirement.
2. Do not proceed with interruption of electrical service without District’s written permission.

B. Ground Water: Refer to Civil drawings for project site water table.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND FITTINGS

A. GRC: Comply with ANSI C80.1 and UL 6.

B. Manufacturers: Subject to compliance with requirements, provide products by the following:


C. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

2.2 RIGID NONMETALLIC DUCT

A. Underground Plastic Utilities Duct: Type EPC-40-PVC RNC encased in concrete as indicated, complying with NEMA TC 2 and UL 651, with matching fittings complying with NEMA TC 3 by same manufacturer as duct.

B. Underground Epoxy Fiberglass Duct: Type DB. DB shall be encased in concrete as indicated. RNC. UL2420, NEMA TC 14

C. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. CANTEX INC.
2. CertainTeed Corporation
3. Carlon
4. Champion Duct

D. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

E. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 DUCT ACCESSORIES

A. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Allied Tube & Conduit; a part of Atkore International.
   b. CANTEX INC.
   c. Carlon; a brand of Thomas & Betts Corporation.
   d. Underground Devices, Inc.

B. Underground-Line Warning Tape: Comply with requirements for underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."

C. Concrete Warning Planks: Nominal 12 by 24 by 3 inches in size, manufactured from 6000-psi concrete.

2. Mark each plank with "ELECTRIC" in 2-inch- high, 3/8-inch-deep letters.

2.4 PRECAST CONCRETE HANDHOLES AND BOXES

A. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Christy Concrete Products.
2. Oldcastle Precast, Inc.
3. Jensen Precast

C. Comply with ASTM C 858 for design and manufacturing processes.
D. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.

E. Frame and Cover: Weatherproof steel frame, with steel cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.

F. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing bolts.
   1. Cover Hinges: Concealed, with hold-open ratchet assembly.
   2. Cover Handle: Recessed.

G. Frame and Cover: Weatherproof aluminum frame with hinged aluminum access door assembly with tamper-resistant, captive, cover-securing bolts.
   1. Cover Hinges: Concealed, with hold-open ratchet assembly.
   2. Cover Handle: Recessed.

H. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

I. Cover Legend: Molded lettering, "HV ELECTRIC." as indicated for each service.

J. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
   1. Extension shall provide increased depth of 12 inches.
   2. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.

K. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.

L. Knockout Panels: Precast openings in walls, arranged to match dimensions and elevations of approaching duct, plus an additional 12 inches vertically and horizontally to accommodate alignment variations.
   1. Knockout panels shall be located no less than 6 inches from interior surfaces of walls, floors, or frames and covers of handholes, but close enough to corners to facilitate racking of cables on walls.
   2. Knockout panel opening shall have cast-in-place, welded-wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct.
   3. Knockout panels shall be framed with at least two additional No. 3 steel reinforcing bars in concrete around each opening.
   4. Knockout panels shall be 1-1/2 to 2 inches thick.

M. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
   1. Type and size shall match fittings to duct to be terminated.
2. Fittings shall align with elevations of approaching duct and be located near interior corners of handholes to facilitate racking of cable.

N. Handholes Size as indicated and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.5 PRECAST MANHOLES

A. Description: One-piece units and units with interlocking mating sections, complete with accessories, hardware, and features. Size as indicated.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Christy Concrete Products.
2. Oldcastle Precast, Inc.
3. Jensen Precast

C. Comply with ASTM C 858.

D. Structural Design Loading: Comply with requirements in "Underground Enclosure Application" Article.

E. Knockout Panels: Precast openings in walls, arranged to match dimensions and elevations of approaching duct, plus an additional 12 inches vertically and horizontally to accommodate alignment variations.

1. Knockout panels shall be located no less than 6 inches from interior surfaces of walls, floors, or roofs of manholes, but close enough to corners to facilitate racking of cables on walls.
2. Knockout panel opening shall have cast-in-place, welded-wire fabric reinforcement for field cutting and bending to tie in to concrete envelopes of duct.
3. Knockout panel shall be framed with at least two additional No. 3 steel reinforcing bars in concrete around each opening.
4. Knockout panels shall be 1-1/2 to 2 inches thick.

F. Duct Entrances in Manhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.

1. Type and size shall match fittings to duct to be terminated.
2. Fittings shall align with elevations of approaching duct and be located near interior corners of manholes to facilitate racking of cable.

G. Ground Rod Sleeve: Provide a 3-inch PVC sleeve in manhole floors 2 inches from the wall adjacent to, but not underneath, the duct entering the structure.
H. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.

I. Frame and Cover: Weatherproof aluminum frame with hinged aluminum access door assembly with tamper-resistant, captive, cover-securing bolts.
   1. Cover Hinges: Concealed, with hold-open ratchet assembly.
   2. Cover Handle: Recessed.
   3. Two equal size covers per manhole.

2.6 UTILITY STRUCTURE ACCESSORIES

A. Accessories for Utility Structures: Utility equipment and accessory items used for utility structure access and utility support, listed and labeled for intended use and application.

B. Manufacturers: Subject to compliance with requirements, provide products by the following:
   1. Oldcastle Precast, Inc.
   2. Underground Devices, Inc.
   3. Jensen Precast

C. Manhole Sump Frame and Grate: ASTM A 48/A 48M, Class 30B, gray cast iron.

D. Pulling Eyes in Concrete Walls: Eyebolt with reinforcing-bar fastening insert, 2-inch- diameter eye, and 1-by-4-inch bolt.
   1. Working Load Embedded in 6-Inch, 4000-psi Concrete: 13,000-lbf minimum tension.

E. Pulling Eyes in Nonconcrete Walls: Eyebolt with reinforced fastening, 1-1/4-inch diameter eye, rated 2500-lbf minimum tension.

F. Pulling-in and Lifting Irons in Concrete Floors: 7/8-inch diameter, hot-dip galvanized, bent steel rod; stress relieved after forming; and fastened to reinforcing rod. Exposed triangular opening.
   1. Ultimate Yield Strength: 40,000-lbf shear and 60,000-lbf tension.

G. Bolting Inserts for Concrete Utility Structure Cable Racks and Other Attachments: Flared, threaded inserts of noncorrosive, chemical-resistant, nonconductive thermoplastic material; 1/2-inch ID by 2-3/4 inches deep, flared to 1-1/4 inches minimum at base.
   1. Tested Ultimate Pullout Strength: 12,000 lbf minimum.

H. Ground Rod Sleeve: 3-inch PVC sleeve in manhole floors 2 inches from the wall adjacent to, but not underneath, the ducts routed from the facility.
I. Expansion Anchors for Installation after Concrete Is Cast: Zinc-plated, carbon-steel-wedge type with stainless-steel expander clip with 1/2-inch bolt, 5300-lbf rated pullout strength, and minimum 6800-lbf rated shear strength.

J. Cable Rack Assembly: Steel, Not acceptable.


1. Stanchions: Nominal 36 inches high by 4 inches wide, with minimum of nine holes for arm attachment.
2. Arms: Arranged for secure, drop-in attachment in horizontal position at any location on cable stanchions, and capable of being locked in position. Arms shall be available in lengths ranging from 3 inches with 450-lb minimum capacity to 20 inches with 250-lb minimum capacity. Top of arm shall be nominally 4 inches wide, and arm shall have slots along full length for cable ties.

L. Duct-Sealing Compound: Nonhardening, safe for contact with human skin, not deleterious to cable insulation, and workable at temperatures as low as 35 deg F. Capable of withstanding temperature of 300 deg F without slump and adhering to clean surfaces of plastic ducts, metallic conduit, conduit and duct coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and common metals.

M. Cover Hooks: Heavy duty, designed for lifts 60 lbf and greater. Two required.

N. Sump Pump: All manholes shall have sump pump installed in them. Refer to Drawings for detail requirement. Furnish and install all required material for a fully operated sump pump system.

2.7 SOURCE QUALITY CONTROL

A. Test and inspect precast concrete utility structures according to ASTM C 1037.

B. Nonconcrete Handhole and Pull-Box Prototype Test: Test prototypes of manholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by an independent testing agency.
2. Strength tests of complete boxes and covers shall be by an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification, complying with ISO 9000 and ISO 10012, and traceable to NIST standards.
PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate layout and installation of duct, duct bank, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify District if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.

B. Coordinate elevations of duct and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to manholes and handholes, and as approved by District.

C. Clear and grub vegetation to be removed, and protect vegetation to remain according to Section 31 00 00 "Site Clearing." Remove and stockpile topsoil for reapplication according to Section 31 00 00 "Site Clearing."

3.2 UNDERGROUND DUCT APPLICATION

A. Duct for Electrical Cables More Than 600 V: Type EPC-40-PVC RNC, concrete-encased unless otherwise indicated.

B. Duct for Electrical Feeders 600 V and Less: Type EPC-40-PVC RNC, concrete-encased unless otherwise indicated.

C. Duct for Electrical Feeders 600 V and Less: Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.

D. Duct for Electrical Branch Circuits: Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.


F. Stub-ups: GRC.

G. The above applications will only apply if none are specified in the Drawings.

3.3 UNDERGROUND ENCLOSURE APPLICATION

A. Handholes and Boxes for 600 V and Less:

1. Precast concrete. AASHTO HB 17, H-20 structural load rating.
2. Cover design load shall not exceed the design load of the handhole or box.
B. Manholes: Precast concrete.
   1. H-20 structural load rating according to AASHTO HB 17.

3.4 EARTHWORK

A. Excavation and Backfill: Comply with Section 31 20 00 "Earth Moving," but do not use heavy-duty, hydraulic-operated, compaction equipment.

B. Restoration: Replace area immediately after backfilling is completed or after construction vehicle traffic in immediate area is complete.

C. Restore surface features at areas disturbed by excavation, and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

D. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.

E. Cut and patch existing pavement in the path of underground duct, duct bank, and underground structures. according to "Excavation for Utility Trenches" Article in Section 31 20 00 "Earth Moving".

F. Repair existing curbs, sidewalks, etc. to match existing condition impacted by the installation of new underground ducts and raceways.

3.5 DUCT AND DUCT-BANK INSTALLATION

A. Where indicated on Drawings, install duct, spacers, and accessories into the duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.

B. Install duct according to NEMA TCB 2.

C. Slope: Pitch duct a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope duct from a high point between two manholes, to drain in both directions.

D. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends as appropriate adhering to small changes in direction for both horizontally and vertically, at other locations unless otherwise indicated.
   1. Duct shall have maximum of two 90 degree bends or the total of all bends shall be no more 180 degrees between pull points.

E. Joints: Use solvent-cemented joints in duct and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent duct do not lie in same plane.
F. Installation Adjacent to High-Temperature Steam Lines: Where duct is installed parallel to underground steam lines, perform calculations showing the duct will not be subject to environmental temperatures above 40 deg C. Where environmental temperatures are calculated to rise above 40 deg C, and anywhere the duct crosses above an underground steam line, install insulation blankets listed for direct burial to isolate the duct bank from the steam line.

G. End Bell Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch duct, and vary proportionately for other duct sizes.
   1. Begin change from regular spacing to end-bell spacing 10 feet from the end bell, without reducing duct slope and without forming a trap in the line.
   2. Expansion and Deflection Fittings: Install an expansion and deflection fitting in each duct in the area of disturbed earth adjacent to manhole or handhole. Install an expansion fitting near the center of all straight line direct-buried duct with calculated expansion of more than 3/4 inch.
   3. Grout end bells into structure walls from both sides to provide watertight entrances.

H. Terminator Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use manufactured, cast-in-place duct terminators, with entrances into structure spaced approximately 6 inches o.c. for 4-inch duct, and vary proportionately for other duct sizes.
   1. Begin change from regular spacing to terminator spacing 10 feet from the terminator, without reducing duct line slope and without forming a trap in the line.
   2. Expansion and Deflection Fittings: Install an expansion and deflection fitting in each duct in the area of disturbed earth adjacent to manhole or handhole. Install an expansion fitting near the center of all straight line duct with calculated expansion of more than 3/4 inch.

I. Building Wall Penetrations: Make a transition from underground duct to GRC at least 10 feet outside the building wall, without reducing duct line slope away from the building and without forming a trap in the line. Use fittings manufactured for RNC-to-GRC transition. Install GRC penetrations of building walls as specified in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

J. Sealing: Provide temporary closure at terminations of duct with pulled cables. Seal spare duct at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.


L. Concrete-Encased Ducts and Duct Bank:
   1. Excavate trench bottom to provide firm and uniform support for duct. Prepare trench bottoms as specified in Section 31 20 00 "Earth Moving" for pipes less than 6 inches in nominal diameter.
   2. Width: Excavate trench 12 inches wider than duct on each side.
   3. Width: Excavate trench 3 inches wider than duct on each side.
4. Depth: Install so top of duct envelope is at least 24 inches below finished grade in areas not subject to deliberate traffic, and at least 30 inches below finished grade in deliberate traffic paths for vehicles unless otherwise indicated.
5. Support duct on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
6. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 feet of duct. Place spacers within 24 inches of duct ends. Stagger spacers approximately 6 inches between tiers. Secure spacers to earth and to duct to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
7. Minimum Space between Duct: 3 inches between edge of duct and exterior envelope wall, 2 inches between ducts for like services, and 4 inches between power and communications ducts.
8. Elbows: Use manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct unless otherwise indicated. Extend encasement throughout length of elbow.
   a. Couple RNC duct to GRC with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
   b. Stub-ups to Outdoor Equipment: Extend concrete-encased GRC horizontally a minimum of 60 inches from edge of base. Install insulated grounding bushings on terminations at equipment.
      1) Stub-ups shall be flush or minimum 4 inches above finished floor or minimum 3 inches from conduit side to edge of slab as indicated.
   c. Stub-ups to Indoor Equipment: Extend concrete-encased GRC horizontally a minimum of 60 inches from edge of wall. Install insulated grounding bushings on terminations at equipment.
      1) Stub-ups shall flush or minimum 4 inches above finished floor or minimum 3 inches from conduit side to edge of slab as indicated.
10. Reinforcement: Reinforce concrete-encased duct where crossing disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.
11. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.
12. Concrete Cover: Install a minimum of 3 inches of concrete cover between edge of duct to exterior envelope wall, 2 inches between duct of like services, and 4 inches between power and communications ducts.
13. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.
   a. Start at one end and finish at the other, allowing for expansion and contraction of duct as its temperature changes during and after the pour. Use expansion fittings.
installed according to manufacturer's written instructions, or use other specific measures to prevent expansion-contraction damage.
b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch reinforcing-rod dowels extending a minimum of 18 inches into concrete on both sides of joint near corners of envelope.

14. Pouring Concrete: Comply with requirements in "Concrete Placement" Article in Section 03 30 00 "Cast-in-Place Concrete." Place concrete carefully during pours to prevent voids under and between duct and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Allow concrete to flow around duct and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-installation application.

M. Direct-Buried Duct and Duct Bank:

1. Excavate trench bottom to provide firm and uniform support for duct. Comply with requirements in Section 31 20 00 "Earth Moving" for preparation of trench bottoms for pipes less than 6 inches in nominal diameter.
2. Width: Excavate trench 12 inches wider than duct on each side.
3. Width: Excavate trench 3 inches wider than duct on each side.
4. Depth: Install top of duct at least 36 inches below finished grade unless otherwise indicated.
5. Set elevation of bottom of duct bank below frost line.
6. Support ducts on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
7. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 feet of duct. Place spacers within 24 inches of duct ends. Stagger spacers approximately 6 inches between tiers. Secure spacers to earth and to ducts to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
8. Install duct with a minimum of 3 inches between ducts for like services and 6 inches between power and communications duct.
10. Install manufactured GRC elbows for stub-ups, at building entrances, and at changes of direction in duct.

a. Couple RNC duct to GRC with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
b. Stub-ups to Outdoor Equipment: Extend concrete-encased GRC horizontally a minimum of 60 inches from edge of base. Install insulated grounding bushings on terminations at equipment.

1) Stub-ups shall be flush with or minimum 4 inches above finished floor and minimum 3 inches from conduit side to edge of slab as indicated.
c. Stub-ups to Indoor Equipment: Extend concrete-encased GRC horizontally a minimum of 60 inches from edge of wall. Install insulated grounding bushings on terminations at equipment.

1) Stub-ups shall be flush with or minimum 4 inches above finished floor and no less than 3 inches from conduit side to edge of slab as indicated.

11. After installing first tier of duct, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inches over duct and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction. Comply with requirements in Section 312000 "Earth Moving" for installation of backfill materials.

a. Place minimum 3 inches of sand as a bed for duct. Place sand to a minimum of 6 inches (150 mm) above top level of duct.

b. Place minimum 6 inches of engineered fill above concrete encasement of duct.

N. Warning Planks: Bury warning planks approximately 12 inches above direct-buried duct, placing them 24 inches o.c. Align planks along the width and along the centerline of duct or duct bank. Provide an additional plank for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional planks 12 inches apart, horizontally.

O. Underground-Line Warning Tape: Bury conducting underground line specified in Section 260553 "Identification for Electrical Systems" no less than 12 inches above all concrete-encased duct and duct banks and approximately 12 inches below grade. Align tape parallel to and within 3 inches of centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

3.6 INSTALLATION OF CONCRETE MANHOLES, HANDHOLES, AND BOXES

A. Cast-in-Place Manhole Installation:

1. Finish interior surfaces with a smooth-troweled finish.

2. Knockouts for Future Duct Connections: Form and pour concrete knockout panels 1-1/2 to 2 inches thick, arranged as indicated.

3. Comply with requirements in Section 03 30 00 "Cast-in-Place Concrete" for cast-in-place concrete, formwork, and reinforcement.

B. Precast Concrete Handhole and Manhole Installation:

1. Comply with ASTM C 891 unless otherwise indicated.

2. Install units level and plumb and with orientation and depth coordinated with connecting duct, to minimize bends and deflections required for proper entrances.
3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevations:

1. Manhole Roof: Install with rooftop at least 15 inches below finished grade.
2. Manhole Frame: In paved areas and trafficways, set frames flush with finished grade. Set other manhole frames 1 inch above finished grade.
3. Install handholes with bottom below frost line.
4. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch above finished grade.
5. Where indicated, cast handhole cover frame integrally with handhole structure.

D. Drainage: Install drains in bottom of manholes where indicated. Coordinate with drainage provisions indicated.

E. Hardware: Install removable hardware, including pulling eyes, cable stanchions, and cable arms, and insulators, as required for installation and support of cables and conductors and as indicated.

F. Fixed Manhole Ladders: Arrange to provide for safe entry with maximum clearance from cables and other items in manholes.

G. Field-Installed Bolting Anchors in Manholes and Concrete Handholes: Do not drill deeper than 3-7/8 inches for manholes and 2 inches for handholes, for anchor bolts installed in the field. Use a minimum of two anchors for each cable stanchion.

3.7 GROUNDING

A. Ground underground ducts and utility structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.8 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.

2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 12-inch-long mandrel equal to duct size minus 1/4 inch. If obstructions are indicated, remove obstructions and retest.

3. Test manhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 26 05 26 "Grounding and Bonding for Electrical Systems."

B. Correct deficiencies and retest as specified above to demonstrate compliance.
C. Prepare test and inspection reports.

3.9 CLEANING

A. For existing and new ducts, pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of manholes, including sump.
   1. Sweep floor, removing dirt and debris.
   2. Remove foreign material.

END OF SECTION 26 05 43
SECTION 26 05 73
OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY

PART I—GENERAL

1.01 SUMMARY
A. This Section includes computer-based, fault-current, overcurrent protective device coordination and Arc Flash studies from PG&E 21kV Point of Connection to each transformer secondary side (480V and 208V). Protective devices at the main switchgear shall be set based on results of the protective device coordination study.

1.02 SUBMITTALS
A. Product Data: For computer software program to be used for studies.
B. Product Certificates: For coordination-study and fault-current-study computer software programs, certifying compliance with IEEE 399.
C. Qualification Data: For coordination-study specialist.
D. Other Action Submittals: The following submittals shall be made after the approval process for system protective devices has been completed. Submittals shall be in digital form.
   1. Coordination-study input data, including completed computer program input data sheets.
   2. Study and Equipment Evaluation Reports.

1.03 RELATED SECTIONS AND DOCUMENTS
A. Section 26 00 10: General Electrical Requirements
B. Section 26 08 00: Electrical Acceptance Testing
C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.04 QUALITY ASSURANCE
A. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are not acceptable.
B. Coordination-Study Specialist Qualifications: An entity experienced in the application of computer software used for studies, having performed successful studies of similar magnitude on electrical distribution systems using similar devices.

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Section 26 05 73 - Page 1 of 8
Overcurrent Protective Device Coordination Study
1. A professional engineer, licensed in California, shall be responsible for the study. All elements of the study shall be performed under the direct supervision and control of engineer.

C. Comply with IEEE 242 for short-circuit currents and coordination time intervals.

D. Comply with IEEE 399 for general study procedures.

PART 2—PRODUCTS

2.01 COMPUTER SOFTWARE DEVELOPERS

A. Available Computer Software Developers: Subject to compliance with requirements, companies offering computer software programs that may be used in the Work include, but are not limited to, the following:

1. CYME.
2. EDSA Micro Corporation.
3. ESA Inc.
4. Operation Technology, Inc.
5. SKM Systems Analysis, Inc.

2.02 COMPUTER SOFTWARE PROGRAM REQUIREMENTS

A. Comply with IEEE 399.

B. Analytical features of fault-current-study computer software program shall include "mandatory," "very desirable," and "desirable" features as listed in IEEE 399.

C. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves with single-line as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.

PART 3—EXECUTION

3.01 POWER SYSTEM DATA

A. Gather and tabulate the following input data to support coordination study:

1. Product Data for overcurrent protective devices specified in other Division 26 Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.

2. PG&E Information dated November 2014:

   Below information shall be confirm with PG&E Contact (Jacqueline Clarke, JPC3@pge.com)

   DVC: 321 Golf Club Rd ssd 1321 on Tidewater 2110.
Maximum available three-phase and single phase fault currents (from PG&E system) at PCC:
3-phase Asym=3509 amps, 3-phase Sym=3118 amps,

PG&E Protective device directly upstream from the campus main breaker:
Line Recloser C594R, Type NOVA with Cooper Form 6 controller (CT=1000/1)
Settings
Phase: MTT=540, Curve=133, Instantaneous=4320 amps
Ground: MTT=240, Curve=133, Instantaneous=4320 amps

3. Electrical Distribution System Diagram: In hard-copy and electronic-copy formats, showing the following:
   a. Circuit-breaker and fuse-current ratings and types.
   b. Relays and associated power and current transformer ratings and ratios.
   c. Transformer kilovolt amperes, primary and secondary voltages, connection type, impedance, and X/R ratios.
   d. Generator kilovolt amperes, size, voltage, and source impedance.
   e. Photovoltaic system
   f. Cables: Indicate conduit material, sizes of conductors, conductor material, insulation, and length.
   g. Busway ampacity and impedance.
   h. Motor horsepower and code letter designation according to NEMA MG 1.

4. Data sheets to supplement electrical distribution system diagram, cross-referenced with tag numbers on diagram, showing the following:
   a. Special load considerations, including starting inrush currents and frequent starting and stopping.
   b. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
   c. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.
   d. Generator thermal-damage curve.
   e. Ratings, types, and settings of utility company's overcurrent protective devices.
   f. Special overcurrent protective device settings or types stipulated by utility company.
   g. Time-current-characteristic curves of devices indicated to be coordinated.
   h. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere or current sensor rating, long-time adjustment range, short-time
adjustment range, and instantaneous adjustment range for circuit breakers.

i. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.

j. Switchgear, Panelboards, switchboards, motor-control center ampacity, and interrupting rating in amperes rms symmetrical.

3.02 FAULT-CURRENT STUDY

A. Calculate the maximum available short-circuit current in amperes rms symmetrical at circuit-breaker positions of the electrical power distribution system. The calculation shall be for a current immediately after initiation and for a three-phase bolted short circuit as indicated.

B. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Include studies of system-switching configurations and alternate operations that could result in maximum fault conditions.

C. Calculate momentary and interrupting duties on the basis of maximum available fault current.

D. Calculations to verify interrupting ratings of overcurrent protective devices shall comply with IEEE 241 and IEEE 242.

1. Transformers:
   a. ANSI C57.12.22.
   b. IEEE C57.12.00.
   c. IEEE C57.96.


4. Low-Voltage Fuses: IEEE C37.46.

E. Study Report:

1. Show calculated X/R ratios and equipment interrupting rating (1/2-cycle) fault currents on electrical distribution system diagram.

F. Equipment Evaluation Report:

1. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

2. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.

3. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding
electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

4. Verify that selected and furnished for all electrical equipment ratings meet or exceed the fault currents for worst condition. Provide a Summary Report Listing.

5. Immediately notify the Engineer if the calculated fault currents exceeds the indicated equipment rating on the Plans.

3.03 COORDINATION STUDY

  1. Calculate the maximum and minimum 1/2-cycle short-circuit currents.
  2. Calculate the maximum and minimum interrupting duty (5 cycles to 2 seconds) short-circuit currents.
  3. Calculate the maximum and minimum ground-fault currents.

A. Comply with IEEE 242 recommendations for fault currents and time intervals.

B. Transformer Primary Overcurrent Protective Devices:
  1. Device shall not operate in response to the following:
     a. Inrush current when first energized.
     b. Self-cooled, full-load current or forced-air-cooled, full-load current, whichever is specified for that transformer.
     c. Permissible transformer overloads according to IEEE C57.96 if required by unusual loading or emergency conditions.
  2. Device settings shall protect transformers according to IEEE C57.12.00, for fault currents.

C. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and conductor melting curves in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.

D. Coordination-Study Report: Prepare a written report indicating the following results of coordination study:
  1. Tabular Format of Settings Selected for Overcurrent Protective Devices:
     a. Device tag.
     b. Relay-current transformer ratios; and tap, time-dial, and instantaneous-pickup values.
c. Circuit-breaker sensor rating; and long-time, short-time, and instantaneous settings.

d. Fuse-current rating and type.

e. Ground-fault relay-pickup and time-delay settings.

2. Coordination Curves: Prepared to determine settings of overcurrent protective devices to achieve maximum selectivity to minimize system disturbances during fault clearing. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices (PG&E). Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:

a. Device tag.

b. Voltage and current ratio for curves.

c. Three-phase and single-phase damage points for each transformer.

d. No damage, melting, and clearing curves for fuses.

e. Cable damage curves.

f. Transformer inrush points.

g. Maximum fault-current cutoff point.

h. Sketch of bus, breakers, fuses, and related equipment arrangement.

E. Completed data sheets for setting of overcurrent protective devices.

3.04 ARC FLASH STUDY

A. The Contractor shall be responsible to obtain and verify all data needed to perform the study. The arc flash analysis study shall include the following IEEE Standard 1584 nine step analysis process:

1. Collect system and installation data.

2. Determine modes of operation.

3. Determine bolted fault current.

4. Determine arc fault current.

5. Determine protective device characteristic and arc fault duration.

6. Document system voltages and equipment class.

7. Select working distances.

8. Calculate incident energy.

9. Calculate the arc flash protection boundary.
3.05 IMPLEMENTING THE PROTECTIVE DEVICE COORDINATION STUDY SETTINGS AND ARC FLASH SIGN INSTALLATION

A. The Contractor shall implement the protective device coordination study settings on new equipment based on the Engineer’s accepted Protective Device Coordination Report specified herein, and submit a final amended report of the Record As-Built electrical equipment protective device settings subsequent to start-up and testing.

B. Contractor shall provide the Arc Flash Hazard sign installation requirements for electrical equipment as specified in NEC Article 110.16 Flash Protection and NFPA 70E.

END OF SECTION 26 05 73
SECTION 26 08 00

ELECTRICAL ACCEPTANCE TESTING

PART 1 - GENERAL

1.01 SUMMARY

A. The work under this Section includes furnishing all labor, materials, appliances, tools, equipment, services, and technical supervision to perform a complete testing and inspection program on the electrical system and its related equipment as indicated on the plans from the point of incoming power supply to the utilization equipment. The work may include, but not be limited to, the following:

1. Inspection, cleaning, testing, start-up and initial preventative maintenance procedures, recommended and/or required by the manufacturer of the main switchgear and transformer T1
2. Medium Voltage Cables installed Contractor
3. Low Voltage Wire and Cable system for Sump Pumps installed Contractor
4. Grounding System at Main Switchgear installed by Contractor


C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

D. Refer to other specification electrical sections for specific and additional testing requirements.

1. Section 26 05 13 – Medium Voltage Cable
2. Section 26 05 13 – Low Voltage Wire and Cable
3. Section 26 05 26 – Grounding and Bonding
4. Section 26 13 26 – Medium Voltage Metal-Clad Switchgear
5. Section 26 12 19 – Pad Mounted Liquid-Filled, Medium Voltage Transformer

1.02 ELECTRICAL TESTING SERVICE COMPANY

A. The Contractor shall retain a Certified Testing Agency to perform the required field acceptance tests to provide the District with unbiased assurance that the installation has been provided in accordance with the Drawings and Specifications.

B. The Testing and Appraisal Firm shall be a corporately and financially independent testing organization which can function as an unbiased testing and evaluation authority, professionally independent of the manufacturers, suppliers and installers of equipment or systems evaluated by said Testing Firm.
C. The testing and appraisal firm shall be regularly engaged in the testing and appraisal of electrical equipment, devices, installations and systems similar to those found in this project.

D. The Testing and Appraisal Firm shall meet the OSHA criteria for accreditation of recognized and approved testing laboratories (Title 29, Part 1907), or be a Full Member company of the International Electrical Testing Association (INETA).

E. The lead onsite technical representative of the testing and appraisal firm shall be currently certified by INETA or the National Institute for Certification in Engineering Technologies (NICET) in electrical power distribution system testing.

F. The Testing and Appraisal firm shall utilize engineers and technicians who are regularly employed by the firm for testing and appraisal services.

G. All tests shall be performed in the presence of the District Representative. A copy of the test results shall be submitted to the District Representative after each test in the field and no later than 15 days after completion of the tests. Notify in writing, 10 working days prior to any testing.

### 1.03 SUBMITTALS

The following information shall be submitted for review:

A. Test procedures in accordance with NETA ATS-2013 standards edition.

B. Proof that the Contractor’s independent testing firm qualifies to perform electrical testing.

C. A copy of this specification section with addenda updates and all referenced sections with addenda updates with each paragraph check marked to show specification compliance or marked to show deviations.

D. Complete test report no later than 15 days after completion of the tests. Submit five (5) copies of the completed test report to the District Representative no later than 15 days after completion of the test.

### PART 2 - PRODUCTS

#### 2.01 DOCUMENTATION

A. GENERAL:

Test records shall be provided in accordance with this section.

B. DEFECTS:

Contractor shall notify the District Representative of any material or workmanship found
defective within 24 hours of discovery.

Any material or workmanship found defective or cannot pass the tests specified in this section shall be repaired or replaced by manufacturer’s representative at no additional cost to the District. Testing firm shall not be a representative of the equipment manufacturer.

Contractor responsible for any damage to equipment or material due to improper test procedures or test apparatus handling. Replace or restore to original condition any damaged equipment or material.

Complete correction of defective material or equipment and retesting within the Contract period.

If the equipment or material cannot pass the second test, remove the defective equipment and replace it with equivalent equipment that meets the requirements of the Specifications. Such replacement shall be at no additional cost to the District.

Remove defective equipment or material from the site no later than 15 days from the date of notification by the District or his representative.

C. TEST REPORT:

The Contractor shall provide the report required in NETA paragraph 5.4 and are included herein for Contractor’s reference.

1. The test report shall include the following:

   a. Summary of project.
   b. Description of equipment tested.
   c. Description of test.
   d. Test data.
   e. Analysis and recommendations.

2. Test data records shall include the following minimum requirements:

   a. Identification of the testing organization.
   b. Equipment identification.
   c. Humidity, temperature, and other atmospheric conditions that may affect the results of the tests/calibrations.
   d. Date of inspections, tests, maintenance, and/or calibrations.
e. Identification of the testing technician.

f. Indication of inspections, tests, maintenance, and/or calibrations to be performed and recorded.

g. Indication of expected results when calibrations are to be performed.

h. Indication of “as-found” and “as-left” results.

i. Sufficient spaces to allow all results and comments to be indicated.

3. The testing firm shall furnish a copy or copies of the complete report to the owner as required in the acceptance contract.

   a. The results of all tests shall be submitted to the District Representative in an indexed engineering report. The report shall be completed in a professional manner.

   b. The engineering report shall be stamped and signed by a licensed and registered electrical engineer employed by the company.

Provide brief field report after completion of any test prior to leaving the site. Report may be typed or printed. List the equipment tested, describe any deficiencies found and recommended corrections. Leave report copies with the District Representative.

2.02 TEST EQUIPMENT AND MATERIALS

Test instruments shall be calibrated to references traceable to the National Institute of Standards and Technology (NIST) and shall have a current sticker showing date of calibration, deviation from standard, name of calibration laboratory and technician, and date recalibration is required. Test instruments shall be provided in this section.

Provide and use safety devices such as rubber gloves and blankets, protective screen, barriers and danger signs to adequately protect and warn all personnel in the vicinity of the tests.

PART 3 – EXECUTION

3.01 GENERAL

Contractor shall submit equipment to be tested, test procedures, and test instruments to be used showing manufacturer’s name, model, serial numbers and certificate of calibration prior to performing any test. All testing will be rejected without prior approval of these submittals.

Acceptance testing shall be performed and a test report submitted and approved prior to energization of the tested equipment.
The test will not be performed on a one time basis. If the test indicates any equipment to repair or replace, they shall be located, repaired, replaced and tested again at the expense of the Contractor. This includes the arrangement and cost, if any, of the necessary utility outage.

All testing shall be performed by an independent electrical testing laboratory in strict conformance with the electrical acceptance tests.

The testing firm shall perform certain preliminary low-voltage insulation resistance, continuity, and/or rotation tests prior to and in addition to tests specified herein.

All tests shall be performed in the presence of the District Representative. A field copy of the test results shall be signed by the Test Engineer and the District Representative and a signed copy shall be submitted to the District Representative after each test in the field. Notify in writing, ten (10) working days prior to any testing.

Contractor shall submit test report(s) to the District Representative within 15 days from the equipment testing date. If a test report is rejected, and retesting of equipment is required, or any equipment test that has not been performed by a qualified testing agency prior to energization, Contractor shall pay for all testing/retesting costs which include, but not limited to, labor and material costs of the testing agency, overtime labor cost of the, customer's claim(s) on power outage and backup generator costs.

3.02 REQUIREMENT FOR TESTING

Requirement for testing in accordance with this section are specified in other sections of Division 26. The required tests, including correction of defects where found, and retesting, shall be completed prior to acceptance of material, equipment or systems.

3.03 PROTECTIVE DEVICE COORDINATION, PROGRAMMING, CALIBRATION, SETTING AND TESTING

A. The Contractor shall secure the services of a certified engineering and testing firm to provide a certified and skilled relay technician actively engaged in the business of programming, calibrating, setting and testing PC-based microprocessor protective relays, and power monitors. The testing firm will be responsible for programming, calibrating, setting and testing PC-based microprocessor protective relays, power meters and all relays, breakers and metering shown on the Drawings. Download any software provided by the relay, power monitor and meter from the Manufacturer and program as recommended by the installation manual.

The relay technician shall adhered strictly to the manufacturer’s instruction manual in programming, calibrating, setting, commissioning and testing the relays and other related devices. The relay settings shall be in accordance with the approved specification Section 26 05 73, “Overcurrent Protective Relay Device Study”.

Relay Test Certification: The Contractor shall provide the District Representative with eight (8) copies of an attested certificate stating that the relays have been programmed, set, tested and adjusted in accordance with the requirements provided by the District Representative and indicating the relay settings where programmed in accordance with his
recommended setting instructions. Final field programming, settings and test information shall be reported on spreadsheets conforming to the manufacturer’s standard “start-up and setting – product setup” forms that will be completed by the certified testing firm. Engineer’s/Technician’s initials and company info and date shall be placed on a card in the relay window and/or in the relay case.

- END OF SECTION – 26 08 00
SECTION 261219
PAD-MOUNTED, LIQUID-FILLED, MEDIUM-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes pad-mounted, liquid-filled, medium-voltage distribution transformers, with primary and secondary bushings within or without air-terminal enclosures.

1.3 DEFINITIONS

A. BIL: Basic Impulse Insulation Level.

B. Bushing: An insulating structure including a central conductor, or providing a central passage for a conductor, with provision for mounting on a barrier, conducting or otherwise, for the purpose of insulating the conductor from the barrier and conducting current from one side of the barrier to the other.

C. Bushing Elbow: An insulated device used to connect insulated conductors to separable insulated connectors on dead-front, pad-mounted transformers and to provide a fully insulated connection. This is also called an "elbow connector."

D. Bushing Insert: That component of a separable insulated connector that is inserted into a bushing well to complete a dead-front, load break or nonload break, separable insulated connector (bushing).

E. Bushing Well: A component of a separable insulated connector, either permanently welded or clamped to an enclosure wall or barrier, having a cavity that receives a replaceable component (bushing insert) to complete the separable insulated connector (bushing).

F. Elbow Connector: See "bushing elbow" above.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. Include rated capacities, operating characteristics, and furnished specialties and accessories.
B. Shop Drawings: For pad-mounted, liquid-filled, medium-voltage transformers.
   1. Include plans and elevations showing major components and features.
      a. Include a plan view and cross section of equipment base, showing clearances, required workspace, and locations of penetrations for grounding and conduits.
   2. Include details of equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   3. Include single-line diagram.
   4. Include list of materials.
   5. Include nameplate data.
   6. Manufacturer’s published time-current curves of the transformer high-voltage fuses, with transformer damage curve, inrush curve, and thru fault current indicated.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings:
   1. Utilities site plan, drawn to scale, showing heavy equipment or truck access paths for maintenance and replacement.

B. Qualification Data: For testing agency.

C. Seismic Qualification Certificates: For transformer assembly, accessories, and components, from manufacturer.
   1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
   2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity, and locate and describe mounting and anchorage provisions.
   3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Product Certificates: For transformers, signed by product manufacturer.

E. Source quality-control reports.

F. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For transformer and accessories to include in emergency, operation, and maintenance manuals.
1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with IEEE C2.

C. Comply with IEEE C57.12.00.

2.2 PERFORMANCE REQUIREMENTS

A. Seismic Requirement: The manufacturer shall provide equipment and anchor bolt design with certification to meet CBC 2016 ASCE 7-10 and IEEE 693-2005, per Earthquake Design Criteria for project site as listed below. Manufacturer shall provide seismic calculations prepared by California Registered Professional Engineer to establish anchor bolt requirements.

<table>
<thead>
<tr>
<th>Earthquake Design Criteria</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy Category</td>
<td>IV</td>
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<tr>
<td>Seismic Importance Factor</td>
<td>I=1.5</td>
</tr>
<tr>
<td>Location (Latitude/Longitude)</td>
<td>37.96831, -122.07004</td>
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<tr>
<td>Seismic Design Category</td>
<td>D</td>
</tr>
<tr>
<td>Site Class</td>
<td>C</td>
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<tr>
<td>Site Coefficients</td>
<td>FA = 1.0, FV = 1.3</td>
</tr>
<tr>
<td>Mapped Spectral Response Accelerations</td>
<td>SS = 1.887, S1 = 0.663</td>
</tr>
<tr>
<td>Spectral Response Coefficients</td>
<td>SDS = 1.258, SD1 = 0.575</td>
</tr>
</tbody>
</table>

B. Windings Material: Copper.

C. Surge Arresters: Comply with IEEE C62.11, Distribution Class; metal-oxide-varistor type, fully shielded, separable-elbow type, suitable for plugging into the inserts provided in the high-voltage section of the transformer. Connected in each phase of incoming circuit and ahead of any disconnecting device.

D. Winding Connections: The connection of windings and terminal markings shall comply with IEEE C57.12.70.

E. Efficiency: Comply with 10 CFR 431, Subpart K.

F. Insulation: Transformer kVA rating shall be as follows: The average winding temperature rise above a 30 deg C ambient temperature shall not exceed 65 deg C and 80 deg C hottest-spot
temperature rise at rated kVA when tested according to IEEE C57.12.90, using combination of connections and taps that give the highest average winding temperature rise.

G. Tap Changer: External handle, for de-energized operation.

H. Tank: Sealed, with welded-on cover. Designed to withstand internal pressure of not less than 7 psi (50 kPa) without permanent distortion and 15 psig (104 kPa) without rupture. Comply with IEEE C57.12.36.

I. Enclosure Integrity: Comply with IEEE C57.12.28 for pad-mounted enclosures that contain energized electrical equipment in excess of 600 V that may be exposed to the public.

J. Mounting: An integral skid mounting frame, suitable to allow skidding or rolling of transformer in any direction, and with provision for anchoring frame to pad. Refer to structural drawing for anchorage details which manufacturer must adhere and provide

K. Insulating Liquids:

1. Mineral Oil: ASTM D 3487, Type II, and tested for compliance with ASTM D 117.

2. Less-Flammable Liquids:
   a. Edible-Seed-Oil-Based Dielectric: Listed and labeled by an NRTL as complying with NFPA 70 requirements for fire point of not less than 300 deg C when tested according to ASTM D 92. Liquid shall be biodegradable and nontoxic, having passed the Organisation for Economic Co-operation and Development G.L.203 with zero mortality, and shall be certified by the U.S. Environmental Protection Agency as biodegradable, meeting Environmental Technology Verification requirements.
   b. Biodegradable and Nontoxic Dielectric: Listed and labeled by an NRTL as complying with NFPA 70 requirements for fire point of not less than 300 deg C when tested according to ASTM D 92.

L. Sound level shall comply with NEMA TR 1 requirements.

M. Corrosion Protection:

1. Transformer coating system shall be factory applied, complying with requirements of IEEE C57.12.28 and IEEE C57.12.29, in manufacturer's standard color green.

2. Fabricate front sill, hood, and tank base of single-compartment transformers from stainless steel according to ASTM A 167, Type 304 or 304L, not less than No. 13 U.S. gage, complying with requirements of IEEE C57.12.28 and IEEE C57.12.29, standard color green.

2.3 THREE-PHASE TRANSFORMERS

A. Manufacturer:
   1. ABB
   2. Cooper Industries
   3. Eaton
   4. General Electric

B. Description:
   1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Compartment Construction:
   1. Double-Compartment Construction: Individual compartments for high- and low-voltage sections, formed by steel isolating barriers that extend full height and depth of compartments, with hinged, lift-off doors and three-point latching, with a stop in the open position and provision for padlocking.

D. Primary Fusing: Designed and rated to provide thermal protection of transformer by sensing overcurrent and high liquid temperature.
   1. 150-kV BIL current-limiting fuses, conforming to requirements of IEEE C37.47.
   2. Interrupting Rating: 50,000 rms A symmetrical at system voltage.
   4. Provide bayonet fuse assembly with an oil retention valve and an external drip shield inside the housing to eliminate or minimize oil spills. Valve shall close when fuse holder is removed and an external drip shield is installed.
   5. Provide a conspicuously displayed warning adjacent to bayonet fuse(s), cautioning against removing or inserting fuses unless transformer has been de-energized and tank pressure has been released.

E. High-Voltage Section: Dead-front design.
   1. To connect primary cable, use separable insulated connectors; coordinated with and complying with requirements of Section 260513 "Medium-Voltage Cables." Bushings shall be one-piece units, with ampere and BIL ratings the same as connectors.
   2. Bushing inserts and feed-through inserts:
      a. Conform to the requirements of IEEE 386.
      b. Rated at 200 A, with voltage class matching connectors. Provide a parking stand near each bushing well. Parking stands shall be equipped with insulated standoff bushings for parking of energized load-break elbow connectors on parking stands.
      c. Provide insulated protective caps for insulating and sealing out moisture from unused bushing inserts and insulated standoff bushings.
3. Bushing wells configured for loop-feed application.
5. Dead-front surge arresters.
6. Tap-changer operator.
7. Load-Break Switch:
   a. Loop-feed sectionalizing switches, using three two-position, liquid-immersed-type switches for closed transition loop-feed and sectionalizing operation. Voltage class and BIL shall match that of separable connectors, with a continuous current rating and load-break rating of 200 amperes, and a make-and-latch rating of 12 kA rms symmetrical. Switch operation shall be as follows:
   b. Position I: Line A connected to line B and both lines connected to the transformer.
   c. Position II: Transformer connected to line A only.
   d. Position III: Transformer connected to line B only.
   e. Position IV: Transformer disconnected and line A not connected to line B.
   f. Position V: Transformer disconnected and line A connected to line B.
   g. Note: Line B not used. For future.
8. Ground pad.

F. Low-Voltage Section:
1. Bushings with spade terminals drilled for terminating the number of conductors indicated on the Drawings, and the lugs that comply with requirements of Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
2. The secondary section shall also house a 1600AF/1200AT secondary Main Circuit Breaker. The breaker shall be molded case of the quick-make, quick-break, trip-free, solid state type. The continuous current rating shall be adjustable from 20 to 100% without the need for a rating plug. Solid state breaker trip functions shall include adjustments for continuous amperage, long time pickup and delay, instantaneous, short time pickup and delay, and ground fault pickup and delay. The breaker shall have a handle padlocking device for padlock.
3. Provide wire lugs to terminate multiple conductors per phase as indicated.
4. Install breaker in a position to allow adequate bending radius per NEC of outgoing multiple per phase wires.

G. Capacities and Characteristics:
1. Power Rating (kVA): As Indicated.
2. Voltage Ratings: 4.16 kV - 480Y/277 V.
3. Taps: Comply with IEEE C57.12.26 requirements.
4. Transformer BIL (kV): Comply with IEEE C57.12.26 requirements
5. Minimum Tested Impedance (Percent at 85 deg C): 5.75
7. Comply with FM Global Class No. 3990.
8. Comply with UL listing requirements for combination classification and listing for transformer and less-flammable insulating liquid.

H. Transformer Accessories:
Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear

Section 26 12 19 - Page 6 of 14
Pad-Mounted, Liquid-Filled, Medium-Voltage Transf.
1. Drain and filter connection.
2. Filling and top filter press connections.
3. Pressure-vacuum gauge.
4. Dial-type analog thermometer with alarm contacts.
5. Magnetic liquid level indicator with high and low alarm contacts.
6. Automatically resetting pressure-relief device. Device flow shall be as recommended by manufacturer. With alarm contacts and a manual bleeder.
7. Stainless-steel ground connection pads.
9. Sudden pressure relay for remote alarm or trip when internal transformer pressure rises at field-set rate. Provide with seal-in delay.

2.4 SERVICE CONDITIONS

A. Transformers shall be suitable for operation under service conditions specified as usual service conditions in IEEE C57.12.00, except for the following:

1. Altitudes above 3300 feet (1000 m).
2. Cooling air temperature exceeds limits.
3. Excessive load current harmonic factor.
4. Operation above rated voltage or below rated frequency.
5. Exposure to explosive environments.
6. Exposure to fumes, vapors, or dust.
7. Exposure to hot and humid climate or to excessive moisture, including steam, salt spray, and dripping water.
8. Exposure to seismic shock or to abnormal vibration, shock, or tilting.
9. Exposure to excessively high or low temperatures.
10. Unusual transportation or storage conditions.
11. Unusual grounding resistance conditions.

2.5 CONTROL NETWORK

A. Controllers: Support serial MS/TP and Ethernet IP communications, and able to communicate directly via RS-485 serial networks and Ethernet 10Base-T networks as a native device.

2.6 WARNING LABELS AND SIGNS

A. Comply with requirements for labels and signs specified in Section 260553 "Identification for Electrical Systems."

1. High-Voltage Warning Label: Provide self-adhesive warning signs on outside of high-voltage compartment door(s). Sign legend shall be "DANGER HIGH VOLTAGE" printed in two lines of nominal 2-inch- (50-mm)-high letters. The word "DANGER" shall be in white letters on a red background and the words "HIGH VOLTAGE" shall be in black letters on a white background.
2. Arc Flash Warning Label: Provide self-adhesive warning signs on outside of high-voltage compartment door(s), warning of potential electrical arc flash hazards and appropriate personal protective equipment required.
2.7 SOURCE QUALITY CONTROL

A. Provide manufacturer's certificate that the transformer design tests comply with IEEE C57.12.90.

1. Perform the following factory-certified routine tests on each transformer for this Project:
   a. Resistance.
   b. Turns ratio, polarity, and phase relation.
   c. Transformer no-load losses and excitation current at 100 percent of ratings.
   d. Transformer impedance voltage and load loss.
   e. Operation of all devices.
   f. Lightning impulse.
   g. Low frequency.
   h. Leak.
   i. Transformer no-load losses and excitation current at 110 percent of ratings.
   j. Insulation power factor.
   k. Applied potential, except that this test is not required for single-phase transformers or for three-phase Y-Y-connected transformers.
   l. Induced potential.
   m. Resistance measurements of all windings on rated voltage connection and at tap extreme connections.
   n. Ratios on rated voltage connection and at tap extreme connections.
   o. Polarity and phase relation on rated voltage connection.
   p. No-load loss at rated voltage on rated voltage connection.
   q. Exciting current at rated voltage on rated voltage connection.
   r. Impedance.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine pad-mounted, liquid-filled, medium-voltage transformers upon delivery.

1. Upon delivery of transformers and prior to unloading, inspect equipment for any damage that may have occurred during shipment or storage.
2. Verify that tie rods and chains are undamaged and tight, and that all blocking and bracing is tight. Verify that there is no evidence of load shifting in transit, and that readings from transportation shock recorders, if equipped, are within manufacturer's recommendations.
3. Verify that there is no indication of external damage and no dents or scratches in doors and sill, tank walls, radiators and fins, or termination provisions.
4. Verify that there is no evidence of insulating-liquid leakage on transformer surfaces, at weld seams, on high- or low-voltage bushing parts, and at transformer base.
5. Verify that there is positive pressure or vacuum on tank. Check pressure gauge; it is required to read other than zero.
6. Compare transformers and accessories received with bill of materials to verify that shipment is complete. Verify that transformers and accessories conform with manufacturer's quotation and shop drawings. If shipment is incomplete or does not comply with Project requirements, notify manufacturer in writing immediately.
7. Verify presence of polychlorinated biphenyl content labeling.
8. Unload transformers carefully, observing all packing label warnings and handling instructions.
9. Open termination compartment doors and inspect components for damage or displaced parts, loose or broken connections, cracked or chipped insulators, bent mounting flanges, dirt or foreign material, and water or moisture.

B. Handling:

1. Handle transformers carefully, in accordance with manufacturer recommendations, to avoid damage to enclosure, termination compartments, base, frame, tank, and internal components. Do not subject transformers to impact, jolting, jarring, or rough handling.
2. Protect transformer termination compartments against entrance of dust, rain, and snow.
3. Transport transformers upright, to avoid internal stresses on core and coil mounting assembly and to prevent trapping air in windings. Do not tilt or tip transformers.
4. Verify that transformer weights are within rated capacity of handling equipment.
5. Use only manufacturer-recommended points for lifting, jacking, and pulling. Use all lifting lugs when lifting transformers.
6. Use jacks only at corners of tank base plate.
7. Use nylon straps of same length to balance and distribute weight when handling transformers with a crane.
8. Use spreaders or a lifting beam to obtain a vertical lift and to protect transformer from straps bearing against enclosure. Lifting cable pull angles may not be greater than 15 degrees from vertical.
9. Exercise care not to damage tank base structure when handling transformer using skids or rollers. Use skids to distribute stresses over tank base when using rollers under large transformers.

C. Storage:

1. Store transformers in accordance with manufacturer's recommendations.
2. Transformers may be stored outdoors. If possible, store transformers at final installation locations on concrete pads. If dry concrete surfaces are unavailable, use pallets of adequate strength to protect transformers from direct contact with ground. Ensure transformer is level.
3. Ensure that transformer storage location is clean and protected from severe conditions. Protect transformers from dirt, water, contamination, and physical damage. Do not store transformers in presence of corrosive or explosive gases. Protect transformers from weather when stored for more than three months.
4. Store transformers with compartment doors closed.
5. Regularly inspect transformers while in storage and maintain documentation of storage conditions, noting any discrepancies or adverse conditions. Verify that an effective pressure seal is maintained using pressure gauges. Visually check for insulating-liquid leaks and rust spots.

D. Examine areas and space conditions for compliance with requirements for pad-mounted, liquid-filled, medium-voltage transformers and other conditions affecting performance of the Work.

E. Examine roughing-in of conduits and grounding systems to verify the following:

1. Wiring entries comply with layout requirements.
2. Entries are within conduit-entry tolerances specified by manufacturer, and no feeders will cross section barriers to reach load or line lugs.

F. Examine concrete bases for suitable conditions for transformer installation.

G. Pre-Installation Checks:

2. Remove a sample of insulating liquid according to ASTM D 923. Insulating-liquid values shall comply with NETA ATS, Table 100.4. Sample shall be tested for the following:
   b. Acid Neutralization Number: ASTM D 974.
   c. Specific Gravity: ASTM D 1298.
   d. Interfacial Tension: ASTM D 971.
   e. Color: ASTM D 1500.
   g. Water in Insulating Liquids: Comply with ASTM D 1533.
   h. Power Factor or Dissipation Factor: ASTM D 924.

H. Verify that ground connections are in place and that requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at transformer location.

I. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install transformers on cast-in-place concrete equipment base(s). Comply with requirements for equipment bases and foundations specified in Section 033000 "Cast-in-Place Concrete."

B. Transformer shall be installed level and plumb and shall tilt less than 1.5 degrees while energized.

C. Maintain minimum clearances and workspace at equipment according to manufacturer's written instructions and IEEE C2.

3.3 CONNECTIONS

A. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."

1. For counterpoise, use tinned bare copper cable not smaller than No. 4/0 AWG, buried not less than 30 inches (765 mm) below grade interconnecting the grounding electrodes. Bond surge arrester and neutrals directly to transformer enclosure and then to grounding electrode system with bare copper conductors, sized as shown. Keep lead lengths as short as practicable, with no kinks or sharp bends.

2. Fence and equipment connections shall not be smaller than No. 4 AWG. Ground fence at each gate post and corner post and at intervals not exceeding 10 ft. (3050 mm). Bond
each gate section to fence post using 1/8 by 1 inch (3 by 25 mm) [tinned] flexible braided copper strap and clamps.

3. Make joints in grounding conductors and loops by exothermic weld or compression connector.
4. Terminate all grounding and bonding conductors on a common equipment grounding terminal on transformer enclosure.
5. Complete transformer tank grounding and lightning arrester connections prior to making any other electrical connections.

B. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
   1. Maintain air clearances between energized live parts and between live parts and ground for exposed connections in accordance with manufacturer recommendations.
   2. Bundle associated phase, neutral, and equipment grounding conductors together within transformer enclosure. Arrange conductors such that there is not excessive strain that could cause loose connections. Allow adequate slack for expansion and contraction of conductors.

C. Terminate medium-voltage cables in incoming section of transformers according to Section 260513 "Medium-Voltage Cables."

3.4 SIGNS AND LABELS
   A. Comply with installation requirements for labels and signs specified in Section 260553 "Identification for Electrical Systems."
   B. Install warning signs as required to comply with 29 CFR 1910.269.

3.5 FIELD QUALITY CONTROL
   A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
   B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.
   C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
      1. General Field-Testing Requirements:
         b. Perform each visual and mechanical inspection and electrical test. Certify compliance with test parameters.
         c. After installing transformer but before primary is energized, verify that grounding system at the transformer is tested at specified value or less.
         d. After installing transformer and after electrical circuitry has been energized, test for compliance with requirements.
         e. Visual and Mechanical Inspection:
1) Verify equipment nameplate data complies with Contract Documents.
2) Inspect bolted electrical connections for high resistance using one of the following two methods:
   a) Use a low-resistance ohmmeter to compare bolted connection resistance values to values of similar connections. Investigate values that deviate from those of similar bolted connections by more than 50 percent of the lowest value.
   b) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method according to manufacturer's published data or NETA ATS, Table 100.12. Bolt-torque levels shall be according to manufacturer's published data. In absence of manufacturer's published data, use NETA ATS, Table 100.12.

f. Remove and replace malfunctioning units and retest.
g. Prepare test and inspection reports. Record as-left set points of all adjustable devices.

2. Medium-Voltage Surge Arrester Field Tests:
   a. Visual and Mechanical Inspection:
      1) Inspect physical and mechanical condition.
      2) Verify arresters are clean.
      3) Verify that ground lead on each device is individually attached to a ground bus or ground electrode.
   b. Electrical Test:
      1) Perform an insulation-resistance test on each arrester, phase terminal-to-ground. Apply voltage according to manufacturer's published data. In the absence of manufacturer's published data, comply with NETA ATS, Table 100.1. Replace units that fail to comply with recommended minimum insulation resistance listed in that table.
      2) Perform a watts-loss test. Evaluate watts-loss values by comparison with similar units and test equipment manufacturer's published data.

3. Liquid-Filled Transformer Field Tests:
   a. Visual and Mechanical Inspection:
      1) Test dew point of tank gases if applicable.
      2) Inspect anchorage, alignment, and grounding.
      3) Verify bushings are clean.
      4) Verify that alarm, control, and trip settings on temperature and level indicators are set and operate within manufacturer's recommended settings.
      5) Verify that liquid level in tanks is within manufacturer's published tolerances.
      6) Perform specific inspections and mechanical tests recommended by manufacturer.
7) Verify presence of transformer surge arresters and that their ratings are as specified.
8) Verify that as-left tap connections are as specified.

b. Electrical Tests:

1) Perform insulation-resistance tests winding-to-winding and each winding-to-ground. Apply voltage according to manufacturer's published data. In the absence of manufacturer's published data, comply with NETA ATS, Table 100.5. Calculate polarization index; the value of the index shall not be less than 1.0.
2) Perform power-factor or dissipation-factor tests on all windings according to test equipment manufacturer's published data. Maximum winding insulation power-factor/dissipation-factor values shall be according to manufacturer's published data. In the absence of manufacturer's published data, comply with NETA ATS, Table 100.3.
3) Measure core insulation resistance at 500-V dc if the core is insulated and the core ground strap is removable. Core insulation-resistance values shall not be less than 1 megohm at 500-V dc.
4) Perform a power-factor or dissipation-factor tip-up test on windings greater than 2.5 kV.
5) Perform turns-ratio tests at tap positions. Turns-ratio test results shall not deviate by more than one-half percent from either adjacent coils or calculated ratio. If test fails, replace transformer.
6) Perform an excitation-current test on each phase. The typical excitation-current test data pattern for a three-legged core transformer is two similar current readings and one lower current reading. Investigate and correct if test shows a different pattern.
7) Measure resistance of each winding at each tap connection, and record temperature-corrected winding-resistance values in the Operations and Maintenance Manual.
8) Perform an applied-voltage test on high- and low-voltage windings-to-ground. Comply with IEEE C57.12.91, Sections 10.2 and 10.9. This test is not required for single-phase transformers and for three-phase Y-Y-connected transformers.
9) Verify correct secondary voltage, phase-to-phase and phase-to-neutral, after energization and prior to loading.
10) Remove a sample of insulating liquid according to ASTM D 923, and perform dissolved-gas analysis according to IEEE C57.104 or ASTM D 3612.

3.6 FOLLOW-UP SERVICE

A. Voltage Monitoring and Adjusting: After Substantial Completion, if requested by Owner, but not more than six months after Final Acceptance, perform the following voltage monitoring:

1. During a period of normal load cycles as evaluated by Owner, perform seven days of three-phase voltage recording at the outgoing section of each transformer. Use voltmeters with calibration traceable to the National Institute of Science and Technology standards and with a chart speed of not less than 1 inch (25 mm) per hour. Voltage unbalance
greater than 1 percent between phases, or deviation of any phase voltage from the nominal value by more than plus or minus 5 percent during test period, is unacceptable.

2. Corrective Action: If test results are unacceptable, perform the following corrective action, as appropriate:
   a. Adjust transformer taps.
   b. Prepare written request for voltage adjustment by electric utility.

3. Retests: Repeat monitoring, after corrective action is performed, until satisfactory results are obtained.

4. Report:
   a. Prepare a written report covering monitoring performed and corrective action taken.

B. Infrared Inspection: Perform survey during periods of maximum possible loading. Remove all necessary covers prior to inspection.

   1. After Substantial Completion, but not more than 60 days after Final Acceptance, perform infrared inspection of transformer's electrical power connections.
   2. Instrument: Inspect distribution systems with imaging equipment capable of detecting a minimum temperature difference of 1?C at 30?C.
   3. Record of Infrared Inspection: Prepare a certified report that identifies testing technician and equipment used, and lists results as follows:
      a. Description of equipment to be tested.
      b. Discrepancies.
      c. Temperature difference between area of concern and reference area.
      d. Probable cause of temperature difference.
      e. Areas inspected. Identify inaccessible and unobservable areas and equipment.
      f. Identify load conditions at time of inspection.
      g. Provide photographs and thermograms of deficient area.

4. Act on inspection results according to recommendations of NETA ATS, Table 100.18. Correct possible and probable deficiencies as soon as Owner's operations permit. Retest until deficiencies are corrected.

3.7 TRAINING

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain systems.
SECTION 26 13 26
MEDIUM-VOLTAGE METAL-CLAD SWITCHGEAR

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The work under this section of the Specifications consists of designing, fabricating, assembling, testing, shipping, installation and testing standard outdoor (non-walk-in or non-aisle) type medium-voltage metal-clad switchgear and related materials.

B. Switchgear shall be provided for the replacement of existing 4.16kV Switchgear.

1.02 RELATED SECTIONS AND DOCUMENTS

A. Section 26 00 10: General Electrical Requirements

B. Section 26 08 00: Electrical Acceptance Testing

C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

D. The following Drawings are a part of this specification and further define equipment requirements, features and configurations.

1. E103 Single Line Diagram Meter and Relay

2. E401 New 5 kV Main Switchgear Equipment Layout and Side View

3. E105 New 5 kV Main Switchgear Equipment Building Automation System Interconnection

1.03 REFERENCE TECHNICAL STANDARDS AND SPECIFICATIONS

A. The medium-voltage metal-clad switchgear and protective devices in this specification are designed and manufactured according to latest revision of the following standards (unless otherwise noted).

1. ANSI C37.06, Switchgear - AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis - Preferred Ratings and Related Required Capabilities (includes supplement ANSI C37.06a)

3. ANSI/IEEE C37.20.2, Metal-Clad and Station-Type Cubicle Switchgear
5. ANSI C39.1, Electrical Analog Indicating Instruments, Requirements for
6. ANSI/IEEE C57.13, Instrument Transformers, Requirements for
7. NEMA SG 2, High Voltage Fuses
8. NEMA SG 4, Alternating - Current High Voltage Circuit Breaker
9. NEMA SG 5, Power Switchgear Assemblies

1.04 SUBMITTALS

A. Supplier shall provide preliminary and final (with review comments incorporated and submitted prior to shipping) three bounded copies and PDF (copy to DVDs) of the following documents to Engineer for review and evaluation:

1. Product data. Each product must be indicated in a table of content with selected items noted with arrow marking as to which specific model, catalog, etc. is submitted for review.

2. Shop drawings including fully-dimensional Drawings and elevations, single-line, three-line and control elementary diagrams. Point to point diagrams showing connections of component devices and equipment including field terminations for related equipment. All drawings shall be listed in table of content with revision and date noted.

3. Equipment assembly drawings and detailed bill of materials. Include batteries, battery rack, equipment base and room layout.

4. Include dimensioned plans and elevations, showing dimensions, shipping sections, and weights of each assembled section. Elevations shall show major components, features, and mimic bus diagram.

5. Include a plan view and cross section of equipment base showing clearances, manufacturer's recommended work space, and locations of penetrations for grounding and conduits. Show location of anchor bolts and leveling channels. See seismic requirement below.

6. Design data and detailed component data (e.g.: current transformer connection diagrams and excitation curves, meter wiring diagrams).

7. Certified time-current or other parametric curves applicable for each protective device.

8. Certified copies of all design, production and verification test reports.
9. Operation and Maintenance Manual and Data for switchgear field assembly, breakers, breaker racking, relays, meters, etc.

B. Switchgear Manuals and Accessories: Submit the following prior to or simultaneously with shipment:

1. Instruction Manuals: The manual shall give complete and detailed instructions for erection, installation and adjustment. Prove instruction manual located in a pocket attached to the inside of the switchgear assembly.

2. Operation and Maintenance Manuals and Data: Provide two hard copies and two DVDs consisting of PDFs with the following but not limited to:
   a. Manufacturer’s written instructions for testing and adjusting circuit breakers, protective devices, metering and switchgear components.
   b. Time-current curves: instruction manuals with time-current curves for selectable ranges for each protective device type.

1.05 TEST REPORTS

A. Supplier shall provide five copies of certified factory and production tests within 5 days after shipping.

B. Updated Operation and maintenance data shall include with factory and field test reports shall be provided.

C. NETA Switchgear Field Acceptance Test Results (after installation).

1.06 QUALITY ASSURANCE

A. Supplier shall have specialized in the manufacture and assembly of medium-voltage metal-clad switchgear for a minimum of 25 years.

B. Supplier's Certificate of ISO 9002 Compliance.

C. Products shall be listed and classified by Underwriter’s Laboratories Inc. as suitable for the purpose specified and indicated.

1.07 WARRANTY

A. Supplier warrants equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.

PART 2 - PRODUCTS

2.01 SUPPLIER

Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear
A. Acceptable Manufacturer: ABB, Eaton, General Electric, Powell, Schneider Electric, Siemens or approved equal.

2.02 SEISMIC REQUIREMENTS

The manufacturer shall provide equipment and anchor bolt design with certification to meet CBC 2016 ASCE 7-10 and IEEE 693-2005, per Earthquake Design Criteria for project site as listed below. Manufacturer shall provide seismic calculations prepared by California Registered Professional Engineer to establish anchor bolt requirements.

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2.03 EQUIPMENT

A. Equipment shall be completely factory-built, assembled, wired, and tested. All equipment and components shall be of new construction and suitable for continuous use in an outdoor environment located in Pleasant Hill, California USA.

B. Rating and Performance Requirements:

1. System voltage  4.16 kV
2. Nominal voltage class  5 kV
3. Frequency  60 Hz
4. System configuration  3-phase, 3-wire, ungrounded
5. Nominal 3-phase MVA class  250 MVA
6. Rated voltage max/range factor  4.76 kV/1.24 k
7. Rated continuous current, main bus & breaker  1200 A
8. Switchgear Interrupting Rating  29 kA
9. Breaker short-circuit current at rated maximum voltage  29 kA
10. Breaker Maximum Symmetrical Interrupting  36 kA
11. Breaker 3 sec. Short-Time Current Carrying  36 kA
12. Breaker Closing & Latching (Momentary)  97 kA Crest
13. Rated interrupting time 3 cycles
14. Normal frequency withstand voltage insulation level 19 kV
15. Impulse withstand voltage insulation level 60 kV Crest
16. Current transformer relaying and revenue rated accuracy C400
17. Current transformer metering and revenue rated accuracy 0.3B0.5
18. Breaker trip/close control voltage 48 VDC
19. Percent spare terminal blocks 20%
20. No. of spare breaker auxiliary switch contacts, minimum Six “a” and six “b”

2.04 SWITCHGEAR AND RELATED COMPONENTS

Refer to the Drawings for actual layout and location of equipment and components, current ratings of devices, bus bars, and components, voltage ratings of devices, components and assemblies, and other required details.

A. Enclosure

1. Switchgear shall consist of breaker and auxiliary units, arranged as indicated on the Drawings, and assembled to form a rigid, self-supporting, metal-enclosed structure.

2. Standard Outdoor metal-clad switchgear shall be enclosed in a weatherproof enclosure and shall include suitable weatherproof access doors, access panels, protected ventilation openings, interior LED lighting, convenience outlets and equipment heaters with protective devices.

3. Switchgear equipment assembly shall be shipped factory-assembled and tested to the site in one section. Base shall be a rigid assembly of wide-flange framing.

4. Outdoor enclosure shall have full-height, gasketed, weatherproof, pad-lockable exterior doors including rear access hinged doors to breakers.

5. Enclosure shall be weatherproofed by gaskets and by sealing the end covers, rear covers, grille louvers and other locations to prevent entrance of moisture. The enclosure shall have weatherproof doors.

6. A three-inch steel box frame shall be provided under each vertical section and the equipment sealed, painted and undercoated for outdoor application.

7. Enclosure shall be designed with a sloped, drip-proof roof. Breaker cubicles are to be designed for front and read access. Furnish outdoor medium-voltage metal-clad switchgear sections and related materials as indicated on the Drawings.
8. Circuit breaker compartments shall be designed to house draw-out circuit breakers. Stationary primary disconnect contacts shall be silver-plated copper. Grounded metal safety shutters shall isolate all primary connections in compartment when breaker is withdrawn from CONNECTED position.

9. In each unit, major primary circuit parts (breaker, buses, transformers) shall be completely enclosed by grounded metal barriers, including a front barrier as part of the circuit breaker.

10. For rigidity during fault conditions, all connections to rollout potential transformer trays and control power transformer trays shall be rigid bus bars insulated to full voltage rating of switchgear assembly.

11. All steel surfaces shall be chemically cleaned and given an iron phosphate corrosion resistant treatment providing a strong bond for paint adhesion. All parts shall be immersed in paint applying 0.7 - 0.8 mils of cathodic epoxy paint electrically bonded to all surfaces for maximum adhesion. The finish shall be cured in an oven to ensure maximum toughness and prolong service in severe environments.

12. All exterior surfaces of the switchgear assembly shall be given final finish coats of ANSI 61 light gray air-dried acrylic enamel. Dry film thickness shall be a minimum of 2.7 mils.

13. All interior surfaces of breaker and auxiliary compartments (not including the doors) shall be painted white.

14. Furnish engraved laminate nameplates for each device. Nameplates shall have black characters on white background. Nameplates shall be fastened using stainless-steel screws.

15. Rear Compartment Infrared Window: Provide infrared window for each circuit breaker rear compartment section.

16. Racking: Each circuit breaker compartment shall be capable of being rack-out with a portable motor driven operator that can be remotely operated via control cable.

B. Main Bus

1. The main bus shall be tin-plated copper and rated as indicated in drawings. Bus bars shall have a continuous current rating based on temperature rise and documented by design tests.
   a. All joints will be tin-plated with at least 2 bolts per joint. Bus bars shall be braced to withstand magnetic stresses developed by currents equal to main circuit breaker close, carry, and interrupt ratings. Access to bus bars shall be through removable front panels.
   b. Bus bars shall have fluidized-bed epoxy, flame-retardant and non-hygroscopic insulation.
C. Ground Bus

1. A ground bus shall extend throughout the assembly with connections to each breaker grounding contact and cable compartment ground terminal.
   a. The ground bus shall be capable of carrying the rated short-circuit current of the circuit breaker for two seconds throughout the entire bus section.
   b. The frame of the circuit breaker shall be grounded through heavy multiple-finger contacts when the breaker is in the operating position. Station ground connection points shall be located in each end section.

D. Circuit Breakers

1. Each circuit breaker shall be of the draw-out type and shall have three vacuum interrupter assemblies that separately mount on glass polyester insulators.
   a. Each vacuum interrupter assembly shall have a contact wear indicator that does not require any tools to indicate the contact wear. The current transfer from the vacuum interrupter moving stem to the breaker main conductor shall be of a non-sliding design.
   b. The breaker front panel shall be removable when the compartment door is open for ease of inspection and maintenance of the mechanism.
   c. To minimize contact bounce, the circuit breaker shall utilize a momentum transfer/absorbing system consisting of a series of metal plates that absorb energy upon opening, delivered by a striking arm connecting to the main operating shaft.
   d. Oil or air dash pots shall not be used.

2. Circuit breakers shall be rated as indicated on the Drawings. Circuit breakers of equal rating shall be interchangeable. Interference plates shall prevent the insertion of a breaker into an incompatible cell.

3. Circuit breakers shall be operated by an electrically charged, mechanically and electrically trip-free, stored-energy spring.

4. Circuit breakers shall be equipped with dual trip coils.

5. Circuit breakers shall be equipped with secondary disconnecting contacts, which shall automatically engage in the CONNECTED position.

6. Each breaker compartment shall have a breaker rack-out device.
   a. Using the rack-out device, a breaker will be self-aligning and will be held rigidly in the CONNECTED position.
b. When in the DISCONNECTED position, whether padlocked or not, breaker shall be removable from compartment using portable lifting device.

c. Rack-out device shall have provisions to padlock breaker in the CONNECTED or DISCONNECTED position. Padlock shall not interfere with breaker operation.

d. Breaker racking shall be accomplished with door closed and latched, by inserting the rack-out tool handle through a hole in the front door to operate the rack-out device.

7. An indicating tape shall show breaker position when racking breakers in or out of their CONNECTED positions

8. Interlocks shall prevent moving breaker to or from operating position unless main contacts are open.

9. Operating springs shall be discharged automatically when breaker is racked fully into or out of the CONNECTED position.

10. Automatic shutters shall cover primary disconnect stabs when breaker is withdrawn to TEST or DISCONNECTED positions. Linkages connected to racking mechanism shall positively drive shutters. A stationary barrier shall be located in front of the shutters for additional safety.

E. Instrument Transformers

1. Current Transformers (CT’s)

   a. CT’s shall conform to ANSI C57.13 and shall be of the window type with ratios as defined on the Drawings and accuracy as shown in the “Ratings and Performance Requirements” table.

   b. CT mechanical ratings shall meet or exceed the momentary rating of the breakers.

   c. Provide shorting-type terminal blocks for all CT circuits.

2. Potential Transformers (PT’s)

   a. PT’s shall conform to ANSI C57.13 and shall be draw-out type utilizing onboard current-limingting fuses and with ratios as defined on the Drawings and accuracy as shown in the “Ratings and Performance Requirements” table.

   b. PT BIL rating shall be equal to that of the switchgear.

   c. The PT drawout assembly shall be automatically de-energized and grounded before it is exposed.
3. All PT and CT circuits shall be routed through multi-pole test switches, States type SMH or approved equal.

F. Protective Devices And Metering

1. Protective Relays:


   b. Relay Mounting:

      1) Each relay shall be mounted in a draw-out case with a two-stage quick-release operation.

      2) Removal of the relay from the case shall disconnect the trip circuits and short the current-transformer secondaries before the unit control power is disconnected.

      3) When the relay is inserted into the case, control power connections shall be made before the trip circuits are activated.

      4) Include a self-shorting contact on the case terminal block for alarm indication and tripping of circuit breaker upon removal of the relay from the case.

   c. Equip each relay system with a communications module to transmit the following data:

      1) Relay's metered and target data, such as currents, set points, cause of trip, magnitude of trip current, and open-close trip status.

      2) Ability to close and open the associated breaker with proper access code from remote location over the communication network when the relay is configured in remote open-close mode.

   d. Overcurrent and Ground-Fault Protective Relays

      1) IEEE C37.2 device functions: 51/50 and 51/50N

      2) Field-Selectable Relay Settings: As required by the Section 26 05 73 “Overcurrent Protective Device Coordination Study”.

      3) Primary Current-Transformer Ratings: Programmable from 5 to 5000 A.

      4) Phase and Ground Protection: Field-selectable time current curves from IEEE moderately inverse, inverse, very inverse, and extremely inverse.
5) Phase Instantaneous Overcurrent Trip Pickup Point: Field selectable as "none" or from 1.0 to 25 times current-transformer primary rating. Include discriminator circuit with "on" and "off" switch so that when phase instantaneous overcurrent has been programmed to "none," the discriminator circuit protects against currents exceeding 11 times current-transformer primary rating when the breaker is being closed and shall be deactivated after approximately eight cycles.

6) Contacts: Provide two form-A contacts and field selectable ANSI contact pairs for phase and ground as required.

7) Relay alarm and trip contacts shall not change state if power is lost or an undervoltage occurs. These contacts shall only cause a trip on detection of an overcurrent or fault condition based on programmed settings. A "protection off" alarm shall be normally energized when the relay is powered and the self-diagnostics indicates the unit is functional. On loss of power or relay failure, this alarm relay shall be de-energized, providing a fail-safe protection off alarm.

8) Alphameric display to show the following parameters with metering accuracy not to exceed 2 percent of full scale:

- Individual phase currents
- Ground current
- Cause of trip
- Magnitude and phase of current-causing trip
- Phase or ground indication
- Peak current demand for each phase and ground since last reset
- Current-transformer primary rating
- Programmed phase and ground set points

2. Auxiliary Relays:

   a. Auxiliary tripping relays shall be installed on the front door of the instrument compartment and shall be semi-flush draw-out design with integral testing devices as applicable. Relays shall be capable of reliably tripping based on a coil input power of 10 mW and shall include series resistors as required.

   b. Other control and auxiliary relays shall have dust covers and be surface mounted inside the control compartment of the cubicle.

3. Metering and monitoring:

   a. Multifunction Digital Meter and Monitor: Microprocessor-based unit suitable for three- or four-wire systems.

   b. Inputs from sensors or 5-A current-transformer secondaries, and potential terminals rated to 600 V.

   c. Switch-selectable digital display with the following features:
d. Phase Currents, Each Phase: Plus or minus 1 percent.
e. Phase-to-Phase Voltages, Three Phase: Plus or minus 1 percent.
f. Phase-to-Neutral Voltages, Three Phase: Plus or minus 1 percent.
g. Three-Phase Real Power: Plus or minus 2 percent.
h. Three-Phase Reactive Power: Plus or minus 2 percent.
i. Power Factor: Plus or minus 2 percent.
j. Frequency: Plus or minus 0.5 percent.
k. Integrated Demand, with Demand Interval Selectable from 5 to 60 Minutes: Plus or minus 2 percent.
l. Power Quality - %THD and individual harmonics magnitude and phase angle to minimum 31st order.
   • Voltage: L-L each phase, L-L three-phase average, L-N each phase, and L-N three-phase average.
   • Current: Each phase, three-phase average, and neutral.
      (integrated or separate PQ meter for Main Circuit Breaker only)
m. Accumulated energy, in megawatt hours (joules), plus or minus 2 percent; stored values unaffected by power outages for up to 72 hours.
n. All required software (for downloading meter data, on-site access, and remote access and licenses shall be provided.
o. Power meters shall be capable of remote data acquisition through Ethernet connections and synchronized with time.

4. Design and provide all required devices and components wiring, terminal blocks and BACnet gateway in remote terminal cabinet to integrate the data points (approximately 100 points, see Drawing) to the existing campus Andover Building Automation System. The switchgear supplier shall coordinate with Electrical Contractor and campus Building Automation System (BAS) Contractor ensure that all furnished devices and components will be compatible and operate with the existing campus Andover Building System. Refer to Specification Section 23 09 00, “Building Automation System” and Drawings for additional information and requirements.

5. Test Blocks: Instruments and other devices requiring periodic testing or calibration and that are not equipped with integral testing features, shall be provided with test blocks.
   a. Test blocks shall have covers and engraved nameplates.
   b. Manufacturer: General Electric PK-2 or equal.

6. Surge arrestors shall be provided where shown on the Drawings. Arrestors shall be intermediate-class, metal-oxide varistor (MOV) type and connected from each phase bus to the ground bus at the incoming cable termination location.

G. Mimic Bus: Provide a mimic bus to represent incoming and outgoing feeders, main, feeder and tie breakers, instrument transformers and CPT. The material shall be red color (for 4.16kV bus), black for lamicord securely fasten to enclosure covers. The mimic bus representation shall closely follow the front elevation of the switchgear as indicated on the Drawings.

2.05 STATION AND CONTROL POWER SYSTEMS
Contra Costa Community College District
Diablo Valley College
D-4009 Replacement of Main Electrical Switchgear
A. Control Power Transformers (CPT's)

1. CPT's shall be designed for continuous operation at rated kVA with normal life expectancy as defined in ANSI C57.96.

2. CPT's shall be dry-type, two-winding transformers rated for 115 degree C rise above a 40 degree C maximum ambient and designed for mounting in switchgear cubicle draw-out compartments.

3. CPT's shall be rated as indicated on the Drawings.

B. Station Batteries And Charger

1. Provide station battery and charger system suitable for the requirements of the switchgear lineup(s) supplied. Batteries shall be 120 Ah (minimum) including a minimum 30% space capacity, nickel-cadmium type, rated as shown in the equipment ratings section. Note the battery and charger system shall be in a NEMA 3R enclosure.

2. The battery shall be 48V DC and able to supply all steady-state loads (indicators, relay power supplies, etc.) for a period of 24 hours, culminating with three (3) consecutive CLOSE-OPEN cycles, including spring-charging, for two breakers. Battery capacity shall be calculated by supplier and approved by Engineer to verify adequacy of the minimum Ah required.

3. Battery chargers shall be full-wave rectifier type, utilizing silicon semiconductor devices.

   a. Charger shall maintain a float charge of 1.40/1.45V per cell and an equalizing charge of 1.52/1.69V per cell. An equalizing charge timer shall be provided which operates automatically after an AC power failure of 5 seconds or more. Charger shall be in a NEMA 3R cabinet.

   b. Timer shall be adjustable for any time period up to 24 hours. Timer shall also be capable of being actuated manually. Adjustable float and equalizing voltage potentiometer shall be provided.

   c. Charger voltage shall be maintained within plus or minus ½ percent from no load to full load with AC line variations of plus or minus 10 percent and frequency variations of plus or minus 5 percent.

   d. DC output shall be filtered to minimize dc ripple.

   e. DC voltmeter and ammeter with a minimum 3-1/2 inch scale and 2 percent accuracy of full scale shall be provided.

   f. Output current shall be limited to 115 percent of rated output current, even under short circuit conditions at the DC output terminals. Solid state circuit shall have AC and DC transient voltage terminals. AC and DC magnetic circuit breakers shall be provided.
g. Circuit breakers shall not be overexcited or actuated under any external circuit condition, including recharge of a fully-discharged battery or short-circuit of charger output terminals.

h. Charger shall be capable of continuous operation at rated current at an ambient temperature of 40 degrees C. Output dc current capacity shall match the requirements of the batteries provided.

4. Battery racks shall be anchored to prevent overturning by lateral forces accompanying a seismic Zone 4 disturbance. Provide steel, tier racks, painted with two coats of acid resistant paint for mounting batteries. Provide lead-plated copper inter-rack connectors and cell numbers with each rack.

5. Adequate louvers with bird screens shall be provided for the battery compartment to exhaust battery fumes and prevent accumulation of explosive gas inside the compartment. Contractor shall provide necessary calculations for the required air exchanges inside the battery compartment. Whenever required, forced ventilation shall be provided.

6. Battery compartment floor shall be provided with battery liquid spill containment all around the battery rack. Floor shall be provided with two coats of acid resistant paint.

7. The rack mounted station batteries shall be located in a dedicated cubicle as indicated. The battery charger shall be installed as indicated.

8. Provide a NEMA 3R rated enclosure with hinged covers and ventilation for the batteries and rack. The enclosure will be located in existing utility vault adjacent to the new switchgear.

9. The batteries shall have a twenty (20) year warranty.

C. Station and Control Power Distribution System

1. Panelboard:
   a. Provide dead-front lighting and appliance panelboard suitable for use as service equipment. Provide all grounding and bonding required by NEC Article 250.
   
   b. Panelboard shall have copper bus bars, full-sized neutral bar, and bare uninsulated grounding bar suitable for bonding to enclosure.
   
   c. Provide suitable lugs on neutral and ground busses for each outgoing feeder circuit. Lugs shall be of the anti-burn solderless pressure-type connectors approved for copper conductors.
   
   d. Panelboard shall be arranged for connecting incoming feeder from CPT.
   
   e. Provide required circuit breakers for both Supplier’s and Engineer’s use. Refer to Drawings for required Engineer breaker sizes and types.
f. Breakers shall be bolt-on, heavy-duty, quick-make, quick-break, single-pole breakers with interrupting capacities as shown on the Drawings.

g. Provide galvanized sheet steel, NEMA 1, code-gage thickness enclosure with multiple knockouts and wiring gutters. Enclosures shall be of the same manufacture as, and shall mate properly with, panelboard interiors.

h. Provide panelboard fronts with adjustable indicating trim clamps, concealed piano-type door hinges, and doors with flush locks and keys. All panelboard enclosures shall be keyed alike.

i. Equip with interior circuit-directory frame and 8.5” x 11” panel directory with clear plastic covering.

j. Provide additional panelboards as indicated.

k. Provide baked gray enamel finish over a rust inhibitor coating.

2. Miscellaneous Power

a. An enclosed and gasketed LED lamp fixture shall be mounted inside the enclosure vestibule, above each vertical section to maintain an illumination level of 50 footcandles on front faces of compartments. All fixtures shall be controlled by a single switch. Lighting circuits shall be installed in EMT conduits supported with conduit clamps.

b. One 120 VAC duplex GFCI receptacle shall be provided in the lower cubicle panel of every other vertical section of switchgear. Four to six 120 VAC duplex GFCI receptacles in the interior open space.

c. Thermostatically-controlled space heaters shall be provided in each breaker and cable cubicle so that the temperature inside the cubicle will be automatically maintained above the dew point temperature over an ambient temperature range of 0 °F to 104 °F. Space heaters shall be rated 240 VAC but shall be connected for operation at 120 VAC. An ammeter shall be provided in the heater circuit with full circuit ampacity clearly marked on the ammeter scale.

d. Interior Light: Provide a timer switch controlled LED fixture suitable for outdoor location located inside each switchgear section. Heavy-duty die-cast aluminum, specular anodized reflector UV stabilized polycarbonate refractor. Wire to station service panelboard.

D. Secondary Wiring

1. Secondary power and control wiring shall be Type SIS switchboard wire with extra-flexible stranded, tinned-copper wire, 600V-rated cross-linked polyethylene insulation. Minimum sizes shall be as follows:
a. Power: Sized per NEC according to load; #12 AWG minimum.
b. Control: #14 AWG minimum.
c. CT Circuits: #10 AWG.
d. PT Circuits: #12 AWG.

2. Secondary wiring shall be armored where passing through primary compartments.

3. Crimp-type, nylon-insulated ring-tongue lugs shall be furnished on all wire ends. Lugs shall be crimped on wires using a ratchet-type crimping tool to ensure that full crimp cycles are completed.

4. Unless otherwise required (e.g.: for CT circuits), wiring terminal blocks shall be front-connected, sliding-link blocks with nickel-plated brass contacts, inter-pole barriers and swing-out white marker strip; States M25012 or approved equal.

5. All wiring shall be tagged in accordance with wire numbers shown on Supplier’s wiring diagrams. Wire markers shall be machine-imprinted, slip-on sleeves.

2.06 ACCESSORIES

1. Kirk-key Interlock: Provide key interlock system as indicated.

2. DRAW-OUT Breaker Indicating Lights: Green for “OPEN” and Red for “CLOSE”.

3. Provide the following switchgear accessories:
   a. Breaker lift truck (1 each).
   b. Manual racking handle (3 each).
   c. Breaker test cabinet, with necessary control switches, cord and secondary control connector for testing open/close operation of medium-voltage circuit breakers (1 each).
   d. Three-phase, 10’ safety ground cable/clamp set (1 each).
   e. Test paddles for draw-out relays and test blocks (1 each per type furnished).
   f. Breaker maintenance tool set (1 each).

2.07 EXTRA MATERIALS

A. Furnish extra materials described in the article that are identical products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Fuses: Furnish three of each type and rating used. Include spares for transformers, control power circuits and fusible devices.

C. Maintenance Tools: Furnish tools and miscellaneous items required for switchgear test, inspection, maintenance, and operation. Include the following:
D. Fuse-handling tool for each different fuse size used.
E. Racking handle to move circuit breaker manually between connected and disconnected positions.
F. Motor driven, remote racking operator shall be provided for racking the breaker in and out of the cubicle. Provide portable cables and related accessories for remote racking.
G. Secondary test coupler to permit testing of circuit breaker without removal from switchgear.
H. Circuit breaker test jumper cable.
I. Circuit breaker lift truck.
J. Fire Extinguisher (mounted at each doorway)
K. Rear cover mounted infrared sightglasses
L. Glow tubes for voltage indication

2.08 LOCAL ANNUNCIATOR SYSTEM
A. Design, furnish and install a local annunciation system consisting of annunciator panel and an outdoor rotating beacon light, with audible sound and reset button that will annunciate on the following conditions, but not limited to:
   1. 48V DC Battery and related equipment failure and/or trouble
   2. Breaker Trip
   3. AC Panel Main Breaker Trip
   4. DC Panel Main Breaker Trip
B. Components shall comply with UL 508 Standard for Industrial Control Equipment.

2.09 PRODUCTION TESTING
A. Equipment shall undergo the following factory production tests, as a minimum:
   1. Switchgear (ANSI C37.20)
      a. Low frequency dielectric test.
      b. Grounding of instrument cases.
      c. Control wiring and device functional test.
      d. Polarity verification.
      e. Sequence test.
      f. Low frequency withstand voltage test on major insulation components.
      g. Low frequency withstand test on secondary control wiring.
2. Breakers (ANSI C37.03)
   a. Coil check test.
   b. Clearance and mechanical adjustment.
   c. 300 electrical and mechanical operation test.
   d. Timing test.
   e. Conductivity of current path test.
   f. Hi-potential testing of breaker.
   g. Vacuum bottle integrity test.

3. Current transformer polarity and ratio tests.

4. Bushing tests.

5. Stored energy system tests.

B. Supplier shall provide to the Engineer certified test reports verifying completion and documenting results of factory production tests.

PART 3 - EXECUTION

3.01 GENERAL

A. Electrical installation shall conform to the manufacturer’s instructions, ANSI C2, NFPA 70 and other requirements specified herein.

3.02 ON-SITE DELIVERY

A. Contractor shall coordinate the switchgear delivery schedule in such a way the construction of the equipment concrete and retaining wall is complete and ready for equipment installation.

B. Deliver switchgear and related materials to the project site located in DVC campus Pleasant Hill, CA. All equipment and materials shall be stored in their original shipping package and shall be suitable for outdoor storage. The Supplier shall coordinate the shipping and delivery dates in accordance with the indicated delivery schedule.

C. The Supplier shall have a designated representative to provide supervision to properly receive, inspect, off load and place into storage all equipment and materials specified. The District designated Contractor shall be responsible for off loading the equipment to the concrete pad, inspection, storage and protection of equipment.

D. The District will designate storage areas on the site if the concrete pad is not ready. The equipment shall be stored and separated in accordance with assigned laydown areas per container yard.

E. Provide a complete list of materials and spare parts.
F. The Supplier shall replace all materials and equipment, lost or damaged while in transit. Replacement materials and equipment shall be of a type and quality equal to the original materials and equipment, shall be acceptable to the District, and shall be obtained expeditiously to prevent delay of work. Extensions of time will not be granted for delays caused by failure to receive replacement materials and equipment at the time required for their installation.

G. The Supplier shall handle all equipment and materials carefully to prevent damage or loss, and shall store them in an orderly manner as directed by the District.

H. Handle in accordance with NEMA SG-5. Lift only by installed lifting eyes. The use of bare wire rope slings for unloading and handling materials and equipment is prohibited except with the specific permission of the District.

I. Stored equipment and materials shall be adequately supported and protected to prevent damage.

J. Stored materials and equipment shall not be allowed to contact the ground. In warehouses that do not have dry concrete or suspended floors, materials and equipment shall be stored on platforms or shoring.

K. Equipment space heater circuits shall be energized during storage.

3.03 EXAMINATION AND UNPACKING

A. When unpacking, the crating or boxing shall be removed carefully with proper tools. Caution shall be used in using any tools that will cause damage to any fragile parts.

B. Check all parts with the packing list.

C. Avoid bending, breaking or injuring any parts.

D. Clean the parts before assembling them.

E. Manufacturer’s instruction books and tags shall be kept with the equipment.

F. A thorough inspection shall be made to remove the packing braces used to hold moving parts during shipment.

G. Adhere to manufacturer’s instruction for unpacking.

3.04 HANDLING

A. Manufacturer’s instructions for handling, rigging, lifting, jacking, etc. shall be strictly adhered to. Refer to District approved Manufacturer’s shop drawings for weight of equipment. Cranes shall be used for handling the equipment. Cable slings shall not be
allowed to strike fragile parts, as any strain on these may cause them to crack or break. Before attempting to handle any piece of equipment, its weight shall be determined from the manufacturer in order to ensure that the lifting means has more than adequate strength capacity.

3.05 SUPPLIER INSTALLATION AND STARTUP ASSISTANCE

A. The Switchgear Supplier designated representative shall provide at least “2” man days plus travel time consisting of “1” trip with travel and lodging expenses included, for the purpose of providing assistance for the installation and testing of the switchgear lineups.

B. The District will, at their discretion, select the date and time as to when the Supplier’s installation and testing assistance is needed. The District reserves the right to request Supplier’s assistance until installation of all equipment and material, and performance of all testing have been completed.

C. At a minimum, the Supplier’s representative shall review the installation procedure for complete assembly and provide assistance during Contractor’s installation and field testing. In addition, the Supplier shall provide recommended testing procedures for the equipment. The representative shall visually inspect all of the Contractor-installed switchgear lineups at each project site and provide an inspection report to the District. The report shall indicate compliance with Supplier’s installation requirements and shall also highlight any deficiencies in materials, installation or performance that are observed. Supplier’s representative shall check tightness of all accessible mechanical and electrical connections with a calibrated torque wrench. Minimum acceptable values shall be specified in Supplier’s instructions.

3.06 INSTALLATION

A. The Contractor shall be responsible for furnishing and installing the concrete equipment foundation and related anchor bolts, embedded channels and related materials in accordance District’s final approved switchgear equipment shop drawings.

B. Coordinate the location of embedded connection hardware with supported equipment attachment and mounting points and with requirements for concrete reinforcement and formwork specified in Section 03 30 00 "Cast-in-Place Concrete and as shown on the Civil Drawings.

C. All equipment shall be placed in position on its pad, leveled, anchored and connected as indicated and in accordance with the manufacturer’s installation instructions. The switchgear shall not be fastened securely to its foundation until the circuit breaker’s operating mechanisms have been correctly aligned.

D. The switchgear manufacturer’s instructions shall be strictly adhered to.

E. Carefully install the equipment on the pads; making sure the equipment is level, in line and properly spaced.

F. Connect circuit breaker’s operating mechanisms to provide smooth operation.
G. Inspect contacts and adjust as required to meet manufacturer’s tolerances.

H. Tighten electrical connectors and terminals, including screws and bolts, in accordance with the equipment manufacturer’s published torque tightening values for equipment connectors. Where manufacturer’s torquing requirements are not indicated, tighten connectors and terminals to comply with values specified in UL Standard 486A.

I. Ground equipment in accordance with manufacturer’s instructions.

3.07 PROTECTIVE DEVICE COORDINATION, PROGRAMMING, CALIBRATION, SETTING AND TESTING

A. Refer to Section 26 08 00, “Electrical Acceptance Testing” for requirements.

3.08 PERFORMANCE OF ACCEPTANCE CHECKS AND TESTS

A. Perform acceptance checks and tests in accordance with the manufacturer’s recommendations, NFPA 70B, NETA ATS as applicable to switchgear, substation, and referenced ANSI standards. Perform tests specific to medium-voltage circuit breakers, relays, metering, and instrument transformers together, as well as separately. Refer to Section 26 08 00 “Electrical Acceptance Testing” for additional requirements. The Engineer will witness formal tests after receipt of written certification that preliminary tests have been completed and that system is ready for final test and inspection. Tests shall include those listed in NETA ATS for the specified equipment and but not limited to, the following:

1. Compare actual connections with wiring diagrams. If differences are found, determine if error is in diagram or in actual wiring; correct as necessary.

2. Inspect devices and equipment for damage or maladjustment caused by shipment or installation.

3. Use calibrated torque wrench to ensure that tightness of bolted bus joints is in accordance with manufacturer’s recommendations.

4. Measure breaker contact resistance and perform minimum pickup voltage tests on trip and closing coils. Adjust as necessary to stay within manufacturer’s acceptable range.

5. Check electrical continuity of control, current, and potential circuits in accordance with wiring diagrams.

6. Perform insulation resistance test at 500 Vdc on field-installed control wiring, and current and potential circuits. Disconnect field-installed wiring before testing. Minimum insulation resistance shall be 1,000,000 ohms.

8. Remove short-circuiting links from current transformers after checking that secondary circuits are complete.

9. Verify meter connections, ensure power calibration, and ensure that correct multiplier has been provided on face of meter.

10. Remove wedges, ties, and blocks installed by the manufacturer to prevent damage during shipment.

11. Check medium-voltage circuit breakers in accordance with manufacturer's instructions.

12. Perform testing and calibration of protective relays by a certified relay technician.

13. Verify maximum resistance to ground of grounding systems.

14. Perform a switchgear-weatherproofing test to be conducted by switchgear manufacturer.

15. The Contractor shall conduct an operational performance test in the presence of the Engineer, demonstrating that all equipment and devices operate in accordance with the requirements of Plans and specification.

3.09 FIELD DIELECTRIC TESTS

A. Perform field dielectric tests on medium-voltage switchgear according to ANSI/IEEE C37.20.2 or ANSI C37.20.3 as applicable.

3.10 FOLLOW-UP VERIFICATION

A. Upon completion of acceptance checks, settings, and tests, the Contractor shall show by demonstration in service that circuits and devices are in good operating condition and properly performing the intended function. Circuit breakers shall be tripped by operation of each protective device. Test shall require each item to perform its function not less than three times. As an exception to requirements stated elsewhere in the Contract, notify the District 10 working days in advance of the dates and times for checks, settings and tests.

3.11 TEST REPORTS

A. Refer to Section 26 08 00, “Electrical Acceptance Testing”. As a minimum, provide the following tests.

B. Cable insulation and terminations (identify each cable and test result).

C. Switchgear tests and inspection.

D. All relay test, setting and calibration data.

E. Indicating meter calibration and accuracy tests.
3.12 ADJUSTING
A. Adjust all circuit breakers, switches, access doors, operating handles for free mechanical and/or electrical operation as described in manufacturer's instructions.
B. In accordance with manufacturer’s instruction, Adjust and calibrate relay trip and time delay settings to values specified in Section 26 05 76 “Overcurrent Protective Device Coordination Study”.

3.13 CLEANING
A. Clean interiors of switchgear to remove construction debris, dirt and shipping materials.
B. Repaint scratched or marred exterior surfaces to match original finish.

3,14 TRAINING
A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain systems.

- END OF SECTION 26 13 26
SECTION 31 00 00
EARTHWORK

PART 1 - PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The Work of this Section includes all earthwork required for construction of the Work. Such earthwork shall include, but not be limited to, the loosening, removing, loading, transporting, depositing, and compacting in its final location of all materials wet and dry, as required for the purposes of completing the Work specified in the Contract Documents. The Work shall also include the supporting of existing and new structures and utilities above and below the ground; all backfilling around structures, access road, and utilities and all backfilling of trenches and pits; adjustment of grate rings; the disposal of excess excavated materials; import of materials to make up deficiencies for fills; and all other incidental earthwork, all in accordance with the requirements of the Contract Documents.

1.02 REFERENCE REPORTS

A. Project Geotechnical Investigation Report by RMA Group for the project.

1.03 RELATED SECTIONS AND DOCUMENTS

A. 31 23 16 Trenching

B. 32 12 16 Asphalt Paving

C. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.04 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Commercial Standards:

ASTM D422 Method for Particle-Size Analysis of Soils.


ASTM D1557 Test methods for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (457mm) Drop.

ASTM D2487 Classification of Soils for Engineering Purposes.
ASTM D6938  Test Methods for Density and Water Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

ASTM D4253  Test Methods for Maximum Index Density of Soils Using a Vibratory Table.


1.05 CONTRACTOR SUBMITTALS

A. The CONTRACTOR shall submit 50 lb. samples of all imported or native backfill materials proposed for use.

B. CONTRACTOR shall submit material disposal plan.

C. CONTRACTOR shall submit a detailed phased erosion and sedimentation control plan in accordance with 'Manual of Standards for Erosion and Sedimentation Control Measures', Association of Bay Area Governments (ABAG), Pleasant Hill, CA, 1995.

D. CONTRACTOR shall submit a Contaminated Soil Response Plan.

1.06 QUALITY ASSURANCE

A. General: It shall be the responsibility of the CONTRACTOR to accomplish the specified compaction for backfill or other earthwork. All testing, retesting, and related inspection tests, other than compliance testing performed by the Grading Inspector or the Engineer, shall be contract work with all costs borne by the CONTRACTOR.

B. Where backfill material is required to be compacted to a percentage of maximum density, the maximum density shall be determined in accordance with ASTM D1557. Where cohesion less, free draining material is required to be compacted to a percentage of relative density, the calculation of relative density shall be determined in accordance with ASTM D4253 and D4254.

C. In the case when fill or backfill tests show non-compliance with the required density, the CONTRACTOR shall accomplish such remedy as may be required to insure compliance. Subsequent testing to show compliance shall be by a testing laboratory selected by the ENGINEER and shall be at the Contractor's expense.

D. Particle size analysis of soils and aggregates shall be performed using ASTM D422 or ASTM C136.

E. Unified Soil Classification System: References in these specifications to soil classification types and standards set forth in ASTM D2487 shall have the meanings and definitions indicated in the chart illustrated in the referenced geotechnical report. The CONTRACTOR shall be bound by all applicable provisions of said ASTM D2487 in the interpretation of soil classifications.
PART 2 - PRODUCTS

2.01 SUITABLE FILL AND BACKFILL MATERIAL REQUIREMENTS

A. General: Fill and backfill materials shall be clean earth, rock, or sand, free from grass, roots, brush, or other vegetation, and with a maximum particle size of 6 inches.

B. Fill and backfill materials to be placed within 6 inches of any structure or pipe shall be free of rocks or unbroken masses of earth materials having a maximum dimension larger than 6 inches.

C. Suitable Materials: Soils not classified as unsuitable as defied in Paragraph entitled, "Unsuitable Material" herein, are defined as suitable materials and may be used in fills and backfilling subject to the specified limitations.

D. Suitable materials may be obtained from onsite excavations, may be processed onsite materials, or may be imported. If imported materials are required to meet the requirements of this Section or to meet the quantity requirements of the project the CONTRACTOR shall provide the imported materials at no additional expense to the DISTRICT. The CONTRACTOR shall designate the proposed import sources in advance and shall provide representative source samples to be tested prior to acceptance and use.

E. Ground and pulverized existing asphalt concrete and base material may be re-used as aggregate base provided the pulverized material has R-value of 78 or higher and the gradation meeting the class 2 aggregate base specification. Only existing asphalt concrete and up 3 inches of soil below it can be used for pulverization. Import Class 2 aggregate base as needed to make up the balance of the specified aggregate base section.

2.02 SUITABLE MATERIALS

A. Engineered Fill

1. Excavated on-site (native) material may be used for fill material provided they do not contain hazardous materials; are free of organic and debris, screened to remove particles larger than 6 inches in diameter; have a low plasticity (plasticity index less than 15); have an expansion classification of low (expansion index less than or equal to 20); and properly blended and/or dried to near optimum moisture content (defined in ASTM D 1557) as required to meet compaction requirements.

B. Aggregate Base Material


C. Drain Rock Material

1. Drain Rock shall consist of stone or gravel, screened or crushed to the required size and grading. The material shall be free from vegetable matter, lumps or balls of clay, or other deleterious matter and shall conform to the following grading when tested in accordance with ASTM C 136.
Sieve Size | Percent By Weight (Passing, Screen)
--- | ---
1-1/2-inch | 100
3/4-inch | 55-100
3/8-inch | 8-50
No. 4 | 0-8

Coarse material shall be crushed or wasted (disposed of and not used) and fine material shall be wasted to meet the grading requirements set forth above. Clean rounded pea gravel will not be permitted.

Coarse aggregate, retained on the No. 4 sieve, shall have a percentage of wear not greater than 40 percent when tested by the Los Angeles Test, AASHTO T-96.

D. Topsoil Material

1. Topsoil material shall consist of fertile, friable soil of loamy character, and shall contain an amount of organic matter normal to the region. It shall be obtained from well-drained arable land and shall be reasonably free from subsoil, refuse, roots, heavy or stiff clay, stones larger than one inch in size, coarse sand, noxious seeds, sticks, brush, liner, and other deleterious substances. Topsoil material shall be capable of sustaining healthy plant life.

2.03 UNSUITABLE MATERIAL

A. Unsuitable soils for fill material shall include, but not be limited to, all soils which, when classified under ASTM D2487, fall in the classifications of Pt, OH, CH, MH, or OL.

B. In addition, any soil that cannot be compacted sufficiently to achieve the percentage of maximum density specified for the intended use, shall be classed as unsuitable material.

2.04 USE OF FILL MATERIAL TYPES

A. The CONTRACTOR shall use the types of materials as designated herein for all required fill and backfill construction hereunder.

B. Where these Specifications conflict with the requirements of any local agency having jurisdiction, or with the requirements of a material manufacturer, the ENGINEER shall be immediately notified. In case of conflict therewith, the CONTRACTOR shall use the most stringent requirement, as determined by the ENGINEER.

C. Fill types shall be used in accordance with the following provisions:

1. Final Backfill under paved areas, as defined under Paragraph 3.10.C of this Section, shall consist of Engineered fill material up to the pavement base. Pavement base and pavement material shall be as defined in Section 32 12 16 “Asphalt Paving.” Final backfill under areas not paved shall consist of Engineered fill material except that Topsoil material shall be used for final 8 inches of backfill in landscape areas.
2. Aggregate base materials under pavements shall be Aggregate Base material constructed to the thickness shown or specified.

3. Bedding (foundation) beneath underground structures and manholes shall be Aggregate Base (Caltrans Class 2) material.

4. Backfill around structures shall be Engineered Fill material.

5. Backfill used to replace over-excavation shall be Engineered Fill material.

PART 3 - EXECUTION

3.01 STRUCTURE AND ROADWAY EXCAVATION

A. General: Except when specifically provided to the contrary, excavation shall include the removal of all materials of whatever nature encountered, including all obstructions of any nature that would interfere with the proper execution and completion of the Work. The removal of said materials shall conform to the lines and grades shown or ordered. Unless otherwise provided, the entire construction site shall be stripped of all vegetation and debris, and such material shall be removed from the site prior to performing any excavation or placing any fill. All excavations shall be dewatered. Any excavated areas shall be considered as “open trench” until all areas have been backfilled and compacted in accordance with these Contract Documents.

B. Excavation Beneath Structures: Except where otherwise specified for a particular structure or ordered by the owner’s representative or the ENGINEER, excavation shall be carried to a grade of 6 inches below the bottom of the footing. Per soil report section 3.04, provided that the undisturbed bedrock is fully exposed at the foundation level, footing areas will not require over excavation. Where shown or ordered, areas beneath structures shall be over-excavated. When such over-excavation is shown or specified herein, both over-excavation and subsequent backfill to the required grade shall be performed by the CONTRACTOR. After the required excavation or over-excavation has been completed, the exposed surface shall be scarified to a depth of 8 inches, brought to optimum moisture content, and rolled with heavy compaction equipment to obtain the required relative compaction percentage as indicated in the project documents.

C. Excavation Beneath Paved Areas: Excavation under areas to be paved shall extend to the bottom of the aggregate base. After the required excavation has been completed, the exposed surface shall be scarified, brought to optimum moisture content, and rolled with heavy compaction equipment to obtain 90 percent of maximum density at more than 3 feet below surface and 95 percent within 3 feet of the surface.

D. Notification of Owner’s Representative and the Engineer: The CONTRACTOR shall notify the Owner’s Representative at least 3 days in advance of completion of any structure excavation and shall allow the Owner’s Representative or the ENGINEER a review period of at least one day before the exposed foundation is scarified and compacted or is covered with backfill or with any construction materials.
3.02 OVER-EXCAVATION NOT ORDERED, SPECIFIED, OR SHOWN

A. If the bottom of the excavation is found to consist of soft or unstable material, which is incapable of properly supporting the pipe, the District Representative's and the ENGINEER shall be advised immediately. At the ENGINEER's direction, such material shall be removed to the depth and for the lengths specified and the trench refilled to grade with compacted Drain Rock material.

B. The CONTRACTOR shall obtain the District representative’s and the Engineer’s written approval prior to over excavating. Any over excavating without such approval shall be at the CONTRACTOR's expense. The quantity of approved unsuitable material excavated and its replacement with Drain Rock material may be paid for as extra work.

3.03 EXCAVATION IN VICINITY OF TREES

A. Except where trees are shown to be removed, trees shall be protected from injury during construction operations. No tree roots over 2 inches in diameter shall be cut without express permission of the property owner. Trees shall be supported during excavation by any means previously reviewed by the District.

B. Trees not designated as being removed shall be protected during construction

3.04 ROCK EXCAVATION

A. Rock excavation shall include removal and disposal of the following: (1) all boulders measuring 1/3 of a cubic yard or less in volume; (2) all rock material in ledges, bedding deposits, and unstratified masses; and (3) concrete or masonry structures which have been abandoned. Explosives and Blasting: Blasting will not be permitted.

3.05 BACKFILL - GENERAL

A. Backfill shall not be dropped directly upon any structure or pipe. Backfill shall not be placed around or upon any structure until the concrete has attained sufficient strength to withstand the loads imposed.

B. Except for drain rock materials being placed in over-excavated areas, backfill shall be placed after all water is removed from the excavation.

C. Notify Engineer prior to placing backfill material.

D. Compaction of fill materials shall be tested by the testing lab or Engineer. Material failing to meet compaction requirements shall be removed and re-compacted at no additional cost to the University.

3.06 FILL SLOPES:

A. Permanent Slopes: Permanent Slopes of the fill shall be 2 horizontal to 1 vertical
3.07 BENCHING:
A. Benching shall confirm to soil report recommendation.
B. Excavated to stiff soil or rock

3.08 KEYWAY:
A. Keyway should be excavated along toe of the fill to provide stable base for new fill the Keyway should be a minimum of 5' feet wide, bottomed in stiff natural soil or rock to a minimum of 3 feet depth, and bottom of Keyway shall slope approximately 2 percent into the slope.

3.09 PLACING AND SPREADING OF FILL MATERIALS
A. Fill materials shall be placed and spread evenly in layers, loose depth 8 inches or less.
B. During spreading, each layer shall be thoroughly mixed as necessary to promote uniformity of material in each layer.
C. Where the fill material moisture content is too low to permit the specified degree of compaction, water shall be added before or during spreading until the proper moisture content is achieved. Jetting will not be permitted for compaction.
D. Where the fill material moisture content is too high to permit the specified degree of compaction, the material shall be dried until the moisture content is satisfactory.

3.10 COMPACTION OF FILL MATERIALS
A. Each layer of fill materials as defined in Paragraph 2.02, herein, where the material is graded such that at least 10 percent passes a No. 4 sieve, shall be mechanically compacted to the specified percentage of maximum density. Equipment that is consistently capable of achieving the required degree of compaction shall be used and each layer shall be compacted over its entire area while the material is at the required moisture content. Lightweight mechanical tampers or vibrating plate compactors shall be used in pipeline and utility trenches to prevent damage to existing or new utilities.
B. Compaction of backfill adjacent to all subgrade structure walls shall follow a pattern of compaction which begins at the wall face and progresses outward to the outside edge of the excavation before beginning a new lift.
C. Flooding, ponding, or jetting shall not be used.
D. Equipment weighing more than 10,000 pounds shall not be used closer to walls than a horizontal distance equal to the depth of the fill at that time. Hand operated power compaction equipment shall be used where use of heavier equipment is impractical or restricted due to weight limitations.
E. Compaction Requirements: The following compaction test requirements shall be in accordance with soil report and/or ASTMD1557 or in accordance with ASTM D4253 and
D4254 as applicable. Soil report requirements govern, the highest compaction standards shall apply.

<table>
<thead>
<tr>
<th>Location or Use of Fill</th>
<th>Minimum Percentage of Maximum Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over-excavated zones,</td>
<td>95</td>
</tr>
<tr>
<td>Final backfill beneath paved areas.</td>
<td>90</td>
</tr>
<tr>
<td>Final backfill not beneath paved areas.</td>
<td>90</td>
</tr>
<tr>
<td>Backfill around all structure</td>
<td>95</td>
</tr>
<tr>
<td>Aggregate base for pavement.</td>
<td>95</td>
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</tbody>
</table>

3.11 DISPOSAL OF SURPLUS MATERIAL

A. Remove excess earth materials, unsuitable materials, and debris from the site and dispose of it in a legal manner. Location of disposal site and length of the haul shall be the Contractor's responsibility.

END OF SECTION 31 00 00
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.02 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Disconnecting, capping or sealing, and removing abandoning site utilities in place.
6. Temporary erosion and sedimentation control.

B. Related Requirements:

1. Section 31 00 00 “Earthwork” for excavation in vicinity of trees.

1.03 DEFINITIONS

A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 3 percent organic matter and few soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "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; the zone where plant roots grow.

D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction.

E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction according to requirements in Section 31 00 00 “Earthwork”. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.
1.04 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.05 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain District's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.06 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. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.07 QUALITY ASSURANCE

A. Topsoil Stripping and Stockpiling Program: If topsoil is to be re-used, prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

1.08 FIELD 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 District and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by District or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining District's property will be obtained by District before award of Contract.

1. Do not proceed with work on adjoining property until directed by District's representative.
C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on site per District representative’s premises location.

D. Utility Locator Service: Notify Underground Service Alert (USA) at (800) 227-2600, 48 hours prior to any construction activities for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

F. Excavation in vicinity of tree shall be done in accordance to the requirements in Section 31 00 00 “Earthwork”.

G. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 20 00 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

B. Antitrust Coating: Fast-curing, lead- and chromate-free, self-curing, universal modified-alkyd primer complying with SSPC-Paint 20 or SSPC-Paint 29 zinc-rich coating

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 31 00 00 “Earthwork.”

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to District.

3.02 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.

3.03 TREE AND PLANT PROTECTION

A. Protect trees and plants remaining on-site according to requirements in Section 31 00 00 “Earthwork.”

3.04 EXISTING UTILITIES

A. Contractor shall disconnect and seal all existing utilities to be left in place where required to serve existing structures before site clearing and under the direction of the district.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by District or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify the District not less than ten days in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Engineer’s written permission.

D. Excavate for and remove underground utilities indicated to be removed.

E. Removal of underground utilities is included in earthwork sections; in applicable fire suppression, plumbing, HVAC, electrical, communications, electronic safety and security, and utilities sections; and in Section 02 41 19 "Selective Site Demolition."

3.05 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 larger than 3 inches in diameter, obstructions, and debris to a depth of 2 feet 6 inches below exposed subgrade.

3. Use only hand methods or air space for grubbing within protection zones.

4. Chip removed tree branches and dispose off-site.
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.

3.06 TOPSOIL STRIPPING

A. Remove sod, grass and brushes before stripping topsoil.

B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials and in accordance with the project Geotechnical Investigation Report.

3.07 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.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.08 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 District's property.

B. Separate recyclable materials produced during site clearing from other non-recyclable 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 31 10 00
PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.02 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade and pavements.
3. Excavating and backfilling for retaining wall and related structures.
4. Drainage course for concrete slabs-on-grade.
5. Subbase course for concrete sidewalks and pavements.
6. Subbase course and base course for asphalt paving.
7. Subsurface drainage backfill for retaining walls and trenches.
8. Excavating and backfilling trenches for utilities and pits for buried utility structures.

B. Related Requirements:

1. Section 03 30 00 "Cast-in-Place Concrete" for granular course if placed over vapor retarder and beneath the slab-on-grade.
2. Section 31 10 00 "Site Clearing" for site stripping, grubbing, stripping and stockpiling, topsoil, and removal of above- and below-grade improvements and utilities.

1.03 PRICES

A. Work of this Section shall be done as part of the total lump sum price for the project.

1.04 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.

2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by District Representative. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by District. Unauthorized excavation, as well as remedial work directed by District, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.
1.05  PRE-INSTALLATION MEETINGS

A. Pre-installation Conference: Conduct pre-excavation conference at Project site

   1. Review methods and procedures related to earthmoving, including, but not limited to, the following:

      a. Personnel and equipment needed to make progress and avoid delays.
      b. Coordination of Work with utility locator service.
      c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
      d. Extent of trenching by hand or with air spade.
      e. Field quality control.

1.06  ACTION SUBMITTALS

A. Product Data: For each type of the following manufactured products required:

   1. Geotextiles.
   2. Warning tapes.

1.07  INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:

   1. Classification according to ASTM D 2487.
   2. Laboratory compaction curve according to ASTM D 1557.

C. Seismic survey report from seismic survey agency.

D. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.

1.08  QUALITY ASSURANCE

A. Blasting: Comply with applicable requirements in NFPA 495, "Explosive Materials Code," and prepare a blasting plan reporting the following:
1. Types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.

2. Seismographic monitoring during blasting operations.

B. Seismic Survey Agency: An independent testing agency, acceptable to authorities having jurisdiction, experienced in seismic surveys and blasting procedures to perform the following services:

1. Report types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.

2. Seismographic monitoring during blasting operations.

C. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.09 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from District and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by District or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining District's property will be obtained by District before award of Contract.

1. Do not proceed with work on adjoining property until directed by District.

C. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.

D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified are in place.

E. Do not commence earth-moving operations until plant-protection measures are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.

3. Foot traffic.

4. Erection of sheds or structures.

5. Impoundment of water.

6. Excavation or other digging unless otherwise indicated.

7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. General: Use only soils as recommended by the geotechnical investigation report for the project.

B. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve as recommended by the Project Geotechnical Report.

C. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 294; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

D. Engineered Fill: Any fill material meeting the requirements as indicated on section 2.02A of Section 31 00 00 – Earthwork

E. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and zero to 5 percent passing a No. 8 (2.36-mm) sieve.
G. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and zero to 5 percent passing a No. 4 (4.75-mm) sieve.

H. Sand: ASTM C 33; fine aggregate.

I. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.02 GEOTEXTILE:


2.03 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:


2. Yellow: Gas, oil, steam, and dangerous materials.

3. Orange: Telephone and other communications.

4. Blue: Water systems.

5. Green: Sewer systems.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.
3.02 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
   1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.03 EXPLOSIVES

A. Explosives: Do not use explosives.

B. Explosives: Obtain written permission from authorities having jurisdiction before bringing explosives to Project site or using explosives on Project site.
   1. Perform blasting without damaging adjacent structures, property, or site improvements.
   2. Perform blasting without weakening the bearing capacity of rock subgrade and with the least-practicable disturbance to rock to remain.

3.04 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
   1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
   2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
      a. 24 inches (600 mm) outside of concrete forms other than at footings.
      b. 12 inches (300 mm) outside of concrete forms at footings.
      c. 6 inches (150 mm) outside of minimum required dimensions of concrete cast against grade.
      d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
      e. 6 inches (150 mm) beneath bottom of concrete slabs-on-grade.
f. 6 inches (150 mm) beneath pipe in trenches and the greater of 24 inches (600 mm) wider than pipe or 42 inches (1065 mm) wide.

3.05 EXCAVATION FOR STRUCTURES

A. Excavate to indicate elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

2. Pile Foundations: Stop excavations 6 to 12 inches (150 to 300 mm) above bottom of pile cap before piles are placed. After piles have been driven, remove loose and displaced material. Excavate to final grade, leaving solid base to receive concrete pile caps.

3. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch (25 mm). Do not disturb bottom of excavations intended as bearing surfaces.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Cut and protect roots according to requirements in Section 01416 "Special Procedures."

3.06 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.07 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond new structure perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit.
C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

1. For pipes and conduit less than 6 inches (150 mm) in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.

2. For pipes and conduit 6 inches (150 mm) or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.

3. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.

4. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches (100 mm) deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

E. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.

2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.

3. Cut and protect roots according to requirements in Section 01416 "Special Procedures."

4. Tree and Plant Protection: Install temporary silt fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

3.08 SUBGRADE INSPECTION

A. Notify District's Representative when excavations have reached required subgrade for review by Project Soil Engineer.

B. If Soil Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
C. Proof-roll subgrade below the structure slabs and pavements with a pneumatic-tired [and
loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons (13.6 tonnes) to
identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated sub-
grades.

1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction per-
  pendicular to first direction. Limit vehicle speed to 3 mph (5 km/h).

2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as de-
termined by District, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Con-
tract provisions for changes in the Work.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or
construction activities, as directed by District, without additional compensation.

3.09 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom eleva-
tion of concrete foundation or footing to excavation bottom, without altering top elevation.
Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used
when approved by District.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by
District.

3.10 STORAGE OF SOIL MATERIALS

A. Do not stockpile excavated soil on site. All excess soil excavated shall be disposed off site.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing,
waterproofing, and perimeter insulation.

2. Surveying locations of underground utilities for Record Documents.

3. Testing and inspecting underground utilities.

4. Removing concrete formwork.

5. Removing trash and debris.

6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.12 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 03 30 00 "Cast-in-Place Concrete."

D. Trenches under Roadways: Provide 6-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 12 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 6 inches (100 mm) of concrete before backfilling or placing roadway subbase course. Concrete is specified in Section 03 30 00 "Cast-in-Place Concrete."

E. Backfill voids with satisfactory soil while removing shoring and bracing.

F. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the pipe or conduit.
   a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

2. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches (300 mm) over the pipe or conduit. Coordinate backfilling with utilities testing.

G. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.
H. **Warning Tape**: Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.13 **SOIL FILL**

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under new retaining wall and slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.14 **SOIL MOISTURE CONTROL**

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer in accordance with the Geotechnical Investigation report for the project.

3.15 **COMPACtion OF SOIL BACKFills AND FIllS**

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and re-compact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent. Scarification and re-compaction beneath structures and building slabs should extend beyond the limits of the foundation footprint for a horizontal distance of 5 feet. Scarification and re-compaction pavements should extend beyond the limits of the pavement for a horizontal distance of 2 feet.
2. Under walkways, scarify and re-compact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 90 percent.

3. Under turf or unpaved areas, scarify and re-compact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.

4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

   1. Provide a smooth transition between adjacent existing grades and new grades.

   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

   1. Walks: Plus or minus 1 inch (25 mm).

   2. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.17 SUBSURFACE DRAINAGE

A. Subsurface Drain: Place subsurface drainage geotextile around perimeter of subdrainage trench. Place a 6-inch (150-mm) course of filter material on subsurface drainage geotextile to support subdrainage pipe. Encase subdrainage pipe in a minimum of 12 inches (300 mm) of filter material, placed in compacted layers 6 inches (150 mm) thick, and wrap in subsurface drainage geotextile, overlapping sides and ends at least 6 inches (150 mm).

B. Drainage Backfill: Place and compact filter material over subsurface drain, in width indicated, to within 12 inches (300 mm) of final subgrade, in compacted layers 6 inches (150 mm) thick. Overlay drainage backfill with one layer of subsurface drainage geotextile, overlapping sides and ends at least 6 inches (150 mm).

   1. Compact each filter material layer per the project Soil Report.

   2. Place and compact impervious fill over drainage backfill in 6-inch- (150-mm-) thick compacted layers to final subgrade.
3.18 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, or other foreign debris.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Place base course material over subbase course under hot-mix asphalt pavement.

2. Shape base course to required crown elevations and cross-slope grades.

3. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness in accordance with the Geotechnical Investigation Report.

3.19 FIELD QUALITY CONTROL

A. Special Inspections: District will engage a qualified special inspector to perform the following special inspections:

1. Determine prior to placement of fill that site has been prepared in compliance with requirements.

2. Determine that fill material classification and maximum lift thickness comply with requirements.

3. Determine, during placement and compaction, that in-place density of compacted fill complies with requirements.

4. Meet District and DSA standard.

B. Testing Agency: District will engage a qualified geotechnical engineering and/or testing agency to perform tests and inspections.

C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2937, and ASTM D 6938, as applicable. Tests will be performed at the following locations and frequencies:

1. Paved and Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. (186 sq. m) or less of paved area or building slab but in no case fewer than three tests.

2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet (30 m) or less of wall length but no fewer than two tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet (46 m) or less of trench length but no fewer than two tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by District Representative; reshape and re-compact until satisfactory condition is achieved.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off District's property.

END OF SECTION 31 20 00
SECTION 31 23 16
TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES:

A. Excavating trenches for utilities from outside building to points of connection to existing fac-
cilities.

B. Compacted fill from top of utility bedding to subgrade elevations.

C. Backfilling and compaction.

1.02 RELATED DOCUMENTS AND SECTION:

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions relat-
ed to the provisions in this document, and provisions in the General Conditions and other Di-
vision 01 Specification Sections shall apply to this Section without limitation.

B. 33 41 00 Storm Utility Drainage Piping

1.03 REFERENCES:


B. ASTM D6938 Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Meth-
ods (Shallow Depth).

C.

1.04 DEFINITIONS:

A. Utility: Any buried pipe, duct, conduit, or cable.

1.05 FIELD MEASUREMENTS:

A. Verify that survey bench mark, control point and intended elevations for the Work are as shown on drawings.

1.06 COORDINATION:

A. Verify work associated with lower elevation utilities is complete before placing higher eleva-
tion utilities.
PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 PREPARATION:

A. Identify required lines, levels, contours, and datum locations.

B. Protect plant life, lawns, and other features remaining as a portion of final landscaping.

C. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

D. Maintain and protect above and below grade utilities which are to remain.

E. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Class 2 Aggregate Base and compact to density equal to or greater than requirements for subsequent backfill material.

F. Provide safety measures for existing trees near new trenches to prevent falling and leaning when trenches are open.

3.02 EXCAVATING:

A. Excavate subsoil required for utilities to points of connection and/or municipal utilities.

B. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.

C. Do not interfere with 45 degree bearing splay of foundations.

D. Hand trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter,

E. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd, measured by volume.

F. Correct areas over excavated by backfilling as needed with Class 2 Aggregate Base and compacting to a density equal to or greater than that required for subsequent backfill material.

G. Remove excess material from site.

3.03 BACKFILLING:

A. Backfill trenches to contours and elevations with specified materials.

B. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
C. Class 2 Aggregate Base: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

D. Sand Bedding shall be per section 19-3.0253 of the Caltrans Standard Specifications (CSS).

E. Employ a placement method that does not disturb or damage utilities in trench.

F. Maintain optimum moisture content of fill materials to attain required compaction density.

G. Remove surplus fill materials from site.

H. Leave fill material stockpile areas completely free of excess fill materials.

3.04 TOLERANCES:

A. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

B. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.05 FIELD QUALITY CONTROL:

A. Compaction shall achieve levels specified on the plans and/or specifications

B. Compaction testing will be performed in accordance with ASTM D6938.

C. If tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

D. Frequency of Tests: as required by Soils Engineer.

3.06 PROTECTION OF FINISHED WORK:

A. Protect finished Work under provisions of Division 1 of the specifications.

B. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.07 SCHEDULE:

A. Storm, Water and Sanitary Piping:

   1. Cover pipe and bedding with Class 2 Aggregate Base on native backfill, in 6 inch lifts, Compacted to 95 percent

B. Duct Bank:

   1. Cover duct and bedding with backfill to subgrade elevation, compacted to 95 percent.

END OF SECTION 31 23 16
SECTION 32 12.16
ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

B. Refer to other sections and determine extent of related work, and coordinate work to produce complete project.

1.02 DESCRIPTION OF WORK

A. Consists of all work required to install a complete asphaltic concrete paving system as detailed on the contract drawings. Furnish all material and labor required to construct the miscellaneous asphalt concrete paving work as shown on drawings, including but not limited to:

1. Removing of existing asphalt pavement to specified depth at designated areas.
2. Grading, installing and compacting asphalt concrete.
3. Repairing cracks in existing pavement.
4. Applying fog seal to existing and new asphalt pavement.
5. Removing effected parking striping and re-stripe parking area to match existing. Refer to section 32 17.23 – Pavement Marking for striping requirement.

1.03 APPLICABLE PUBLICATIONS

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


C. 1557 Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures.

D. 2292-91 Nuclear Density Test Method


1.04 QUALITY ASSURANCE

A. All work shall be accomplished using Caltrans Standard Specifications as a reference and standard for quality and performance.
B. So-called flat spots or bird baths in the finished surface will not be acceptable. Surfaces must drain and shall not vary more than 1/8" in 5' any paved area.

C. Pavement section thickness shall be as shown on the drawings.

1.05 SUBMITTALS

A. Material certificates: Provide copies of material certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

B. Provide mix designs for all paving work.

1.06 JOB CONDITIONS

A. Temporary Protection:

1. Protect and prevent damage to adjacent properties and improvements that may be caused by the Contractor's operations.

2. Protect and prevent damage or danger to on-site improvements.

3. Provide protection for all filled or graded areas to prevent erosion and to maintain integrity during the course of this work.

4. Mask finished concrete surfaces adjacent to pavement before placing prime or tack coats to prevent staining of exposed concrete and building surfaces, and, in an approved manner, prevent staining of curbs. Permit no traffic on paving until it has reached atmospheric temperature.

5. Any damage to the finish pavement surface from subsequent construction shall be repaired to a smooth, true and uniform surface.

B. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 F (10 C), and when temperature has not been below 35 F (1 C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

C. Construct asphalt concrete surface course when atmospheric temperature is above 45 F (7 C), and when base is dry. Base course may be placed when air temperature is above 30 F (1 C) and rising.

D. Grade Control: Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Asphalt concrete material used herein shall conform to Caltrans Standard Specifications Section 39, hereafter called "Specifications".
B. **Prime Coat:** Prime coat shall be liquid asphalt slow curing SC70 in accordance with Section 93 Caltrans Standard Specifications.

C. **Paint Binder:** Paint binder shall be SS1, in accordance with Section 94, Caltrans Standard Specifications.

D. **Herbicide Treatment:** Commercial Chemical for weed control, registered by Environmental Protection Agency. Provide granular, liquid of wettable powder form.

### 2.02 ASPHALT CONCRETE

A. Use locally available materials and gradations which exhibit a satisfactory record of previous installations. Asphalt concrete and aggregate used herein shall conform to Caltrans Standard Specifications Section 39 for Type B asphalt concrete with Type B aggregate.

1. The aggregates and asphalts shall be stored, handled, proportioned, and mixed as stated in Section 39 Caltrans Standard Specifications. Aggregate mixture for asphalt shall conform to Standard Specifications for Type B asphalt concrete, 3/8” maximum, medium gradation.

2. Asphalt binder shall be steam refined paving asphalt conforming to Section 92 Caltrans Specifications Viscosity Grade PG64-10.

### 2.03 CRACK SEALING

A. Crack sealing material shall be “Flex-A-Fill 9075”, as manufactured by Koch Materials Company, 4434 N.W. Expressway, Oklahoma City, OK.; “Asphalt Rubber-Plus”, as manufactured by CRAFCO, Inc., Box 2133, Phoenix, Arizona, 85036, or an equivalent material approved by District’s representative.

### 2.04 OVERKOTE ASPHALT PAVEMENT COATING

A. Modified with 2 1/2 g. added latex and 2% added binder as manufactured by Reed & Graham, Inc. - A cold applied composition of a refined petroleum asphalt emulsion, fillers and fibers. Asphalt emulsion shall not be of the clay type.

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
<th>LIMITS</th>
<th>TEST METHODS</th>
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</thead>
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<tr>
<td>Residue at 300-400 F, %</td>
<td>55-65</td>
<td>See Note 1</td>
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<tr>
<td>Dehydration, 96 hours at 100 F</td>
<td>0.6 min</td>
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<td>Solubility of residue in C2HCl3</td>
<td>15-20</td>
<td>AASHTO T-45-46</td>
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<td>Loss on ignition of insoluble residue, %</td>
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<tr>
<td>Cone penetration at 77 F, dmm</td>
<td>400-700</td>
<td>ASTM D 217</td>
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</tbody>
</table>

B. **Water** - the water used in all mixtures shall be fresh and potable.

**Note 1:** Method for determination of residue: A 25 gram sample shall be placed in a tin lid not less than 5” minutes until the vapor changes from white to a bluish color and bubbling ceases.
PART 3 - EXECUTION

3.01 GENERAL

A. Saw cut and remove existing asphalt pavement and subgrade as required at designated area for new work.

B. Do not allow water to accumulate in excavations. Remove water to prevent softening of excavation bottoms, and soil changes detrimental to stability of subgrades. Provide and maintain temporary drainage pipes, pump, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations to positive free draining outlet. Do not use trench excavations as temporary drainage ditches.

3.02 PREPARATION FOR ASPHALT PAVEMENT

A. Saw cutting, grinding and removing existing asphalt pavement: Grinding shall be performed with abrasive grinding equipment utilizing diamond cutting blades to the required depth in accordance with Section 42-2 of Standard Specification. Saw cutting shall be done in straight lines in required length. Do not over cut.

B. Paint Binder: Paint binder shall be applied to asphalt or concrete surfaces against which paving will be placed.

3.03 SURFACE PREPARATION OF SLURRY SEAL/OVERKOTE ASPHALT PAVEMENT COATING ON EXISTING ASPHALTIC CONCRETE PAVEMENT

A. Damaged asphalt shall be removed and replaced or repaired as required.

B. All weeds or other vegetation growing through the asphaltic concrete shall be removed and sprayed with a suitable chemical sterilant.

C. Thoroughly clean all cracks of all foreign matter. Cracks 1/8” to a maximum of 1/2” in width should be cleaned and filled with Crack Filler, per manufacturer’s recommendations. Cracks wider than 1/2” should be repaired with asphaltic concrete. Allow Crack Filler to cure prior to sealing. All cracks smaller than 1/8” should be filled with multiple coats of Sealer.

D. The surface must be free of all foreign material, such as sand, dust, clay and grease, which might adversely affect bonding of the Sealer. High pressure air blowers, vacuums or sweepers shall be used to remove these objectionable materials. Where there are deposits of grease and oil, these areas must be cleaned by scraping, burning and/or the use of a detergent. Trisodium Phosphate and stiff brush should be used to scrub area clean. When detergents are used, the pavement shall be thoroughly rinsed with water.

E. Mixing or agitating equipment furnished shall be a tank-type power mixer with a round bottom and equipped with a power driven mixer of sufficient capacity to maintain the mineral content in complete suspension.

F. The mixture shall be applied by the combined or individual use of rubber faced squeegees and or mechanized material spreading equipment or other suitable method approved by the District’s representative or inspector.
G. Sealer shall be mixed to a uniform free-flowing consistency. Water shall be added (not to exceed 15% by volume) to obtain a semi-fluid consistency.

H. Prior to the first application of Sealer in exceptionally hot weather, dampen the surface with water. Remove any excess water to leave the surface only slightly damp.

I. Sealer should be applied to the area in continuous parallel lines and spread immediately by use of rubber faced squeegees and/or mechanized material spreading equipment.

J. To be used on generally smooth areas where surface voids in the pavement are less than 3/16” between the top of the exposed aggregate to the bottom of the void.

K. Two (2) or more applications shall be made using a minimum of 30 gallons of undiluted Sealer per 1,000 square feet of area. However, the controlling factor should be not the number of applications, nor the quantity of Sealer used (except that 30 gallons per 1,000 square feet should be a minimum) but that the surface should be smooth and no evidence of course or uneven texture.

3.04 CRACK SEALING

A. Cracks shall be sealed. Surface temperature, air temperature, and the temperature of material at time of sealing, and sealing procedures shall be in strict conformance with the manufacturer’s recommendations. Cracks less than 1/4 inch wide shall be routed to a minimum width of 1/4 inch and a minimum depth of 1 inch. Routing may be accomplished by means of equipment which leaves a spall-free crack and accepted by District Representative. Immediately prior to sealing, all cracks shall be blown clean by means of compressed air or a method accepted by District Representative. Clean all excess material from beside cracks caused by overfilling or missed alignment and any other spills from the surface of the pavement by the end of each day’s work. Sealing equipment used shall be designed for use with the particular material being used and shall be approved by the manufacturer. Crack sealant will be allowed to cure, as recommended by the manufacturer. If necessary, District Representative will provide a suitable sand seal in order to prevent tracking of the newly applied sealant until material obtains fine set.

3.05 PLACING ASPHALT CONCRETE

A. Asphalt Concrete: Asphalt concrete shall be placed, spread and compacted in accordance with Section 39-6 and 39-7 of the Standard Specifications or using nuclear density test method. Pave all surfaces as indicated on the drawings. Complete all trench excavation and trench backfill prior to preparation of subgrade for placement of base materials. Do not place asphalt concrete until backfill density tests have been successfully completed. Finish all surfaces to match adjacent surfaces and/or grades shown on the drawings except that asphalt concrete placed adjacent to any gutter designed to carry water shall be 1/4 inch above the gutter lip after final compaction. Finished surface of asphalt concrete shall be dense and uniform.

B. Apply a fog seal to new and existing asphalt pavement for uniform appearance.
3.06 CLEANUP

A. Remove all asphaltic materials from surfaces upon which it may have been spattered during the construction work, including building walls, street furniture and concrete surfaces. After completion of paving, all new asphalt concrete surfaces shall be cleaned with a power broom.

END OF SECTION 32 12 16
SECTION 32 31 13
CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.02 SUMMARY

A. Section Includes:

1. Chain-link fences.
2. Swing gates.
3. Privacy slats.
4. Pre-printed graphic privacy screen

B. Related Requirements:

1. Section 03 30 00 "Cast-in-Place Concrete" for cast-in-place concrete.

1.03 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1. Inspect and discuss placement of fence post footings and underground electrical work to avoid interference between them.

2. Review required groundings, testing, inspecting, and certifying procedures where specified.

1.04 ACTION SUBMITTALS

A. Product Data: chain link fence and gates.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:

   a. Fence and gate posts, rails, and fittings.

   b. Chain-link fabric, reinforcements, and attachments.

   c. Accessories: Privacy slats.

   d. Gates and hardware.
e. Pre-printed graphic privacy screen

B. Shop Drawings: For fence and gate assembly.
   1. Include plans, elevations, sections, details, and attachments to other work.
   2. Include accessories, hardware and operational clearances.

C. Samples for Verification.
   1. Provide cut sheet for vinyl coated chain-link mesh and vinyl slats.
   2. Indicate finish color of mesh, slats and pre-painted graphic privacy screen

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For engineers and District’s representative.

B. Product Certificates: For chain-link fence and gates.

C. Product Test Reports: For framework strength according to ASTM F 1043, for tests performed by manufacturer and witnessed by a qualified testing agency or a qualified testing agency.

D. Field quality-control reports.

E. Sample Warranty: For special warranty.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing fence grounding; member company of NETA or an NRTL.
   1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.07 FIELD CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.08 WARRANTY

A. Special Warranty: Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Failure to comply with performance requirements.
b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Structural Performance: Chain-link fence and gate frameworks shall withstand the design wind loads and stresses for fence height(s) and under exposure conditions indicated according to ASCE 710 Publication and California Building Code, 2016 Edition.

1. Minimum Post Size: Determine according to ASTM F 1043 for post spacing not to exceed 6 feet for Group IA, ASTM F1043, schedule for steel pipe.

B. Lightning Protection System: Maximum resistance-to-ground value of 25 ohms at each grounding location along fence under normal dry conditions.

2.02 CHAIN-LINK FENCE FABRIC

A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:

1. Fabric Height: As indicated on Drawings.

2. Steel Wire for Fabric: Wire diameter of 9 gauge 0.113 inch (2.87 mm).
   a. Mesh Size: 2 inches (50 mm).
      1) Color: Black, according to ASTM F 668.
   c. Coat selvage ends of metallic-coated fabric before the weaving process with manufacturer's standard clear protective coating.

2.03 FENCE FRAMEWORK

A. Posts and ASTM F 1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:

1. Fence Height: 84 inches or as indicated on drawings.

2. Heavy-Industrial-Strength Material: Schedule 40, round steel pipe.
   a. Line Post: 3.5 inches outside diameter or as indicated on drawings.
b. End, Corner, and Pull Posts: 3.5 inches outside diameter or as indicated on drawings.

3. Horizontal Framework Members: Intermediate, top and bottom rails according to ASTM F 1043.
   a. Top Rail: 3.5 inches outside diameter or as indicated on drawings.


5. Metallic Coating for Steel Framework:
   a. Type A: Not less than minimum 2.0-oz./sq. ft. (0.61-kg/sq. m) average zinc coating according to ASTM A 123/A 123M or 4.0-oz./sq. ft. (1.22-kg/sq. m) zinc coating according to ASTM A 653/A 653M.

6. Polymer coating over metallic coating.
   a. Color: Black, according to ASTM F 934 to match chain-link fabric.

2.04 TENSION WIRE

   A. Polymer-Coated Steel Wire: 0.177-inch diameter, tension wire according to ASTM F 1664, Class 1 zinc-coated steel wire.
      1. Color: Black, according to ASTM F 934.

2.05 SWING GATES

   A. General: ASTM F 900 for gate posts and single swing gate types.
      1. Gate Leaf Width: 42 inches as indicated on drawings.
      2. Framework Member Sizes and Strength: Based on gate fabric height of 84 inches as indicated on drawings

   B. Pipe and Tubing:
      1. Zinc-Coated Steel: 2 ¾” outside diameter, ASTM F 1043 and protective coating and finish to match fence framework.
      2. Gate Posts: Round tubular steel.
      3. Gate Frames and Bracing: Round tubular steel.

   C. Frame Corner Construction: assembled with corner fittings.

   D. Hardware:
      1. Hinges: 360-degree inward and outward swing.
2. Latch: Permitting operation from both sides of gate with provision for padlocking accessible from both sides of gate.

3. Lock: Manufacturer's standard per District internal device.

4. Padlock and Chain per District.

2.06 FITTINGS

A. Provide fittings according to ASTM F 626.

B. Post Caps: Provide for each post.
   
   1. Provide line post caps with loop to receive tension wire or top rail.

C. Rail and Brace Ends: For each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:
   
   1. Top Rail Sleeves: Pressed-steel not less than 6 inches (152 mm) long.
   
   2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails to posts.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, length not less than 2 inches (50 mm) shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading- rod and turnbuckle or other means of adjustment.

H. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
   
   1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
      
      a. Hot-Dip Galvanized Steel: 0.148-inch diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:
   
   1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. (366 g/sq. m) of zinc.
      
      a. Polymer coating over metallic coating. Finish color to be black.
2.07 PRIVACY SLATS

A. Fiber-Glass-Reinforced Plastic Slats: UV-light-stabilized fiber-glass-reinforced plastic, not less than 0.06 inch (1.5 mm) thick, sized to fit mesh specified for direction indicated, with vandal-resistant fasteners and lock strips.

B. Vinyl Slat: Extruded for high density polyethylene (HDPE) with UV (ultra violet) inhibitors. Slats manufactured from 97 percent recycled plastic containing 97 percent post-consumer recycled plastic.

C. Color: As indicated on Drawings.

2.08 PRE-PRINTED GRAPHIC PRIVACY SCREEN

A. Pre-printed graphic privacy screen manufacturer shall be Fencescreen.com or approved equivalent by district representative or engineer.


C. Shade percentage: 80%

D. Color shall be ficus,

2.09 GROUT AND ANCHORING CEMENT

A. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

2.10 GROUNDING MATERIALS

A. Comply with requirements in Section 26 05 26 "Grounding and Bonding for Electrical Systems."

B. Connectors and Grounding Rods: Listed and labeled for complying with UL 467.

1. Connectors for Below-Grade Use: Exothermic welded type.

2. Grounding Rods: Copper-clad steel, 5/8 by 96 inches (16 by 2440 mm).
PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for a certified survey of the project area, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.

1. Do not begin installation before final grading is completed unless otherwise permitted by the District Representative.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.03 CHAIN-LINK FENCE INSTALLATION

A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.

1. Install fencing on established lines as indicated on drawing.

B. Post Setting: Set posts in concrete with steel sleeve.

1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.

2. Posts Set into Sleeves in Concrete: Use steel pipe sleeves preset and anchored into concrete for installing posts as indicated on drawings.

C. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of as indicated on Drawings.

D. Line Posts: Space line posts uniformly at 72 inches (1830 mm) or as indicated on drawings.

E. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.

1. Locate horizontal braces at mid-height of fabric 72 inches (1830 mm) or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.

F. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-(3.05-mm-) diameter hog rings of same material and finish as fabric wire, spaced a maximum...
of 24 inches (610 mm) o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:

1. Extended along top and bottom of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches (152 mm) of bottom of fabric and tie to each post with not less than same diameter and type of wire.

G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

H. Intermediate and Bottom Rails: Secure to posts with fittings.

I. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave ⅛ inch bottom clearance between finish grade or surface and bottom selvage. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.

K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.

1. Maximum Spacing: Tie fabric to line posts at 12 inches (300 mm) o.c. and to braces at 24 inches o.c.

L. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

M. Privacy Slats: Install slats in direction indicated, securely locked in place.

1. Vertically, for privacy factor of 70 to 75.

3.04 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.05 GROUNDING

A. Comply with requirements in Section 26 05 26 "Grounding for Electrical Systems" and refer to Electrical Drawings for grounding and bonding to chain link fence.
3.06 FIELD QUALITY CONTROL

A. Testing Agency: a qualified testing agency to perform tests.

B. Prepare test reports.

3.07 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

END OF SECTION 32 31 13
SECTION 33 41 00
STORM UTILITY DRAINAGE PIPING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and all other Contract Documents shall be reviewed for applicable provisions related to the provisions in this document, and provisions in the General Conditions and other Division 01 Specification Sections shall apply to this Section without limitation.

1.02 SUMMARY

A. Section Includes:
   1. Pipe and fittings.
   2. Nonpressure transition couplings.
   3. Cleanouts.
   4. Encasement for piping.
   5. Catch basins.

1.03 DEFINITIONS

A. None

1.04 ACTION SUBMITTALS

A. Product Data: For each type of product indicated above.

1.05 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of cast-iron soil pipe and fitting, from manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle catch basins, area drains and stormwater inlets according to manufacturer's written rigging instructions.

1.07 PROJECT CONDITIONS

A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by District or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
1. Notify Engineers and District’s representative no fewer than five days in advance of proposed interruption of service.

2. Do not proceed with interruption of service without Engineers or District’s representative written permission.

PART 2 - PRODUCTS

2.01 ABS PIPE AND FITTINGS

   1. NPS 3 to NPS 6 (DN 80 to DN 150): SDR 35.
   2. NPS 8 to NPS 12 (DN 200 to DN 300): SDR 42.

B. Gaskets: ASTM F 477, elastomeric seals.

2.02 HDPE PIPE AND FITTINGS

A. Corrugated HDPE Drainage Pipe and Fittings NPS 3 to NPS 10 (DN 80 to DN 250): AASHTO M 252M, Type S, with smooth waterway for coupling joints.
   1. Silt tight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with tube and fittings.

B. Corrugated HDPE Pipe and Fittings NPS 12 to NPS 60 (DN 300 to DN 1500): AASHTO M 294M, Type S, with smooth waterway for coupling joints.
   1. Silt tight Couplings: PE sleeve with ASTM D 1056, Type 2, Class A, Grade 2 gasket material that mates with pipe and fittings.

2.03 NONPRESSURE TRANSITION COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:
   1. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
   2. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.
C. Unshielded, Flexible Couplings:

1. Description: Elastomeric sleeve with stainless-steel shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Shielded, Flexible Couplings:

1. Description: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

E. Ring-Type, Flexible Couplings:

1. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.04 CLEANOUTS

A. Cast-Iron Cleanouts:

1. Description: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.

2. Top-Loading Classification(s): Heavy Duty.

3. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

2.05 ENCAESEMENT FOR PIPING

A. Standard: ASTM A 674 or AWWA C105.

B. Material: Linear low-density polyethylene film of 0.008-inch (0.20-mm) or high-density, cross-laminated polyethylene film of 0.004-inch (0.10-mm) minimum thickness.

C. Form: Sheet or tube.

D. Color: Black or natural.

2.06 CONCRETE

A. General: Cast-in-place concrete according to ACI 318, ACI 350/350R (ACI 350M/350RM), and the following:

1. Cement: ASTM C 150, Type II.


B. Portland Cement Design Mix: 4000 psi (27.6 MPa) minimum, with 0.45 maximum wa-
ter/cementitious materials ratio.


2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

C. Manhole Channels and Benches: Factory or field formed from concrete. Portland cement de-
sign mix, 4000 psi (27.6 MPa) minimum, with 0.45 maximum water/cementitious materials ratio. Include channels and benches in manholes.

1. Channels: Concrete invert, formed to same width as connected piping, with height of ver-
tical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform
radius and slope.
   a. Invert Slope: As noted on plan or 2 percent through manhole.

2. Benches: Concrete, sloped to drain into channel.
   a. Slope: as noted on plan or 4 percent.

D. Ballast and Pipe Supports: Portland cement design mix, 3000 psi (20.7 MPa) minimum, with
0.58 maximum water/cementitious materials ratio.


2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

2.07 CATCH BASINS

A. Standard Precast Concrete Catch Basins:

1. Description: ASTM C 478 (ASTM C 478M), precast, reinforced concrete, of depth indi-
cated, with provision for sealant joints.

2. Base Section: 6-inch (150-mm) minimum thickness for floor slab and 4-inch (102-mm)
minimum thickness for walls and base riser section, and separate base slab or base sec-
tion with integral floor.

3. Riser Sections: 4-inch (102-mm) minimum thickness, 48-inch (1200-mm) diameter, and
lengths to provide depth indicated.

4. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicat-
ed. Top of cone of size that matches grade rings.

6. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and shape matching catch basin frame and grate. Include sealant recommended by ring manufacturer.

7. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch (150- to 225-mm) total thickness, that match 24-inch- (610-mm-) diameter frame and grate.

8. Pipe Connectors: ASTM C 923 (ASTM C 923M), resilient, of size required, for each pipe connecting to base section.

B. Designed Precast Concrete Catch Basins: ASTM C 913, precast, reinforced concrete; designed according to ASTM C 890 for A-16 (AASHTO HS20-44), heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for joint sealants.


2. Adjusting Rings: Interlocking rings with level or sloped edge in thickness and shape matching catch basin frame and grate. Include sealant recommended by ring manufacturer.

3. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch (150- to 225-mm) total thickness, that match 24-inch- (610-mm-) diameter frame and grate.

4. Pipe Connectors: ASTM C 923 (ASTM C 923M), resilient, of size required, for each pipe connecting to base section.

C. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for A-16, structural loading. Include flat grate with small square or short-slotted drainage openings.

1. Size: 24 by 24 inches (610 by 610 mm) minimum unless otherwise indicated.

2. Grate Free Area: Approximately 50 percent unless otherwise indicated.

D. Frames and Grates: ASTM A 536, Grade 60-40-18, ductile iron designed for A-16, structural loading. Include 24-inch (610-mm) ID by 7- to 9-inch (175- to 225-mm) riser with 4-inch (102-mm) minimum width flange, and 26-inch- (660-mm-) diameter flat grate with small square or short-slotted drainage openings.

1. Grate Free Area: Approximately 50 percent unless otherwise indicated.

PART 3 - EXECUTION

3.01 EARTHWORK

A. Excavation, trenching, and backfilling are specified in Section 31 00 00 "Earthwork."
3.02 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements.

C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.

D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of micro tunneling.

F. Install gravity-flow, non-pressure drainage piping according to the following:

1. Install piping pitched down in direction of flow.

2. Install piping NPS4 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.

3. Install piping with 18” minimum cover. For piping install at 12” or shallower. Provide 6” thick concrete slab with #4 rebar at 12 inch o.c. as concrete cap.

4. Install ABS sewer piping according to ASTM D 2321 and ASTM F 1668.

5. Install HD PE corrugated sewer piping according to ASTM D 2321.

3.03 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, non-pressure drainage piping according to the following:

1. Join ABS sewer piping according to ASTM D 2321 and ASTM D 2751 for elastomeric-seal joints.

2. Join corrugated HDPE piping according to ASTM D 3212 for push-on joints.

3.04 CLEANOUT INSTALLATION

A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts and cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
1. Use Heavy-Duty, top-loading classification cleanouts in

B. Set cleanout frames and covers in earth in G3 traffic valve box with cast iron lid.

C. Set valve box and lid in pavement and roads with tops flush with pavement surface.

3.05 CATCH BASIN INSTALLATION

A. Construct catch basins to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

C. Apply bituminous waterproof membrane on the exposed side of concrete against soil.

3.06 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318.

3.07 CONNECTIONS

A. Make connections to existing piping and underground manholes.

1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe; install wye fitting into existing piping; and encase entire wye fitting, plus 6-inch (150-mm) overlap, with not less than 6 inches (150 mm) of concrete with 28-day compressive strength of 3000 psi (20.7 MPa).

2. Make branch connections from side into existing piping, NPS 4 to NPS 20 (DN 100 to DN 500). Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches (150 mm) of concrete with 28-day compressive strength of 3000 psi (20.7 MPa).

3. Make branch connections from side into existing piping, NPS 21 (DN 525) or larger, or to underground manholes and structures by cutting into existing unit and creating an opening large enough to allow 3 inches (76 mm) of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe, manhole, or structure wall, encase entering connection in 6 inches (150 mm) of concrete for minimum length of 12 inches (300 mm) to provide additional support of collar from connection to undisturbed ground.

   a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi (20.7 MPa) unless otherwise indicated.

   b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

4. Protect existing piping, manholes, and structures to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.
B. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

1. Use non-pressure-type flexible couplings where required to join gravity-flow, non-pressure sewer piping unless otherwise indicated.
   a. Unshielded or Shielded flexible couplings for same or minor difference OD pipes.
   b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.
   c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

3.08 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of piping with at least 12 inch concrete cap.

2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

B. Backfill to grade according to Section 31 20 00 "Earth Moving."

3.09 IDENTIFICATION

A. Materials and their installation are specified in Section 31 20 00 "Earth Moving." Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.

1. Use detectable warning tape over ferrous piping.

2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.10 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches (610 mm) of backfill is in place, and again at completion of Project.

1. Submit separate reports for each system inspection.

2. Defects requiring correction include the following:
   a. Alignment: Less than full diameter of inside of pipe is visible between structures.
b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.

c. Damage: Crushed, broken, cracked, or otherwise damaged piping.

d. Infiltration: Water leakage into piping.

e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.

4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.

2. Test completed piping systems according to requirements of authorities having jurisdiction.

3. Schedule flood tests and inspections by authorities having jurisdiction with at least 3 days' advance notice.

4. Submit separate report for each test.

5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction, UNI-B-6, and the following:

   a. Exception: Piping with soil-tight joints unless required by authorities having jurisdiction.

   b. Option: Test plastic piping according to ASTM F 1417.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.11 CLEANING

A. Clean interior of piping of dirt and superfluous materials Flush with water.

END OF SECTION 33 41 00