BID DOCUMENTS COVER SHEET

CONTRACT DOCUMENTS

FOR

D-642 SOFTBALL BLEACHERS
Increment 1 (Site Work) & Press Box

AT

DIABLO VALLEY COLLEGE
321 Golf Club Road, Pleasant Hill, California CA 94523

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

Consist of the following:

DSA File #7-C1
DSA Application #01-115195 (Increment 1)
DSA Application #01-115292 (Press Box)

Architect:
KYA Architecture
720 York Street, Suite 104
San Francisco, CA 94110

January 21, 2016
SECTION 00010

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**SECTION 00100**

**DIABLO VALLEY COLLEGE**

321 Golf Club Road, Pleasant Hill, California CA 94523

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**SCOPE OF WORK:** Work includes, but is not limited to: providing all labor, material, and equipment to install site improvements and new press box with the exception of providing the softball bleachers, which will be bid as a separate package. In general, this includes: site demolition, grading, ADA improvements, dugout gates and hard scape improvements under DSA #01-115195 and new press box under DSA #01-115292.

**Important Information:**

- **Mandatory Pre-Bid Meeting & Job Walk:** January 28, 2016 @ 10:00 AM
- **Location:** Diablo Valley College, Construction Trailer
  321 Golf Club Rd, Pleasant Hill, CA 94523
- **Cost Estimate (Range):** $90,000 to $125,000
- **CA License Required:** B-General Building Contractor, or A-General Engineering
- **BID OPENING:** February 18, 2016 @ 2:00 PM
- **LOCATION:** Lobby, CCCC District Office
  500 Court St, Martinez, CA 94553

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 will be included in the contract for the work.

Attention is directed to Section 4100 through 4113 of the Public Contract Code concerning Subcontractors, with emphasis on Section 4104, known as the “Subletting and Subcontracting Fair Practices Act, effective July 1, 2014.

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.
Site Visit Certification (Section 00450) shall be authorized by the representative of the District and shall be submitted with the bid. Failure to submit all of the above may cause your bid to be non-responsive and disqualified for contract award.

All questions related to this project are to be directed in writing, no later than February 4, 2016, for any addenda to be issued by Jovan Esprit, Contracts Manager, Contra Costa Community College District, Email: jesprit@4cd.edu.

The successful bidder will be required to furnish a labor and material bond in an amount equal to one hundred percent (100%) of the contract price and a faithful performance bond in an amount equal to one hundred percent (100%) of the contract price, said bonds to be secured from a surety company acceptable to the Contra Costa Community College District and authorized to execute such surety in the State of California.

Certificates of Liability Insurance with proper endorsements shall be required for the successful bidder.

The contract time is 153 Calendar Days between the Notice to Proceed date and the contract Substantial Completion date. Liquidated Damages shall be set for Three Hundred Dollars ($300.00) for each Calendar Day the Work is delayed beyond the contract Substantial Completion date; and One Hundred Dollars ($100.00) for each Calendar Day Remaining Work is delayed beyond the Contract Final Completion Date. 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 fifteen (15) Calendar Days after the date set for opening thereof.
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 has been made available for downloading via the District’s web site:
   a) Geotechnical Engineering and Geologic Hazards Study, Dec. 9, 2011
   b) Updated Geologic Hazards Report, September 8, 2015
   c) Geotechnical Letter – Clarification of Grading Requirements, October 13, 2015
   d) DVC Utility System Maps (9 sheets), 7-6-2011
   e) D-634 Softball Improvement Drawings (Available at the District Office)

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 Design Consultants 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
(INFORMAL BIDS)

D-642 SOFTBALL BLEACHERS
Increment 1 (Site Work) & Press Box

DIABLO VALLEY COLLEGE
321 Golf Club Road, Pleasant Hill, California 94523

BID DATE: February 18, 2016, prior to 2:00 PM

=================================================================================================
INSTRUCTIONS TO BIDDERS:
• Please send your BID Proposal in one of these methods:
  a) Email: jesprit@4cd.edu; b) Fax: 925-370-7512; c) Drop off at District Office
• Don't forget to include a Bid Bond for 10% of the Bid amount; (copy attached to Bid Proposal is accepted, original by mail to follow); and signed Certification of Site Visit;
• Bid results shall be sent to you via email message and posted at the District Website;
• For clarification, please call: Jovan Esprit, 925-229-6959 or jesprit@4cd.edu
=================================================================================================

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.

1. INTRODUCTION
   A. The Bidder proposes to perform the Work for the Contract Sum and within the proposed time, based upon an examination of the Job Site and Specifications.
   B. The Bidder certifies this proposal is submitted in good faith.
   C. The signed copy of the Certification of Visit to the Site shall be attached to the Proposal Form.
   D. The Bidder shall attach a Bid Security for ten percent (10%) of the Bid Amount in the form of Bid Bond, or Certified Check payable to the District.

Please Note: PCC 20651 (b); In the event, the successful bidder fails to provide the required Payment and Performance bonds, the Bid Security shall be forfeited in favor of the District and Contractor shall not be entitled for contract award.

2. BID AMOUNT
   For labor, materials, insurances, bonds, fixtures, equipment, tools, transportation, services, sales taxes and other costs necessary to complete the public project in accordance with Specifications, for a stipulated Contract Sum in the amount of:

Quote for the BASE BID Scope of Work: $________________________

(Write amount of Base Bid)
3. ADDENDUM (if applicable): #1 Received Date: _________; #2 Received Date: __________;

4. SUBCONTRACTORS LIST (If Any)

Attention is directed to Section 4100 through 4113 of the Public Contract Code concerning Subcontractors, with emphasis on Section 4104, known as the "Subletting and Subcontracting Fair Practices Act, effective July 1, 2014.

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Subcontractor's Name</th>
<th>Address/Phone</th>
<th>Business License # &amp; DIR Registration #</th>
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<tbody>
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4. COMPLETION TIME
A. For establishing the Date of Substantial Completion, the contract time shall be 153 calendar days after date of Notice to Proceed.
B. Final Completion shall be 30 calendar days after the date of Substantial Completion.
C. Prior to the Notice to Proceed issued by the District, the Contractor shall provide a CPM construction schedule, prepared in Microsoft Project format, utilizing the entire time allowed to complete the project. Schedule shall be subject to District's approval.

5. ACCEPTANCE AND AWARD
The District reserves the right to waive minor irregularities or reject all bids; or negotiate changes before or after execution of the Contract. This Bid shall remain open and shall not be withdrawn for a period of 10 days after Bid Opening date.

If written notice of acceptance of this Bid is mailed or delivered to the Bidder within 10 days after the date set for the receipt of this Bid, or other time before it is withdrawn, the Bidder shall 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.
Notice of acceptance or request for additional information may be addressed to the Bidder at the address provided.

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 proposal and all the representations herein made are true and correct.

_____________________________________________ CSLB License No.: _____________ Exp: _________
Firm Name

_____________________________________________ DIR Registration No.: _______________________
Address

_____________________________________________ Phone: _________________________________

_____________________________________________ Email: _________________________________

_____________________________________________ _______________ Date
Authorized Signature  Print Name
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 **D-642 Softball Bleachers – Increment 1 (Site Work) & Press Box** project site,

on ________________________________

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 – DVC Facilities ________________________________ Date ________________

or

Construction Manager ________________________________ Date ________________

**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
SECTION 00500
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 and 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 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
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, ______________________________________, 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
______________, 20____.

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 _________________. Unless otherwise noted.

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 the District the Contractor’s CPM Schedule, prepared in Microsoft Project format, including both PDF and electronic file for the District’s review within seven (7) calendar days.

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
1. **SPECIAL TERMS.** These special terms are incorporated below by reference.

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

   - **(Contractor) Address:**

   - **(§1.2) Effective Date:** ___________

   - **(§1.3) The Project:** D-642 Softball Bleachers – Increment 1 (Site Work) & Press Box

   - **(§1.4) Completion Time:** 153 Calendar Days from the Notice to Proceed to Substantial Completion, and 30 Calendar Days from Substantial Completion to Final Completion (Remaining Work).

   - **(§1.5.1) Liquidated Damages, Substantial Completion:** $300 per Calendar Day beyond the Contract Substantial Completion Date.

   - **(§1.5.2) Liquidated Damages, Remaining Work/Final Completion:** $100/ per Calendar Day Remaining Work is delayed beyond the Contract Final Completion Date.

   - **(§1.6) Public Agency's Agent:** CONTRA COSTA COMMUNITY COLLEGE DISTRICT (The District)

   - **(§1.7) Contract Price:**

**SCOPE OF WORK:** Work includes, but is not limited to: providing all labor, material, and equipment to install site improvements and new press box with the exception of providing the softball bleachers, which was bid as a separate package. In general, this scope includes: site demolition, grading, ADA improvements, dugout gates and hard scape improvements under DSA #01-115195 and the new press box under DSA #01-115292.

2. **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 Scope of Work in Section 2 above, and the Public Agency's plans, drawings and specifications, and with Supplementary General Conditions, if any.**

   - **(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 7 without such an order.**
3. **TIME: NOTICE TO PROCEED**

Contractor shall start this work as directed in Section 1.4 Completion Time above or as directed by the Notice to Proceed, if any, and shall complete it as specified in Section 1.4, Completion Time.

4. **LIQUIDATED DAMAGES**

If the Contractor fails to complete this contract and this work within the time fixed therefore, allowance being made for contingencies as provided herein, he 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; 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. **INTEGRATED DOCUMENTS**

The plans, drawings and specifications or special provisions of the Public Agency’s call for 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.

6. **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, but not until defective work and materials have been removed, replaced and made good. Payment of the approved amount will be made to the Contractor within 30 calendar days from the date the Public Agency approves in writing the Contractor’s application for payment.

7. **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.

8. 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, or a District approved equal, 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. (XCU)
(g) Claims involving sudden or accidental discharge of contaminants or pollutants.

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, 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.

9. **BONDS**

(Not Required for Public Projects below $25,000; Civil Code 9550; Public Contract Code 7103.)

**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.

10. **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.

11. **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, 1777.5, 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, 17776, and 1813, concerning prevailing wages and hours, shall apply to this agreement as though fully stipulated herein.

12. **REGISTRATION WITH DEPARTMENT OF INDUSTRIAL RELATIONS**

Contractor shall be registered pursuant to Section 1725.5 of the California Labor Code to be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage
in the performance of any public work contract that is subject to the requirements of Section 1725.5. For the purposes of this requirement, "contractor" includes a subcontractor as defined by Labor Code Section 1722.1.

The requirement to list only registered contractors and subcontractors on bids becomes effective on March 1, 2015. The requirement to only use registered contractors and subcontractors on public works projects applies to all projects awarded on or after April 1, 2015.

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 therefor 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. **SUBMISSION OF CERTIFIED PAYROLL RECORDS**

Contractors and subcontractors on all public works projects will be required to submit certified payroll records (CPRs) to the Labor Commissioner unless excused from this requirement. This requirement will be phased in as follows:

(a) Applies immediately to public works projects that have already been under CMU monitoring, i.e. contractors on ongoing projects that have been submitting CPRs to the CMU will continue doing so.

(b) Will apply to any new projects awarded on or after April 1, 2015.
(c) May apply to other projects as determined by Labor Commissioner.
(d) Will apply to all public works projects, new or ongoing, on and after January 1, 2016.

18. 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 equal.

19. 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.

20. 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.

21. 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.

22. 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.
23. **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.

24. **WARRANTY**

The Contractor warrants to the Public Agency that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contractor Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work shall conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor’s warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage.

25. **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.

(c) 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.

26. **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.

27. **SAFETY:**

(a) **Safety Programs.** 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.** 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.** 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.** 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.

(e) **Safety Coordinator.** The Contractor shall designate a responsible member of the Contractor's organization at the Site whose duty shall be the prevention of accidents and the implementation and maintenance safety precautions and programs. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Project Inspector and the Architect.
28. SIGNATURES AND ACKNOWLEDGEMENT

Public Agency:
By: _____________________________________________________
Assistant Secretary, Governing Board
DAVID S. WETMORE, Director of Purchasing & 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 – NAME}

_____________________________________________________
Print NAME and TITLE

___________________  _____________________
License Number  Federal ID Number

NOTARY PUBLIC

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]
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 ____ __________________________ 2016. 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 __________________________ 2016, and the date for Final Completion is __________________________.

CONTRA COSTA COMMUNITY COLLEGE DISTRICT

By: __________________________

Ray Pyle
Chief Facilities Planner

END OF SECTION 00650
SECTION 00800
SUPPLEMENTARY GENERAL CONDITIONS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. See Section 00100 Notice Inviting Bid for the general description.
B. Drawings and Specifications (are listed in the Table of Contents).
C. The Bleachers and its foundation (shown on the drawings) will be provided by District’s Increment 2 Contractor. See Part 3, Paragraph 3.1F, Scheduling and Coordination below for further information and requirements.
D. Extend new asphalt paving (shown on Drawing A1.0) to within 3 feet of the existing chain link fence (identified by Keynote 12) on the first base line. Total additional grading and new asphalt paving required is 900 square feet.
E. Relocate 4 existing rocks from the landscape area between the chain link fence and bleachers to the landscaped area adjacent to the soccer field, approximately 100 feet away.

1.2 REFERENCES

A. The publications listed below form a part of this specification by reference.
   1. Current California Occupational Safety and Health Act Regulations
   2. Current California Occupational Safety and Health Construction Safety Orders
   3. This work will be contracted using the District’s Short Form Construction Agreement; See Section 00600.

1.3 SUBMITTALS

A. Provide submittals in the format, and as described below:
   1. Submittals shall be submitted to the District, electronically in PDF format, within seven (7) Calendar Days from the Notice to Proceed, except as otherwise noted.
   2. Submit three (3) original (not less than 8-1/2” x 11”, nor more than 30” x 42”) wet-signed, and one (1) color PDF file for submittals that require shop drawings, unless otherwise directed by District and accepted by the Electrical Engineer.
   3. Submittals that require local and State agency approval, shall conform to this Specification and the requirements of the local or State agency.
   4. District will review and provide a response to submittals within seven (7) calendar days (excluding holidays). Submittals that include design documents prepared by a licensed California Engineer will be submitted for the District’s records. Any District review and response to the Contractor’s design documents by a licensed California Engineer will be for format and general compliance only. Contractor and
Contractor’s licensed California Engineer are responsible for compliance with all applicable State of California codes, laws and regulations applicable to this project.

B. Provide submittals for all equipment, if any, listed on the drawings, or required in the specifications.

C. The Schedule of Values, shall be submitted to the District within seven (7) calendar days after the Notice of Award. The Schedule of Values shall be broken down by the following minimum categories:

1. Demolition
2. Grading
3. Plumbing
4. Electrical
5. Dugout Gates
6. Modify Backstop Netting
7. Drinking Fountain
8. Press Box
   a. Foundation
   b. CMU Walls
   c. Metal Roof
   d. Paint
   e. Other
9. Hardscape Improvements
   a. Asphalt Paving
   b. Concrete Paving
10. Irrigation
11. Final Clean
12. O&M and Warranties
13. As-Built Drawings

The District will only pay for Work installed at the Site.

D. CPM construction schedule shall be submitted within three (7) calendar days from the Contract Award date. District and Contractor shall meet and review the schedule. The Notice to Proceed will not be issued until the District accepts the schedule, or accepts it with conditional changes. Below are the minimum activity types that shall be included in the schedule:

1. Contractor Submittals
2. Submittal Reviews by District
3. Procurement and Fabrication activities
4. Construction activities corresponding to the Schedule of Values
5. Completion of finish grade before Increment 2 Contractor’s Foundation Work (7/17/2016)

6. Asphalt Paving after Increment 2 Contractor’s Foundation Work

7. Substantial Completion Milestone

8. Project Closeout Activities.

9. Final Completion Milestone

E. Submittals are for review of conformance with the requirements of the Contract.

F. Staging and Temporary Fencing area: Area is very limited for staging material and equipment. Contractor cannot stage material, equipment or vehicles on the soccer field or the softball field. The area east of the softball field and up to the existing canal fence is the main area anticipated for staging material and equipment. Contractor and the District representative will review the Contractor’s proposed staging plan, and can discuss other areas of staging of material and equipment, if necessary.

1.4 SUBSTITUTIONS.

A. 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 1.3.F.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.

1. 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.

B. **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 1.3.F.1.

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

   (a) Is equal in quality/service/ability to the Specified Item;
   (b) Will entail no changes in detail, construction, and scheduling of related work;
   (c) Will be acceptable in consideration of the required design and artistic effect;
   (d) Will provide no cost disadvantage to the District;
   (e) Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and
   (f) Will required no change of the construction schedule.

2. In completing the Substitution 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.

C. **After Bid Opening.** 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 Design Consultant and the District in determining whether the proposed substitution is acceptable. The burden of establishing these facts shall be upon the bidder.

1. 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 though 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.

2. If the Design Consultant 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 Design Consultant 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

PART 2 - PRODUCTS

2.1 MATERIALS
   A. Contractor Provided Materials: The Contractor provided materials shall include any associated equipment and appurtenances required for performing the contract properly and in accordance with the equipment manufacturer’s literature.
   B. All materials shall be new, unless otherwise authorized or specified in the scope of work of this specification.

PART 3 - EXECUTION AND RELATED REQUIREMENTS

3.1 GENERAL
   A. Work Restrictions: Contractor shall maintain a safe path of travel for all pedestrians and vehicles during construction. Contractor is required to provide safety barricades and alternative routes of travel for pedestrians and vehicles at all times, unless otherwise approved by the District. Anytime the Contractor anticipates it will block and divert existing paths of travel for pedestrians or vehicles, it shall provide a hard copy plan along with proposed wayfinding signage for review by the District at least 5 work days prior to such blockage and diversion. Said plan shall be reviewed and approved by the District prior to commencement of this work by the Contractor.
   B. Contractor shall provide temporary chain link fencing, six feet high, around the construction site through substantial completion to deter access by students, faculty and the public.
   C. Contractor will be allowed to have access and use Campus utilities for temporary water and electricity, but Contractor shall be responsible to investigate prior to bid, and for all work necessary to connect to existing utilities for temporary use.
   D. Contractor shall provide temporary sanitary facilities for use of all workers throughout the course of the contract duration. Contractor shall comply will the minimum requirements of the Contra Costa Health Department. Contractor is not permitted to use any Campus toilet facilities.
   E. Scheduling and Coordination: Construction at the site cannot commence until May 16, 2016. Before commencing work on a specific area, the Contractor shall confirm that all requirements have been met pertaining to scheduling of the work. The Contractor shall further determine that all required notices have been given. The work shall be prosecuted in such a manner as to cause the least interference with the normal functions of the campus activity. Prior to beginning any work, the Contractor shall meet with the District and the Contractor’s schedule shall be approved as noted in Article 1.3D above.
   F. Other Scheduling Restraints: Contractor will prepare the site to finish grade by July 18, 2016, at which time the site will be turned over to the District’s Increment 2 Contractor to install the softball bleacher foundation system. The Increment 2 Contractor will have 14
calendar days to complete their foundation work. After 14 calendar days, the site will then be turned back over to the Contractor to complete the contract work, including but not limited to the asphalt paving around the new foundation system installed by the Increment 2 Contractor. On August 8, 2016, the site will be turned back over to the Increment 2 Contractor to complete their contract work to install the Softball Bleachers.

G. Protection required to prevent damage to adjacent areas, equipment, fixtures and finishes shall be provided. Damage to items while accomplishing the work shall be repaired or replaced with new items at no additional cost to the District.

H. Erosion Control: Contractor shall comply with State of California erosion control requirements and any other requirements specifically shown on the drawings or described in the specifications.

I. Staging Area: Contractor shall stage its equipment, vehicles and materials on College property as noted above. Contractor will be allocated 6 (six) parking spaces on College property in designated nearby parking lots.

J. Interruption of Utilities Services: Interruptions shall be kept to a minimum, and shall be at such times and duration as approved ahead of time by the District. No interruption shall occur unless scheduled with the District, and approved in advance as to time and duration of such interruption. No utility interruptions that impact building operation during classes will be allowed, and these types of interruptions, if any, shall be scheduled for after normal hours when classes are not in session.

K. Material, equipment, tools and workmen shall be scheduled and delivered to the Site in a timely manner to avoid delay in the work. Materials provided shall be inspected by the Contractor to make certain they are in compliance with the specifications and are free from defects and damage.

L. Workmanship: Skilled personnel shall execute in a careful, neat, and proficient manner and in compliance with accepted trade practices for all work. All work shall be executed in accordance with Cal/OSHA standards and safety orders. All work on this contract shall comply with all Local, State, and Federal Environmental Laws.

M. Incidental Work: Minor incidental materials and work not specifically mentioned herein, but necessary for the proper completion of the specified work, shall be provided without additional cost to the District.

N. Administrative Forms: District shall provide its standard forms for use by Contractor.

3.2 EXISTING CONDITIONS & DRAWINGS

A. See Section 00210, Information Available to Bidders for documents available for review by the Contractor and its subcontractors prior to and after bid.

3.3 FIELD VERIFICATION AND MEASUREMENTS

A. Contractor shall field verify existing conditions above ground and also below ground prior to demolition trenching and grading activities. Contractor shall review its plan of work with the District prior to commencing demolition, grading or trenching activities.
3.4 WORK BY CALIFORNIA LICENSED ENGINEER

A. No work by a California licensed Engineer employed by the Contractor is anticipated for this project.

B. Note that modifications to existing building structures, fire systems, or ADA changes not shown on the Contract Documents and subsequently discovered during the course of construction, will require DSA approval. Contractor will be granted a non-compensable time extension for the duration it takes to obtain DSA approval if this work should happen to fall on the schedule critical path. A change order will be negotiated for added direct labor field construction costs, if any.

3.5 SITE WORK

A. Existing Work: Protect existing work which is to remain in place, be reused, or remain the property of the District. Repair items that are to remain and are damaged during performance of the work to their original condition, or replace with new.

B. Existing Utilities: Contractor shall review existing as-built drawings and layout the Press Box foundation system and other hardscape to avoid existing underground utilities, or relocate utilities as necessary. Contractor is responsible for any repair of damage to existing utilities back to original condition or replace with new.

C. Dust and Debris Control: Prevent the spread of dust and debris generated by the Work, and avoid the creation of a nuisance or hazard in the surrounding area. Waste and debris resulting from the Work being performed shall be removed on a daily basis. Promptly remove, and legally dispose of all debris to an offsite location.

D. Hazmat Work: The Contractor shall notify the District immediately if unforeseen hazardous materials are discovered during the course of construction. Contractor shall remove said hazardous materials as required by law, and a change order will be issued for the cost to remove and legally dispose of said materials.

E. Disposal of Equipment and Materials: Contractor is responsible for removal and disposal of all construction debris.

3.6 PROJECT CLOSEOUT REQUIREMENTS (After Substantial Completion & Before Final Completion)

A. Refer to the Drawings and Specifications listed in Section 00010, Table of Contents for requirements, and these Supplementary General Conditions.

B. Provide final clean-up of Site prior to Final Completion.

C. Warranty

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 to 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:

a. In addition to any other warranties and guaranties provided elsewhere, Contractor shall, and hereby does, warrant all Work after the Certificate of Substantial Completion date issued 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.

b. 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.

c. 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.

d. 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.

2. Format - All Warranties/Guaranties and shall include:

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

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

3. Preparation

a. 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 Certificate of Substantial Completion date of the applicable 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.

b. 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.

4. Warranty and/or Guaranty Tags
   a. 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:

   WARRANT/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_____________________________________________.
   i. WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.

3.7 Project As-Built
   A. Contractor shall dedicate one complete full size set of the Contract Drawings and one complete Project Manual for use in documenting as-built conditions, including but not limited to; RFIs, ASI, PCOs and Change Order.
   B. Contractor shall submit to District in hard copy one original and two copies of all Project As-Built Documents. In addition, one electronic copy shall be submitted to District. District reserves the right to require resubmittal in accordance with these Supplementary General Conditions if the documents are inaccurate or incomplete, or otherwise fail to meet the requirements of these Contract Documents.
   C. 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.
3.8 TIME OF COMPLETION

A. See Section 00300, Bid Proposal Form for specific requirements to complete the Work. Time requirements are also included in Section 00600, Construction Agreement.

B. Substantial Completion: The date on which the Work or designated portion thereof, as certified by the District 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.

C. 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, 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.

D. 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 Punch list Inspection and accepted by the Architect and the District. Final Completion is also sometimes referred to as Final Acceptance.

END OF SECTION 00800
SUBSTITUTION REQUEST FORM

Contractor Name: 
Contract #: 

DSA Application #: 01-115195
Campus: Diablo Valley College
Project No., Name: D-642 Softball Bleachers - Increment 1 (Site Work) & Pn

Contractor pursuant to General Conditions submits the proposed items. If the District accepts such items so described, the undersigned may furnish such item with all necessary labor, materials, equipment and incidentals to perform and complete the Work.

| Item No. | SPECIFIED ITEM OR DRAWING | SPECIFICATION SECTION | PROPOSED SUBSTITUTION  
(and name of Subcontractor if different) |
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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: ____________________ Date: ____________

(Please print name of company) Name and Title (print/type) 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: ____________________

Option: Accepted  Accepted

Option: Not Accepted  Not Accepted

Option: Accepted As Noted  Accepted As Noted

Option: Received Too Late  Received Too Late

BY: ____________ Date: ____________  BY: ____________ Date: ____________
SECTION 01015
ADDITIONAL REQUIREMENTS FOR DSA-APPROVED PROJECTS

PART 1 - GENERAL
1.01 GENERAL

The following additional requirements apply to this Project that is being reviewed by the Division of the State Architect (DSA).

1.02 ADDITIONAL REQUIREMENTS

A. In addition to the duties specified in the Contract Documents, the duties of the Contractor shall be in accordance with the requirements specified in, Title 24, California Code of Regulations (CCR).

B. In addition to the duties specified in the Contract Documents, the duties of the Architect and the Architect's consultants shall be in accordance with the requirements specified in Part 1, Title 24, CCR.

C. DSA is not subject to arbitration proceedings.

D. Notify DSA at start of construction in accordance in Part 1, Title 24, CCR.

E. Changes: DSA defines all addenda and change orders as Construction Change Documents (CCD). All CCD shall be submitted for DSA approval. Do not begin any work under an CCD until DSA approval is obtained. CCDs shall be in accordance in Part 1, Title 24, CCR.
   1. Submit DSA 140 Form for Category A changes defined as construction changes to or affecting Structural Safety, Fire Life Safety or Accessibility.
   2. Submit DSA 141 Form for Category B changes defined as construction changes NOT affecting Structural Safety, Fire Life Safety or Accessibility.

F. Do not begin work under a written order until a CCD has been submitted to and approved by DSA in accordance with Part 1, Title 24, CCR. Substitutions effecting structural, fire/life/safety or access compliance shall be submitted as CCDs for DSA approval. The Contractor will be responsible for the additional architectural and engineering costs associated with the review and regulatory processing of these substitutions.

G. Unless otherwise indicated or specified, perform the work in conformance with the latest edition of applicable regulatory requirements. A copy of Part 1 and Part 2 of Title 24, CCR shall be available on the Project site. The codes adopted by the City, County, State and Federal agencies shall govern minimum requirements for this Project.

H. Contractor shall submit verified reports in accordance with Part 1, Title 24, CCR.
I. DSA may supervise construction, reconstruction, or repair in accordance with Part 1, Title 24, CCR.

J. Construction shall be observed by a full-time Project Inspector approved by DSA in accordance with Part 1, Title 24, CCR.

K. Testing requirements of the DSA approved District's Testing Laboratory shall be in accordance of Part 1, Title 24, CCR.

L. Special Inspection on masonry construction, glued laminated lumber, wood framing using timber connectors, ready-mixed concrete, gunite, prestressed concrete, high strength steel bolt installation, welding, pile driving, and mechanical and electrical work shall be as required by Part 1, Title 24, CCR. The costs of special inspection will be paid for by the District.

M. DSA Box: The Contractor shall submit DSA required documents via DSA Box.

N. DSA Box.com is a secure cloud based collaborative solution initiated by the DSA to allow greater transparency and communication between DSA field engineers and designated stakeholders.

1. Forms which historically were mailed, processed and filed in a cabinet can now be posted on-line and viewed almost immediately.

2. The Contractor shall receive authorization to access DSA Box via invitation by email from Box.com indicating that the Contractor are being invited to share or collaborate on a file or folder that relates to a specific project. Please check your email “junk folder,” as your spam filter may not recognize the sender of the initial invitation.

3. Additional instructions shall be provided during the course of the project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01015
SECTION 01730
CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes procedural requirements for cutting and patching.

B. Related Sections:
   1. Pavement and Utility Demolition: Section 02060.

1.02 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.03 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 10 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:
   1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
   2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.
   3. Products: List products to be used and firms or entities that will perform the Work.
   4. Dates: Indicate when cutting and patching will be performed.
   5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
   6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
   7. District’s Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.04 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
B. Operational Elements: Do not cut and patch the following including but not limited to operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-protection systems and security alarm and camera systems.
4. Control systems, including electrical or pneumatic lines.
5. Communication systems.
6. Conveying systems.
7. Electrical wiring systems. This shall also include all computer/data and fiber optic cabling.
8. Operating systems of special construction in Division 14 and Division 15 Sections.

C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior curtain-wall construction.
4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.05 WARRANTY

Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.
B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to avoid interruption of services to occupied areas.

3.03 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small
as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.

3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

END OF SECTION 01730
SECTION 02060

UTILITY & PAVEMENT DEMOLITION

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Perform all site demolition work of concrete, asphalt, pavement, utilities, and related facilities and prepare site as shown on the Drawings and in accordance with this Specification.

B. Related Work:
   1. Cutting and Patching: Section 01730.
   2. Earthwork Section 02300.
   3. Cast-In-Place Concrete: Section 03300.

1.02 QUALITY ASSURANCE

A. Contractor shall utilize work persons skilled in the trades appropriate for each task.

B. Contractor shall take precautions to guard against movement, settlement or collapse of any nearby structures not designated for demolition and be liable for the consequences of any such movement, settlement or collapse.

C. Contractor shall prepare a fully coordinated plan for demolition, site shoring, and excavation work as indicated in the Contract Documents.

1.03 JOB CONDITIONS

A. Transport salvaged items from site as they are demolished. Storage or sale of demolished items shall not be permitted on the project site.

B. Contractor is required to conduct demolition operations and debris removal to minimize interference with roads, walks, and other adjacent facilities. The Contractor shall not close or obstruct streets, walks, or other occupied and used facilities without approval, and provide alternate routes around closed or obstructed traffic ways in accordance with applicable regulations.

C. Do not allow equipment to pass over existing streets or other public and private property without ample protection. Protect and maintain existing driveway concrete paving. Any such property, which is damaged as the result of operations, shall be restored to original condition.

D. Comply with the requirements of CCR Title 8, Construction Safety Orders, and California State Building Code. Protect adjacent structures, sidewalk, curbs and streets from settlement or other damage.

E. Every precaution shall be taken to prevent spillage when hauling on or adjacent to any public street or highway. If spillage occurs, all such spillage shall be removed and the streets and highways shall be swept, washed or otherwise cleaned as required by the District.

F. All precautions shall be taken by the Contractor to prevent dust nuisance to off-site facilities, and prevent erosion and transportation of soils to off-site properties. Any damage to facilities to remain caused by Contractor shall be repaired at the Contractor’s expense.
G. All portions of the Work shall be kept free of standing water at all times. Maintain uniform grades, construct ditches and provide and operate pumps as necessary to prevent erosion, softening of compacted surfaces and formation of mud in trenches and excavations. If ditches are required, they shall be constructed, tamped and maintained in a neat, uniform shape. Do not under any circumstances, conduct or pump water or allow water to be diverted or flow towards other areas of the site, which may, in the opinion of the District be damaged thereby. Protect inlets from siltation as necessary.

1.04 PROTECTION

A. Contractor shall provide, erect and maintain all catch platforms, lights, barriers, weather protection, warning signs, and all other items as required for the proper protection of workers engaged in demolition operations, visitors, public and adjacent construction.

B. Contractor shall provide adequate fire protection in accordance with all governing agency requirements.

C. Provide and maintain temporary protection of all existing elements designated to remain. Make all repairs necessitated by operations under this Section to the complete satisfaction of the owner of the damaged property.

D. Make all necessary explorations to determine required protective measures before proceeding with demolition and removal work. Contractor shall pay particular attention to shoring and bracing requirements to prevent damage to elements to remain and/or adjacent properties.

1.05 EXISTING UTILITIES

A. Prior to starting any work related to existing utilities, notify the District seven days in advance and obtain the District’s approval before proceeding with this phase of the Work.

B. Contractor shall be responsible for protection of existing utility lines. If existing active utility lines are encountered, protect same from damage and notify District. Do not interrupt service except as directed or accepted by District and allow sufficient time to make arrangements for continuation of required services. Damage to said lines as a result of demolition operations shall be repaired or replaced as directed by District.

C. Protect existing active utilities as required to prevent unauthorized disruption of services. Prior to commencing any operations in the general location where utilities are indicated, determine exact alignment and depth of utilities.

D. Abandon-in-Place existing utility piping, conduits, and other related items shown to be abandoned and plug remaining open ends with concrete or cap. Utility piping to be abandoned in place, cut, or capped shall be tagged with permanent markings identifying the type of service.

E. Remove existing utilities shown to be removed, cap or plug remaining open ends, and backfill trenches.

F. Provide chiseled mark at sidewalk indicating location and type of utilities capped.

1.06 NOISE CONTROL
Comply with the Contracting Requirements and Division 1.

1.07 DUST CONTROL
Comply with the Contracting Requirements and Division 1.

1.08 LANDSCAPE PROTECTION
A. Document existing landscaping by means of photos before conducting Work described in this Section.
B. Protect existing landscaping from damage at areas of Work. Replace any landscaping when the District determined that damaged was caused by the Work.

PART 2 - PRODUCTS
NOT USED.

PART 3 - EXECUTION
3.01 GENERAL
A. Verify conditions in the field prior to the start of work. If unanticipated utility elements conflict with the proper operation of systems that are to remain, investigate and measure both nature and extent of the conflict and notify the District) prior to proceeding with demolition work.
B. Provide shoring, bracing, and other supports as required to comply with all laws and regulations. If safety of adjacent structure and other elements appears to be endangered, cease operations and notify District immediately. Take precautions to support endangered work until determination is made for continuing operations.

3.02 SITE DEMOLITION AND PREPARATION
A. Remove all asphalt concrete, concrete, fencing, and other features noted in the Contract Documents. Sawcut to neat lines asphalt concrete and concrete to remain.
B. All abandoned utilities encountered within the utility demolition area shown on the Drawings shall be removed, unless otherwise indicated in the Contract Documents. Ends of abandoned utilities shall be capped or plugged as approved and tagged with permanent identification.
C. Clear, strip and grub areas to be excavated, or receive fill, paving or structures.
D. Clearing: Clearing shall consist of cutting, removing, and disposing of trees, shrubs, brush, limbs and other vegetative growth, and shall be performed in such a manner as to remove all evidence of their presence from the surface. Clearing shall also include the removal and off-site disposal of trash piles, rubbish, concrete paving, curbs, and asphalt paving. The extent of clearing shall be in accordance with the Architectural drawings.
E. Grubbing: Grubbing shall consist of the removal and disposal of wood or root matter below the ground surface remaining after clearing. The extent of grubbing shall be in accordance with the Architectural Drawings.
F. Stripping: Stripping shall include the removal of all organic sod, topsoil, grass and grass roots, all evidence of surface improvements and other objectionable material remaining after clearing and grubbing from the areas designated to be stripped. The extent of stripping shall be in accordance with the Drawings.

G. Excavations resulting from the removal of such items shall be cleaned out to firm, undisturbed soil and backfilled to match the adjacent grade. Unless noted otherwise, backfill shall be on site or imported structural fill compacted to the density specified in specification Section 02300 - Earthwork.

H. At completion of demolition, remove all debris from the project and finish off grades and other work in a neat and uniform manner.

I. All surfaces, paving, utilities, improvements, or other items of any kind or nature not indicated to be demolished, which are cut or otherwise disturbed shall be restored to their original condition, quality, finish, appearance, and wearing value with duplicating materials all to the acceptance of the District.

J. Work under this Section shall include complete responsibility for damage by erosion, to areas both inside and outside the limits of Work, caused or contributed to by operations under this Section.

K. If the Contractor is forced to suspend Work prior to completion as a result of inclement weather, it shall be responsible for leaving the project in a suitable condition with proper erosion control and drainage until such time as work is again commenced.

L. Cutting: Cut existing asphalt concrete and Portland cement concrete to remain on neat, straight lines with a saw or equivalent equipment.

3.03 DISPOSAL OF DEMOLISHED MATERIALS

A. General: On a daily basis, remove from site accumulated debris, rubbish, and other materials resulting from demolition operations in accordance with Division 1, except as noted below.
   1. Asphalt concrete may be recycled as non-structured fill.

B. Burning of combustible materials from demolished structures will not be permitted.

C. Removal: Transport from site and legally dispose of removed materials.

3.04 PAVEMENT, CURB, AND SIDEWALK REPAIR

Contractor shall be responsible for repair of all curbs, gutters, pavements and sidewalks that are damaged by the operations that are not shown to be removed. Restore asphalt concrete roadways and parking lots with pavement section thickness as shown on the drawings for new work. Restore curb, gutter, and sidewalk to match existing.

3.05 CLEANING UP

Upon completion of all work under this Section, remove all tools, materials, plant, apparatus and rubbish of any sort. The premises shall be left clean.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Furnish all labor, materials, equipment and services necessary to complete all earthwork as shown on Drawings and as specified.
   1. Rough grading and fine grading.
   2. Excavating, filling, backfilling and compaction for utilities and foundations.

B. Related Work:
   1. Cutting and Patching: Section 01730.
   2. Selective Demolition: Section 01732.
   4. Asphalt Concrete Pavement: Section 02500
   5. Cast-In-Place Concrete: Section 03300.

1.02 QUALITY CONTROL

A. Testing: Compaction tests shall be performed throughout in accordance with the following:
   1. Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort, ASTM D1557. (56,000 ft-lbf/ft³)
   2. In-Place Density of soil should be obtained by either:
      a. Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method, ASTM D1556; or
      b. Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth), ASTM D2922.
   3. Water content of the soil shall be obtained by either:
      c. Test Method for Water content of Soil and Rock in Place by Nuclear Methods (Shallow Depth), ASTM D3017; or

B. Layout The Contractor shall layout the work to the lines and grades shown on the Drawings and as directed by the Architect.

1.03 SUBMITTALS

A. Submit in accordance with the provision of the General Conditions, Article 3.11.

B. Test Results, including gradation and compaction tests, for proposed import materials performed within 60 days prior to submission.

C. Proposed excavation plan(s) for removal of temporary fills.
D. Mix design and materials certification for controlled low strength material.

1.04 PRODUCT HANDLING

A. Protection of Existing Underground Utilities: The locations of all known active sub-surface pipelines, conduits and utilities have been indicated on the Drawings based upon information provided by the District. These locations are not warranted, nor is there any guarantee, expressed or implied, that those underground utility lines may be encountered. Any lines encountered that were not anticipated shall be called to the District who will issue instructions for proceeding with the work. Should old lines be encountered which prove to be out-of-service, they shall be removed as part of excavation or, if sufficiently below finish grades and approved by the District may be capped and left in place. Any existing debris, abandoned foundations, pavements, and/or rubble must be removed from the site prior to any grading or additional fill operations. The depressions left by the removal of the above items must be backfilled with acceptable fill material and compacted in accordance with this Section.

B. Dust Control: Dust control shall be in accordance with Section 800.

C. Protect Finished Areas: Protect all finished areas from weather damage by whatever means as required to prevent erosion of graded areas or sloughing off of slopes. Continued use of prepared subgrade for hauling which will cut or deform it from required cross-section of elevations will not be permitted, and the Contractor shall repair and recompact any damage to prepared subgrades caused by such operations. Prior to the acceptance by the District any damaged area shall be repaired at the Contractor’s expense.

1.05 SUPPORT OF EXCAVATIONS

A. Adequately support excavation for trenches and structures to meet all applicable requirements in the current rules, orders and regulations. Excavation shall be adequately shored, braced and sheeted so that the earth will not slide or settle and so that all existing structures and all new pipe and structures will be fully protected from damage. Keep vehicles, equipment, and materials far enough from the excavation to prevent instability.

B. Take all necessary measures to protect excavations and adjacent improvements from running, caving, boiling, settling, or sliding soil resulting from the high groundwater table and the nature of the soil excavated. Attention is directed to Section 832 of the Civil Code of the State of California relating to lateral and subjacent supports, and wherever such excavation may damage structures or improvements adjacent to the excavation, the Contractor shall comply with this law.

C. The support for excavation shall remain in place until the pipeline or structure, the shoring, sheeting and bracing shall be carefully removed so that there shall be no voids created and no caving, lateral movement or flowing of the subsoils.
1.06 EXISTING FOUNDATIONS

The Drawings may not show existing abandoned foundations and/or pile foundations for existing structures. Notify the District if such foundations are encountered; the District will provide instructions for their removal or abandonment.

1.07 ENVIRONMENTAL REQUIREMENTS:

When unfavorable weather conditions necessitate interrupting filling and grading operations, areas shall be prepared by compaction of surface and grading to avoid collection of water. Adequate drainage shall be provided to prevent erosion. After interruption, compaction specified in last layer shall be reestablished before resuming work.

PART 2 – PRODUCTS

2.01 MATERIALS

A. All fill shall be approved on-site materials from required excavation supplemented by approved imported fill, if necessary.

B. All import material shall comply with this Section.

C. Definition of Terms:
   1. Fill: All soils material placed to raise the existing grade of the site or to backfill excavations.
   2. On-Site Material: That which is obtained from the required excavation on the site.
   3. Import Material: Soil or aggregate is hauled in from off-site borrow areas.
   6. Percent compaction: The ratio, expressed as a percentage, of the dry density of fill material as obtained from a field test to the maximum dry density of the same material determined by ASTM D1557. Field densities shall be determined in accordance with ASTM D1556 or ASTM D2922.
   7. Optimum Water Content: The water content at the maximum dry density of the material (ASTM D1557) as determined by ASTM D2216.

D. Fill Materials:
   1. Imported Structural Fill: Clean, imported free-draining granular soil, free of organic material or other deleterious substances, with the following gradation:
      
      | U.S. Series | Percent Passing Sieve |
      |--------------|-----------------------|
      | Sieve Size   | (Dry Weight Composition) |
      | 2-inches     | 100                   |
      | ¾-inch       | 85-100                |
2. Non-Structural Fill: Imported or on-site material, free of organic material or other deleterious substances, with fines passing the No. 200 Sieve 15 to 40 percent by weight, and free of clods and rocks greater than 2-inches in greatest dimensions.
   a. Demolished asphalt concrete may be recycled as non-structural fill if it is crushed to a maximum size of three inches and mixed with the other materials to prevent nesting.

3. Bedding Material: Imported natural river or bank sand or on-site sand; free of silt, clay, loam, friable or soluble materials, and organic matter; processed and graded as follows:
   
<table>
<thead>
<tr>
<th>U.S. Series</th>
<th>Percent Passing Sieve</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/8 inch</td>
<td>100</td>
</tr>
<tr>
<td>No. 4</td>
<td>98</td>
</tr>
<tr>
<td>No. 200</td>
<td>12 maximum</td>
</tr>
</tbody>
</table>

   a. Pipe bedding material chloride content not to exceed 40 ppm.

4. Permeable Material: Caltrans Class II Permeable material.

E. Controlled Low Strength Material (CLSM):
   1. Materials: Greenbook, Section 201-6.1 to 201-6.5.
   2. 28-Day Compressive Strength: 100 to 150 psi.

F. Warning Tape: Three-inch wide, inert, fade-resistant plastic film resistant to acids, alkalis, and other components likely to be encountered in soil. Tape shall be blue, imprinted with “CAUTION WATER MAIN BELOW”, Griffolyn Terra Tape or equal.

G. Detection Tape: Plastic metallic type consisting of a blue color coded polyethylene or melinex film, a soil core aluminum foil detection layer and other layers as required. The tape shall be resistant to acids, alkalines and other components likely to be encountered in soils. It shall be designed for both conductive and inductive locating procedures. The tape shall be blue, imprinted with “CAUTION WATER MAIN BELOW”. Terra Tape “D” by Griffolyn Company; Detectatape by Allen Systems; or equal.

PART 3 – EXECUTION

3.01 LAYOUT AND PREPARATION

A. Summary: Layout all work, establish grades, locate existing underground utilities, set markers and stakes, and set up and maintain barricades for the protection of utilities and the area of work: all prior to beginning actual earthwork operations.
B. Stockpiles: Protect stockpiles during rainy weather by covering the stockpiles with visquine or similar material and weigh down the protection.

3.02 CLEARING, GRUBBING AND PREPARING BUILDING PAD, PAVEMENT, AND FILL AREAS

Summary: All stockpiled soils, vegetation, concrete and asphalt, debris, rubble, rubbish, loose and/or saturated materials, and stumps and root systems of removed trees shall be removed and disposed of so as to leave the areas that have been disturbed with a neat and finished appearance, free from unsightly debris. Excavations and depressions resulting from the removal of such items, drainage swales, as well as any existing excavations or loose soil deposits as determined by the District’s Geotechnical Engineer or his representative, shall be cleaned out to firm undisturbed soil and backfilled with structural fill material in accordance with these Specifications.

A. Subgrade Preparation: The surface upon which fill is to be placed, as well as subgrade of the pavement areas left at existing grade, shall be scarified six inches deep and until the surface is free from ruts, hummocks or other uneven features which would tend to prevent uniform compaction of the equipment to be used. Compact the subgrade to achieve at least 90 percent relative compaction (ASTM D1557), except compact the subgrade for pavement to at least 95 percent relative compaction.

B. Moisture Content of Subgrade: When moisture content of the subgrade is more than two percent below optimum required to achieve the specified density, water shall be added until the proper content is achieved. When the moisture content of the subgrade is more than two percent above optimum, the subgrade shall be aerated by blading or other methods until the moisture content is satisfactory for compaction.

3.03 EXCAVATION

A. Summary: Excavate all material as necessary to complete the work shown on the Drawings.

B. Reuse of Excavated Material: After stripping, the material obtained from the excavation may be used for fill or backfill to the extent required by the Drawings and as specified herein subject to the approval by the District’s Geotechnical Engineer. In the event additional material is required, it shall be imported material approved by the District’s Geotechnical Engineer.

C. Depth of Excavation: When excavation has reached required subgrade elevations, notify the District’s Geotechnical Engineer who will make an inspection of conditions. In the event it is necessary to remove unsuitable material to depths greater than those shown, the District and City (if applicable) shall first be notified, and equitable adjustment in the contract price will be made. If, for any other cause, or without prior notification to the District, over-excavation is carried below the lines indicated, the over-excavation shall be backfilled with compacted fill as directed, without additional cost to the District.
D. Control of Water: Keep all excavations free from water.

E. Excavation for Sewer, Storm Drain and Utility Trenches

F. Excavate to straight lines and grade as required. Provide all necessary shoring to keep banks vertical in paved areas. If rock is encountered at the elevation required, excavate to a depth of six inches below the required grade and backfill with a layer of bedding material compacted to 95 percent relative compaction. Over-excavated trenches shall be backfilled with bedding material and compacted at 95 percent minimum to the proper elevation.

3.04 COMPACTION

A. Methods: Compaction shall be by suitable compaction equipment of such design that it will be able to compact the fill to the specified dry density. Compaction of each layer shall be continuous over the entire area and the compaction equipment shall make sufficient passes to ensure that the required density has been obtained.

1. Each layer shall be brought to the moisture content within two percent of optimum and compacted to the minimum degree of compaction required for the specified aspect.
   a. Compaction by flooding, ponding, or jetting will not be permitted.

B. Fill:

1. After compacting the subgrade, all fill shall be placed in loose lifts not exceeding nine inches in uncompacted thickness.

2. Density:
   a. Minimum compaction for fills and subgrade shall be 90 percent except where otherwise specified herein or on the plans.
   b. Fills below structures, the upper two feet below paved surfaces, and the upper six inches of subgrade beneath areas to be paved or receive fill shall be compacted to 95 percent.
   c. Utility trench backfill and bedding shall be as shown in the Drawings.

3. No fill material shall be placed, spread or rolled during unfavorable weather conditions. When the work is interrupted by inclement weather, fill operations shall not be resumed until the Geotechnical Engineer indicates that the moisture content and density of the previously placed fill are as specified.

4. Where fills are to be made and compacted on sloping ground surfaces steeper than 5:1, such slopes shall be benched 8 to 10 feet horizontally into firm native soils as the work is brought up.

5. After surface preparation is completed, the mass filling should commence immediately and proceed until the site is to grade.

6. Overbuild fill slopes three feet and trim back to the compacted core.

3.05 BACKFILLING
A. Procedure: Backfill excavations as construction operations permit, but not before all work to be covered has been inspected and approved, concrete has achieved required strength, and debris has been removed from the excavations.

B. Utility Trench Backfill and Bedding:
   1. Place sufficient bedding material in trench bottom up to grade of bottom of pipe and compact with mechanical equipment.
   2. Shovel slice-bedding material carefully under and beside the pipe, up to the spring-line without moving the pipe. Compact with small, manually-operated vibratory compaction equipment.
   3. Carefully place and compact bedding in eight-inch maximum lifts to six inches above top of pipe.

3.06 GRADING
Grade areas to smooth uniform surface in conformity to contour lines and spot elevations indicated on the Drawings. Grade areas disturbed by the Contractor where existing grades are to remain. Grade level where not otherwise indicated. Round or smooth, abrupt changes in slopes. Refill any settled grades to required levels. Slope ground away from buildings.

3.07 CONTROLLED LOW STRENGTH MATERIAL (CLSM)
CLSM may be substituted for bedding material. Install CLSM in accordance with the Greenbook, Sections 201-6.6 for Placement and 201-6.7 for Replacing Pavement.

3.08 GRADE TOLERANCES
A. Bring all areas to proper grade with allowance for finish materials to the following tolerances.
   1. Building Pad and Pavement Subgrades – Plus 0.00 feet or minus 0.10 feet.
   2. Excavations – Plus or minus 0.20 feet.
   3. All other Areas – Plus or minus 0.10 feet.

3.09 TEMPORARY FILLS
Construct and remove temporary fills constructed for access or equipment pads in a manner that does not adversely impact permanent facilities, fills, or natural slopes. Submit a plan for their removal to the District.

END OF SECTION
SECTION 02500

ASPHALT CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Work under this Section shall consist of furnishing all labor, material, equipment, tools and services required for new paving and surfacing as well as for the repair and resurfacing of existing area paving damaged or removed during construction.

B. Related Work:
   1. Cutting and Patching: Section 01730.
   2. Selective Demolition: Section 01732.
   4. Earthwork: Section 02300.
   5. Cast-In-Place Concrete: Section 03300.

1.02 REFERENCED STANDARDS

A. The following references, codes, and standards are hereby made a part of this Section; and lathing shall conform to the applicable requirements therein, except as otherwise specified herein or shown on the Drawings. Nothing in the Drawings or these Specifications shall be construed as permitting work, which is contrary to code requirements.

   b. ASTM D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3.)

2. State of California Department of Transportation Standard Specifications (Caltrans Specifications.)
   b. California Test Method 365: Recommending Optimum Bitumen Content (OBC.)

1.03 SUBMITTALS

A. Submit in accordance with the provision of the Section 800, Article 1.3

B. Submit the following:
   1. Samples: Furnish, without additional cost to the District, such quantities of construction materials as may be required by the District Representative for test purposes. The Contractor shall cooperate with the District Representative and furnish necessary facilities for sampling and testing of all materials and workmanship. All materials furnished and all work performed shall be subject to rigid inspection, and no
material shall be used in the construction work until it has been inspected by the District Representative.

2. Submit a signed verification from each source of supply for each construction material employed on this project indicating that the materials meet the Specification requirements.

3. Submit mix design for asphalt concrete, including California Test Method 367 results indicating optimum bitumen content, void content, and maximum density.

4. Submit manufacturer's certification of the actual volatile organic compounds (VOC) content for all pavement paints and bituminous pavement sealers proposed for use on this project. Submit certification of the actual VOC content. VOC content shall be measured in grams per liter by weight of coating as applied excluding water and color added to the tint base.

5. Submit verification that bituminous pavement sealers and paint products furnished meet applicable Bay Area Air Quality Management District (BAAQMD) regulations as to allowable VOC content for the time and place of application and use intended.

6. Submit test results for aggregate base and subbase, performed within 60 days of submission, to demonstrate that the materials comply with the specifications.

1.04 QUALITY ASSURANCE

A. Provide at least one person who shall be thoroughly trained and experienced in the skills required, who shall be completely familiar with design and application of the work described for this Section, and who shall be present at all times during progress of the work of this Section and shall direct all work performed under this Section.

B. For actual finishing of asphaltic concrete surfaces and operation of the required equipment, use only personnel thoroughly trained and experienced in the skills required.

1.05 REGULATORY REQUIREMENTS

All work, material, procedures and practices under this Section shall conform to requirements of the California Air Resources Board (CARB) and the BAAQMD.

1.06 PROJECT SITE CONDITIONS

Prior to commencement of work in this Section, Contractor shall verify location and coordinate installation of all utility poles and other structures including, but not limited to, existing signs, utility boxes, manholes and equipment block-outs and pads.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Aggregate Base: All aggregate base shall be in accordance that layer thickness as shown on the Drawings. The particle size distribution shall be in accordance with the grading specified for ¾-inch maximum size aggregate.

B. Asphalt Concrete: In accordance with the total thickness as shown on the Drawings. Lift thickness should be 1¾-inches minimum to 2½-inches maximum for the top lift and 1¾-inches minimum to 3-inches maximum for
lower lifts, if any. Top lift shall have a gradation of ½-inch maximum and lower lifts, if any, shall have ¾-inch maximum aggregate.

C. Prime Coat: Liquid asphalt, Grade SC-70, Section 39 of Caltrans Specifications.

PART 3– EXECUTION

3.01 SUMMARY

A. This Specification shall cover newly paved areas as well as existing pavement restoration.

B. Where trenching or excavation activity has resulted in damage to a localized area of pavement, the damaged pavement shall be cut back 6-inches and shall be removed and replaced. Where the damaged area extends over more than 50% of the road or walkway width or paved area, as determined by the District Representative, the full pavement width or area shall be cut away, removed and repaired.

C. Structures such as valve boxes, manhole frames and covers, and electrical vaults shall be adjusted to grade as necessary within paved areas.

D. Adjust existing manholes, meter boxes, cleanouts, etc. to match the new grade.

E. Pavement markers removed or damaged by the Contractor shall be replaced by the Contractor as incidental work.

3.02 PAVEMENT CUTTING

After backfilling and prior to paving, proper tools and equipment shall be used in marking and breaking so that the pavement shall be cut accurately and on neat lines parallel to the trench. The asphalt pavement shall be sawcut (using a concrete saw) to a minimum depth equal to or greater than one-half the thickness thereof. The pavement shall be cut back a minimum of 6-inches (unless otherwise specified) on each side of the trench or excavation wall. Any pavement damaged outside these lines shall be re-cut and restored at the expense of the Contractor. Should voids develop under existing pavements during construction, those affected pavements shall be neatly sawcut in straight lines and replaced after the voids have been filled.

3.03 INSTALLATION OF ASPHALT CONCRETE PAVING

A. Examination:
   1. Examine areas to receive asphalt concrete paving and verify the following:
      a. That abutting improvements have been set at proper elevations.
      b. That gradients and elevations of pavement subgrade are correct.
      c. That the Engineer has approved the condition of the pavement subgrade.
      d. Absence of wet receiving surfaces or other conditions that adversely affect execution of the Work.
   2. Do not start Work until unsatisfactory conditions have been corrected.

B. Preparation:
1. If after the initial preparation, the pavement subgrade is allowed to stand or is used by construction equipment, or is otherwise damaged, repair at no additional cost to the District.

2. Proof-roll the pavement subgrade for pumping. Where moisture appears on the pavement subgrade after rolling, repair as determined by Engineer.

3. Protect existing Work from damage. Protect concrete Work from staining with asphalt materials. Shield from overspray.

C. Aggregate Sub base and Base:
1. Spread and compact in accordance with Sections 205.04 and 205.05 of the SSDPWSF, to thickness, lines and grades noted, and to 95 percent relative compaction. (ASTM D1557)

2. Do not incorporate into the completed section any base material used for construction traffic.

D. Base Prime Coat:
1. After base has been approved by the District, place asphalt concrete paving on new aggregate base while base is still tight and damp, without prime coat.

2. If base has been allowed to dry before placing asphalt concrete, apply prime coat in amount of 0.25 gallons per square yard of surface area to base in accordance with Caltrans Specifications, Section 39, at no additional cost to the District. Allow at least 24 hours for prime coat to set; remove any puddles; and spread sand over damp spots before placing asphalt concrete.

E. Paint Binder: Prior to placing asphalt concrete surfacing, apply a coat of asphalvic emulsion paint binder to all vertical contact surfaces in accordance with Section 212.06 of the SSDPWSF.

F. Asphalt Concrete:
1. After prime coats have been approved by District’s Representative, spread and compact asphalt concrete paving to compacted thickness shown on Drawings.

2. Compact to a density at least 95% of that obtained with the California Kneading Compactor, California Test Method 304.

3. Provide surface that is dense, smooth, tight, free from pores, loose material, or segregation, within tolerances specified, and free of bird baths.

3.04 QUALITY CONTROL

A. The District may test to satisfactorily demonstrate the proper drainage of the constructed curb and gutter work. The District will flush with water approximately 50 feet of the upstream end of each curb and gutter work for two minutes with a minimum flow rate of about 0.02 cubic feet per second or approximately 20 gallons equivalence. After five minutes, the District Representative and Contractor shall make a visual inspection of the gutter for ponding.

B. Asphalt Concrete Compaction and Thickness.
1. The District’s Representative will inspect and test base and paving, including but not limited to:
   a. Compaction and thickness of base.
b. Compaction of asphalt concrete tested with nuclear gauge in accordance with ASTM D2950. Nuclear density gauge determination will be correlated with density of compacted specimens determined according to ASTM D1188.

2. Check thickness of surfacing by coring when directed by District’s Representative.

3. The Contractor shall repair areas cored for testing.

END OF SECTION
SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Furnish all labor, materials, equipment, and related work necessary to complete cast-in-place concrete for flatwork concrete, including reinforcement, concrete materials, mix design, placement procedures, finishes, and materials and procedures for anchorage to concrete work as indicated in the Drawings and specified herein.

1. Seal all exposed interior concrete slab on grade with 2 coats.
2. Under slab vapor barrier at interior concrete slab on grade.

B. Related Work:

1. Cutting and Patching: Section 01730.
2. Selective Demolition: Section 01732.
3. Utility & Pavement Demolition: Section 02060
4. Earthwork: Section 02300.
5. Asphalitic Concrete Pavement: Section 02500.
6. Unit Masonry Assemblies: Section 04810.

1.02 REFERENCED STANDARDS

A. Requirements of GENERAL CONDITIONS and DIVISION 1 apply to all Work in this Section.

B. Published specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to Work of this Section where cited by abbreviations noted below (latest editions apply).

1. California Building Code 2013 (CBC.)
   a. ASTM A82 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
   b. ASTM A370 Standard Test Methods and Definitions for Mechanical Testing of Steel Products.
   c. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
   d. ASTM C31 Standard Practice for Making and Curing Concrete Test Specimens in the Field.
   e. ASTM C33 Standard Specification for Concrete Aggregates.
   g. ASTM C88 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate.
   h. ASTM C94 Standard Specifications for Ready-Mixed Concrete.


l. ASTM C289 Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method.)

m. ASTM C330 Standard Specification for Lightweight Aggregates for Structural Concrete.


p. ASTM D448 Standard Classification for Sizes of Aggregate for Road and Bridge Construction.

q. ASTM D1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types.)


t. ASTM E1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.

3. American Concrete Institute:


b. ACI 301 Specification for Structural Concrete for Buildings.

c. ACI 304 Recommended Practice for Measuring, Mixing and Placing Concrete.

d. ACI 305 Recommended Practice for Hot Weather Concreting.

e. ACI 306 Recommended Practice for Cold Weather Concreting.

f. ACI 318 Building Code Requirements for Reinforced Concrete.

g. ACI 347 Guide to Formwork for Concrete.


a. CMM California Test 217: Method of Test For Sand Equivalent.

b. CMM California Test 227: Method of Test For Evaluating Cleanness Of Coarse Aggregate.

5. State of California Department of Transportation Standard Specifications (Caltrans Specifications-CS.)


7. Concrete Reinforcing Steel Institute (CRSI):

a. Recommended Practice for Placing Reinforcing Bars.
10. Forest Stewardship Council (FSC.)

1.03 QUALITY ASSURANCE

A. Before starting concrete work, Contractor shall provide the Testing Laboratory with all materials and/or information regarding materials, he proposes to use in the work. The Testing Laboratory will determine the mix or mixes with slumps as specified.

B. Requirements of ACI 301 shall govern work, materials and equipment related to this Section; specifications herein set minimum results required, and references to procedures are intended to establish minimal guides.

C. The Contractor shall be responsible for quality of concrete in place and shall bear burden of proof that concrete meets minimum requirements.

D. Placing of concrete by means of pumping will be an acceptable method of placement providing that the Contractor can demonstrate that:
   1. Specified concrete strengths will be met.
   2. Equipment has a record of satisfactory performance under similar conditions and using a similar mix.
   3. Trial batches have been made.

E. Aggregate tests per CBC Section 1903A and ACI 318, Section 5.2 and 5.3.
   1. Test aggregates in accordance with ASTM C131 for compliance with requirements of ASTM C33 (maximum 50% abrasion loss).
   2. Test aggregates in accordance with ASTM C289 for alkali reactivity.

F. District’s Testing Agency will perform concrete compression tests and other quality control testing and inspection as indicated.

G. Batch Plant Inspection will be provided in accordance with CBC Section 1901A.4, CBC Section 1705A.3.2 and CBC Section 1705A.3.3. Waiver of Batch Plant inspection shall be subject to the requirements of CBC Section 1705A.3.3, Item 1.

H. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

I. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C94 requirements for production facilities and equipment.

J. All reinforcing steel shall be accompanied by producer’s certificates of mill analysis in accordance with CBC Section 1913A.2 and ACI 318.
1. District’s testing agency will perform one tensile test and one bend test for each 10 tons or fraction thereof of each bar size from each source in accordance with CBC Section 1903A and ACI 318.

2. If mill certificates are not available, sampling and testing rate shall be one tensile test and one bend test for each 2½ tons or fraction thereof of each bar size from each source. Such tests shall be made by an independent testing agency paid for by the Contractor. Conform to DSA IR 17-10 and ASTM A370.

K. Testing and inspection of drilled-in expansion bolts and adhesive grout shall conform to the drawings and the requirements of CBC Section 1913A.7.

1.04 DESIGN REQUIREMENTS

A. Sustainable Design Requirements:

1. Steel reinforcing used in work in this Section are intended contribute to meeting requirements for recycle content outlined in LEED NC3.0, Credit MR4.1 or Credit MR4.2.

2. Design Mixtures used in work in this Section are intended to contribute to meeting requirements for the design mixture for innovation and design process outlined in LEED ID Credit 1.

3. Aggregate base used in work in this Section are intended contribute to meeting requirements for total recycle content of 50% in LEED NC3.0, Credit MR4.1 or Credit MR4.2.

4. Lumber used in work of this Section is to come from forests that have been certified “well managed” forestry sources in accordance with programs of FSC and is tended to contribute to meeting requirements for certified wood outlined in LEED NC3.0 Credit MR7.

   a. Composition wood panels used in work of this Section are intended to:

      i. Contribute to meeting recycled content outlined in LEED NC3.0 Credit MR4.

      ii. Reduce quantity of indoor air contaminants that are harmful to comfort and well-being of installers and occupants and are not to contain added urea-formaldehyde resins outlined in LEED NC3.0 Credit EQ4.4.

      iii. Adhesives used in work of this Section are intended to reduce quantity of indoor air contaminants that are harmful to comfort and well-being of installers and occupants and are to be formulated to be within VOC content limits outlined in LEED NC3.0, Credit EQ4.1.

5. Regional Materials: Give preference to manufacturers and fabricators whose facilities are within 500-mile radius of the project site and to materials that are harvested and extracted within 500-mile radius of the project site to contribute to meet requirements for regional materials outlined in LEED NC3.3 Credit MR5.

1.05 SUBMITTALS

A. Submit in accordance with the provisions of the Section 800, Article 1.3.
B. The Contractor's Testing Laboratory’s certificate of compliance.

C. The Contractor shall submit:
   1. Certified copies of mix designs for each concrete class specified including compressive strength test reports.
   2. Certification that materials meet requirements specified.
   3. Samples only as requested by the Architect.
   4. Certification from vendor that samples originate from and are representative of each lot proposed for use.

D. The District’s Testing Agency will submit reports on tests and inspections performed to the District, the Architect, the Contractor, and the Division of the State Architect.

E. Shop Drawings:
   1. Show construction joint locations and details.
   2. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.

F. Schedule of placing for the Architect's review before starting Work.

G. LEED Submittals:
   1. Steel Reinforcing: Submit letter or product data from manufacture indicating recycled content. Designate percentage of post consumer and post industrial recycled content.
   2. Design Mixture: Submit letter or product data from manufacture indicating innovation for each concrete mixture containing fly ash or slag cement as a replacement for Portland cement or other Portland cement replacements and for equivalent concrete mixtures that do not contain Portland cement replacements.
   3. Aggregate Base: Submit letter or product data from manufacture indicating recycled content. Designate percentage of post consumer and post industrial recycled content.
   4. Wood:
      a. Certified Wood: Submit FSC chain-of-custody certificate number with each delivery.
      b. Wood Composite Panels:
         i. Recycled Content: Submit letter or product data from manufacture indicating recycled content. Designate percentage of post consumer and post industrial recycled content.
         ii. Urea-Formaldehyde Resin Content: Submit letter or product data from manufacture stating that materials used in this project contain no added urea-formaldehyde resins.
      c. Adhesives: Submit letter of product data from manufacture stating that adhesives used in work of this Section do not exceed VOC content limits established in South Coast Air Quality Management District Rule 1168.
5. Regional Materials: Submit letter of product data form manufacture or fabricator stating products used in this project were extracted and manufactured locally; identify location of origin listing city, state and country. If only portion of product qualities for this credit, submit product data or letter clearly designating percent age of product that is extracted and manufactured locally.

6. Submit hardcopies of completed Online Documentation required for LEED MR Credit 4.1 or 4.2, MR Credit 5, MR Credit 7, EQ Credit 4.1, EQ Credit 4.4 and ID Credit 1.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Ensure storage facilities are weather tight and dry.

B. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

C. Store bulk cement in bins capable of preventing exposure to moisture.

D. Use sacked cement in chronological order of delivery. Store each shipment so that it may be readily distinguishable from other shipments.

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
   1. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
      a. Medium-density overlay, Class 1, or better, mill-release agent treated and edge sealed.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. Chamfer Strips: Wood, metal, PVC, or rubber strips, ¾ by ¾-inch, minimum.

D. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

E. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
   1. Furnish units that will leave no corrodible metal closer than 1-inch to the plane of the exposed concrete surface.
   2. Furnish ties that, when removed, will leave holes not 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.

F. Keyways: Greenstreak 521, 3½-inch plastic keyway; or equal.
G. Waterstop: Cetco, Volclay WaterStop –RX 101 with WB Adhesive or SB-Primer or equal.

2.02 STEEL REINFORCEMENT
A. Reinforcing Bars: ASTM A615 Grade 60, deformed.
B. Plain-Steel Wire and Spirals: ASTM A82, as drawn.

2.03 REINFORCEMENT ACCESSORIES
A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete, and as follows:
   1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected or CRSI Class 2 stainless-steel bar supports.
B. Joint Dowel Bars: Plain-steel bars, ASTM A615 Grade 60. Cut bars true to length with ends square and free of burrs.

2.04 EXPANSION ANCHORS
A. Expansion anchors: Hilti Kwik Bolt TZ, 304 Stainless Steel (ICC ES ESR 1917.)
B. Epoxy Adhesive: Two component material suitable for anchoring rebar into dry or damp concrete. Same as Covert’s CIA-Gel 7000, Hilti’s HIT HY-150 or approved equal based on allowable values in ICC ES ESR 5193.

2.05 CONCRETE CLASSES

<table>
<thead>
<tr>
<th>TYPE/LOCATION</th>
<th>STRENGTH</th>
<th>AGGREGATE</th>
<th>WEIGHT</th>
<th>SLUMP</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3000</td>
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<tr>
<td>(Exterior)</td>
<td></td>
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</tbody>
</table>

A. Strength: Compressive strength in psi after 28-days when tested in accordance with ASTM C39. All concrete shall develop compression strength specified in 28-days. To meet above requirements, mix shall be designed such that average compressive strength will exceed specified 28-day strength by an amount as specified by ACI 318.

B. Aggregate: Maximum size in inches.

C. Weight: Pounds per cubic foot, air dry.

D. Slump: In inches when tested in accordance with ASTM C143.

2.06 UNDER SLAB VAPOR BARRIER
A. Vapor barrier must have all of the following qualities:
   1. Permeance of less than 0.01 Perms as tested in accordance with ASTM E1745, Section 7.
   2. Other performance criteria:
      a. Strength: ASTM E1745 Class A.
      b. Thickness: 15 mils minimum.
   3. Vapor barrier products:
      b. Or equal products that meet all of the specified performance criteria.
   4. Accessories:
      a. Seam tape: Stego Tape by Stego Industries or equal.
      b. Vapor-proofing mastic: Stego Mastic by Stego Industries

B. Sand Cover: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; ASTM D448, Size 10, with 100 percent passing a No. 4 sieve and 10 to 30 percent passing a No. 100 sieve; meeting deleterious substance limits of ASTM C33 for fine aggregates.

C. Granular Fill: Clean mixture of crushed stone or crushed or uncrushed gravel; ASTM D448, Size 57, with 100 percent passing a 1½-inches sieve and 0 to 5 percent passing a No. 8 sieve

2.07 MATERIALS

A. General Requirements:
   1. Cement and aggregates shall have proven history of successful use with one another. Sources of cement and aggregate shall remain unchanged through-out work unless the Architect approves request for change made at least 10-days prior to anticipate date of casting.
   2. Ready-mixed concrete shall meet requirements of ASTM C94.
   3. Deviations in properties of materials tested by the District's Testing Agency shall be cause for their rejection pending additional test results and redesign of mix by the Contractor's Testing Laboratory.
   4. No frozen aggregates will be permitted.

B. Cements: ASTM C150, Type II. Use one brand of cement throughout project unless otherwise acceptable to Architect.

C. Fly Ash: ASTM C618, Type F, max. 15%.
   1. Type I/Ii typical unless otherwise noted.
   2. Type V when in contact with soil.

D. Aggregates:
   1. Coarse: ASTM C33. Coarse aggregate shall consist of a clean, hard, fine grained, sound crushed rock, or washed gravel or a combination of both. It shall be free from oil, organic matter or other deleterious substances and shall not contain more than two percent by weight of shale or cherty material. "Cleanness value shall not be less than 75 when tested per CMM California Test 227 and conforming to CBC Section 1903A and ACI 318, Section 5.2 and 5.3.
2. Fines: ASTM C33. Sand equivalent shall be not less than 75 when tested as per ASTM D2419.
3. Provide aggregates from a single source for exposed concrete.
4. Recycled porcelain, concrete, stone, or other recycled content material conforming to requirements of mix design.
a. Recycled Content: Post-consumer recycled content and pre-consumer recycled content at Contractor’s option for a total of 50% minimum.

E. Water: Clean and potable, free from impurities detrimental to concrete.

F. Water-Reducing Admixture: ASTM C494, Type A, non-lignini sulfonate. Same as Grace Construction Materials’ "WRDA with Hycol"; Master Builders "Pozzolith 322N"; Sika Corp.’s "Plastocrete 161"; or equal product.
1. Air Entraining Admixture: ASTM C260, certified by manufacturer to be compatible with other products. Same as W.R. Grace’s "Daravair", Master Builders’ "Micro-Air", Sika Corp.’s "Sika Aer", or equal product substituted per Section 01630.
2. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C494, Type F or Type G. Same as W.R. Grace’s "WRDA 19", Master Builders’ "Rheobuild", Sika Corp.’s "Sikament", or equal.
5. Fibrous Reinforcement: Engineered polypropylene fibers designed for secondary reinforcement of concrete slabs. Same as W.R. Grace’s "Grace Fibers", Euclid’s "Fiberstrand 100", Fibermesh’s "Fibermesh", or equal product.

G. Admixtures: Only as approved by the Architect. Use of admixtures requires DSA approval.

H. Non-Shrink Grout: Premixed high strength grout requiring only addition of water at the site. Same as Master Builder’s "Masterflow 928 Grout"; Burke’s "Non-Ferrous, Non-Shrink Grout", or equal product.

I. Concrete Sealer: Tamms Industries, Chemstop WB Regular or equal product. Clear water repellent treatment, blend of six resins containing no silicones or stearates, no darkening or change of color.

J. Hardener, Clear Liquid Type: Grace construction Materials’ "Hornstone Crystal Chemical Hardener"; Master Builder’s "Mastercron"; Sonneborn-Contech’s "Lapidolith"; Upco Co.’s "Vitrox 4701"; or equal product.

K. Joints:
1. General: Provide all pavement joints, grooves, dummy joints, construction joints, etc.
a. Set expansion joint material to receive filler ¾-inch below finished surface of pavement or as shown on the Drawings.
After concrete has set, fill all grooves, dummy joints, construction joints, etc.

b. After concrete has set, fill all grooves, dummy joints, construction joints, etc., with polyurethane (self-leveling) complying with ASTM C920, Type M, Grade NS, Class 25 in grey, or equal.


2.08 MIXES

A. General Requirements:
1. The Contractor shall perform tests or assemble the necessary data indicating conformance with specifications.
2. For each mix submit data showing that proposed mix will attain the required strength in accordance with requirements of CBC Section 1905A.1.2 and ACI 318, Section 5.6.
3. The Contractor shall instruct Laboratory to base mix design on use of materials tested and approved by the District’s Testing Agency.
4. Mix shall be designed, tested, and adjusted if necessary in ample time before first concrete is scheduled to be placed. Laboratory data and strength test results for revised mix design shall be submitted to Architect prior to using in project.
5. Insure mix designs will produce concrete to strengths specified and of uniform density without segregation.
6. If mix yield exceeds 1-cubic yard, modify mix design to no more than one cubic yard without changing cement content.
7. The Contractor's mix designs shall be subject to review by the Architect and by the District’s Testing Agency.
8. Introduction of calcium chloride will not be permitted.
9. Unspecified admixtures will not be permitted unless the Architect reviews, the Contractor modifies mix designs as necessary, and modifications are accepted by the District’s Testing Agency.

B. Slab-on-Grade Mix requirements
1. Maximum water/cement ratio of 0.45.
2. Maximum fly ash content of 15% (as percentage replacement of cement).
3. Do not use air entrainment additives.
4. Use of Water-Reducing admixture is required. High Range Water-Reducing admixture (super plasticizer) shall be used when required to maintain workability and pumpability.

C. Patching Mortar: Mix in proportions by volume of one part cement to two parts fine sand.

D. Non-Shrink Grout: Follow approved manufacturer's printed instructions and recommendations.

2.09 MIXING

A. Batching Plant Conditions:
1. Ensure equipment and plant will afford accurate weighing, minimize segregation and will efficiently handle all materials to satisfaction of the Architect and the District’s Testing Agency.
2. Replace at no additional expense equipment the Architect and the District’s Testing Agency deem inadequate or unsuitable.
3. Use approved moisture meter capable of determining moisture content of sand.

B. General Requirements:
1. Thoroughly clean concrete equipment before use for architectural concrete mixes to avoid contamination.
2. Mix cement, fine and coarse aggregates, admixtures and water to exact proportions of mix designs. Method of mixing shall comply with CBC Section 1903A and ACI 318, Section 5.2 and 5.3.
3. Measure fine and coarse aggregates separately according to approved method which provides accurate control and easy checking.
4. Adjust grading to improve workability; do not add water unless otherwise directed.
5. Maintain proportions, values, or factors of approved mixes throughout work.
6. Mix concrete in transit mixers five minutes immediately prior to discharge in addition to mixing as called for by ACI 304 and ASTM C94.

C. Admixtures: Use automatic metering dispenser to introduce admixture into mix. Dispenser shall be recommended and calibrated by admixture manufacturer.

2.10 SOURCE QUALITY CONTROL

A. The District’s Testing Agency will:
1. Review mix designs, certificates of compliance, and samples of materials the Contractor proposes to use.
2. Test and inspect materials, as necessary, in accordance with ACI 318 and CBC Sections 1903A, CBC Section 1901A.4 and ACI 318. for compliance with requirements.
3. Take samples as required from the Contractor's designated sources.
4. Take one grab sample for each 100 tons of Portland cement except that, when used in bulk loading ready-mix plants where separate bins for pretested cement are not available, take grab samples for each shipment of cement placed in bin with not less than one sample being taken for each day's pour and subsequently test such samples if required by the Architect who may be so advised by Division of the State Architect.
5. Test both coarse and fine aggregate by use of solution of sodium or magnesium sulfate, or both whenever in the judgment of the Architect such tests are necessary to determine quality of material. Perform such tests in accordance with ASTM C88. Loss shall not exceed 6-percent of either fine or coarse aggregate. Aggregate failing to comply with this requirement may be used in the Work provided it contains less than 2-percent of shale and other deleterious particles and shows a loss in soundness test of not more than 10-percent when
tested in the sodium sulphate solution. Test aggregates as required by CBC Section 1903A.

6. Test for sand equivalent of fine aggregate in accordance with CMM California Test 217.

7. Test for cleanliness value of coarse aggregate in accordance with CMM California Test 227.

8. Inspect plant prior to any work to verify following:
   a. Plant is equipped with approved metering devices for determining moisture content of fine aggregate.
   b. Other plant quality controls are adequate.

9. Continuously inspect quality and quantity of materials used in transit mixed concrete, in batched aggregates and ready-mixed concrete at mixing plant or other location per CBC requirements where other materials are measured.

B. Waiver of Batch Plant Inspection:
   1. Continuous batch plant inspection may be waived in accordance with CBC requirements if the plant complies with ASTM C94 and has been certified by an agency acceptable to DSA to comply with the requirements of the National Ready Mix Concrete Association.
   2. When continuous batch plant inspection is waived, the following requirements shall apply:
      a. Testing Agency shall check the first batching at the start of work and furnish mix proportions to the licensed Weigh master.
      b. Licensed Weigh master shall identify material quantities and certify each load by a ticket.
      c. Project Inspector shall collect truck mix tickets with load identification and maintain a daily record of placement. Trucks without a load ticket identifying the mix shall be rejected. Copies of daily placement record shall be submitted to DSA.
      d. At the end of the project, the Weigh master shall submit an affidavit to DSA certifying that all concrete supplied conforms to proportions established by mix designs.

PART 3 - EXECUTION

3.01 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete 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 347R as abrupt or gradual, as follows:

D. Construct forms tight enough to prevent loss of concrete mortar.
E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
   1. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
   1. Seal edges abutting masonry surfaces with tape or sealants to prevent runoff onto masonry.

L. Coat contact surfaces of forms with form-release agent, according to manufacturer’s written instructions, before placing reinforcement.

3.02 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 provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.

B. Leave formwork, for beam soffits, joists, slabs, and other structural elements, that supports weight of concrete in place until concrete has achieved the following:
   1. At least 70 percent of 28-day design compressive strength.
   2. Determine compressive strength of in-place concrete by testing representative field-cured test specimens according to ACI 301.
   3. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

C. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
D. 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.

3.03 VAPOR BARRIER

A. Place, protect, and repair vapor-barrier sheets according to ASTM E1643 and manufacturer's written instructions.
   1. Unroll vapor barrier with the longest dimension parallel with the direction of the concrete placement.
   2. Lap vapor barrier over footings and/or seal to foundation walls.
   3. Overlap joints - inches and seal with manufacturer’s tape.
   4. Seal all penetrations (including pipes) per manufacturer’s instructions.
   5. No penetration of the vapor barrier is allowed except for reinforcing steel and permanent utilities.
   6. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6-inches and taping all sides with tape.

B. Sand Cover: Cover vapor retarder with fine-graded granular material, moisten, and compact with mechanical equipment to elevation tolerances of plus 0-inch or minus ¾-inch.

3.04 STEEL REINFORCEMENT

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

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.05 CONCRETE PLACEMENT EXAMINATION

A. Examine units of work to be cast and verify that:
   1. Construction of formwork is complete.
   2. Required reinforcement, inserts, and embedded items are in place.
   3. Form ties at construction joints are tight.
   4. Concrete-receiving places are free of debris.
   5. Dampen subgrade or sand course for slabs-on-grade. Do not saturate.
   6. Depths of depressed slab conditions are correct for delayed finish noted and for its proper bonding to concrete.
   7. Conveying equipment is clean and properly operating.
   8. The Architect has reviewed formwork and reinforcing steel and that preparations have been checked with the Project Inspector.

B. Do not begin casting before unsatisfactory conditions have been corrected.
3.06 PREPARATION
A. Ensure availability of sufficient labor, equipment and materials to place concrete correctly in accordance with scheduled casting.
B. Protect finished surfaces adjacent to concrete-receiving places.
C. Clean transportation and handling equipment at frequent intervals and flush thoroughly with water before each day's run. Do not discharge wash water into concrete form.
D. Construction Joints: Clean and roughen all construction joint contact surfaces by removing all surface laitance and exposing sound mortar. Sandblasting and bush-hammering are acceptable methods.

3.07 PLACING
A. The Inspector of Record, Architect, Testing Laboratory and DSA shall be notified at least 48 hours before placing concrete.
B. Place concrete in accordance with CBC Section 1903A and ACI 318.
C. Place concrete in cycles as a continuous operation to permit proper and thorough integration and to complete scheduled placement. Place no concrete where sun, wind, heat, or facilities prevent proper finishing and curing.
D. Convey concrete as rapidly and directly as practicable to preserve quality and to prevent separation from rehandling and flowing; do not deposit concrete initially set. Cast concrete within ninety (90) minutes after adding water unless otherwise noted. Retempering of concrete which has partially set will not be permitted.
E. Take precautions to avoid damage to under-slab moisture barrier and displacement of reinforcement and formwork.
F. Deposit concrete vertically in its final position. Avoid free falls in excess of six feet where reinforcement will cause segregation and in typical conditions unless the Architect approves otherwise.
G. Keep forms and reinforcement clean above pour line by removing clinging concrete with wire brush before casting next lift. Also remove leakage through forms.
H. Interruption in casting longer than 60-minutes shall be cause for discontinuing casting for remainder of day. In this event, cut back concrete and provide construction joints as the Architect directs; clean forms and reinforcement as necessary to receive concrete at a later time.
I. Hot Weather Concreting: Conform to ACI 305 and following requirements when mean daily temperature rises above 75 degrees F.
   1. An upper temperature limit of concrete mixes shall be established by the Contractor for each class of concrete. Concrete temperature during placing shall not be so high as to cause difficulty from loss of slump, flash set, or cold joints, and shall not exceed 90 degrees F. Other project climatic conditions detrimental to concrete quality such
as relative humidity, wind velocity, and solar radiation shall also be considered.

2. Trial batches of concrete for each mix design shall be made at the limiting mix temperature selected. In lieu of trial batches, compression strength test reports (20 minimum) at the limiting temperature for each proposed mix shall be submitted to the District’s testing laboratory for review.

3. Practices to maintain concrete below maximum limiting temperature shall be in accordance with ACI 305. Concrete ingredients may be cooled before mixing, or flake ice or well-crushed ice of a size that will melt completely during mixing may be substituted for part of the mixing water.

4. Practices to avoid the potential problems of hot weather concreting shall be employed by the Contractor in accordance with ACI 305.

5. When the temperature of the reinforcing steel or steel deck forms is greater than 120 degrees F, reinforcing and forms shall be sprayed with water just prior to placing the concrete.

J. Cold Weather Concreting:

1. No placement of concrete will be allowed at temperatures below 20 degrees Fahrenheit or if mean daily temperature for curing period is anticipated to be below 20 degrees F.

2. No concrete placement will be allowed on frozen subgrade.

3. Conform to ACI 306 and following requirements when mean daily temperature falls below 40 degrees F.
   a. Reinforcement, forms or ground to receive concrete shall be completely free from frost.
   b. Concrete at time of placement for footings shall have temperature no lower than 50 degrees F, for all other concrete this minimum temperature at time of placement shall be 60 degrees F. Maximum temperature shall be 90 degrees F.
   c. Concrete shall be maintained at temperature no lower than 50 degrees F for minimum 7-day period after placement by means of blanket insulation, heaters, or other methods as approved by the Architect.
   d. Use of calcium chloride or admixtures containing calcium chloride as accelerators will not be permitted.
   e. The Contractor shall keep a record of concrete surface temperature for first 7-days after each pour. This record shall be open to inspection by the Architect.

K. Consolidating:

1. Use vibrators for thorough consolidation of concrete.

2. Provide vibrators for each location during simultaneous placing to ensure timely consolidation around reinforcement, embedded items and into corners of forms; ensure availability of spare vibrators in case of failures. Vibrate through full depth of freshly placed concrete.

3. Do not place vibrators against reinforcement, attach to forms, or use to spread concrete.
4. Exposed Concrete: Vibrate with rubber type heads and, in addition, spade along forms with flat strap or plate.

3.08 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints:
1. Verify location and conformance with typical details; provide only where designated or approved by the Architect. Comply with ASI 318.
2. All horizontal and vertical construction joints to be thoroughly sandblasted to clean and roughen entire surface to minimum ¼-inch relief exposing clean coarse aggregate solidly embedded in mortar matrix.
3. Just prior to depositing concrete, the surface of the construction joint shall be thoroughly wetted.

C. Contraction (Control) Joints in Slabs-on-Grade:
1. Construct contraction joins in slabs-on-ground to form panels of patterns indicated on Construction Drawings. Use saw cuts 1/8-inch x ¼-inch slab depth, unless otherwise indicated.
2. Time saw cutting to allow sufficient curing of concrete to prevent ravelled or broken edges.
3. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
4. If joint pattern not shown, provide joints not exceeding 15-feet in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third-bays).

3.09 CURING

A. General Requirements:
1. Take curing measures immediately after casting and for measures other than application of curing compound, extend for seven days. The Architect may recommend longer periods based upon prevailing temperature, wind and relative humidity. Comply with CBC Section 1903A and ACI 318.
2. Avoid alternate wetting and drying and fluctuations of concrete temperature.
3. Protect fresh concrete from direct rays of sun, rain, freezing, drying winds, soiling, and damage.
4. Do not permit curing method to affect adversely finishes or treatments applied to finish concrete.

B. Curing Method, Typical: Obtain the Architect's approval of alternate measures.
1. Keep forms and concrete surfaces moist during period forms are required to remain in place.
2. Apply curing compound per manufacturers' recommendations, except at slabs-on-grade apply curing compound at 150 percent of manufacturer’s recommended application coverage rate.
3.10 CLEANING, PATCHING AND DEFECTIVE WORK

A. Where concrete is under strength, out of line, level or plumb, or shows objectionable cracks, honeycombing, rock pockets, voids, spalling, exposed reinforcement, signs of freezing or is otherwise defective, and, in the Architect's judgment, these defects impair proper strength or appearance of the work, the Architect will require its removal and replacement at the Contractor's expense.

B. Immediately after stripping and before concrete is thoroughly dry, patch minor defects, form-tie holes, honeycombed areas, etc., with patching mortar. Patch shall match finish of adjacent surface unless otherwise noted. Remove ledges and bulges.

C. Compact mortar into place and neatly file defective surfaces to produce level, true planes. After initial set, dress surfaces of patches mechanically or manually to obtain same texture as surrounding surfaces.

D. Rock Pockets:
   1. Cut out to full solid surface and form key.
   2. Thoroughly wet before casting mortar.
   3. Where the Architect deems rock pocket too large for satisfactory mortar patching as described cut out defective section to solid surface, key and pack solid with concrete to produce firm bond and match adjacent surface.

E. Cleaning
   1. Insure removal of bituminous materials, form release agents, bond breakers, curing compounds if permitted and other materials employed in work of concreting which would otherwise prevent proper application of sealants, liquid waterproofing, and other delayed finishes and treatments.
   2. Where cleaning is required, take care not to damage surrounding surfaces or leave residue from cleaning agents.
   3. Patching of defective concrete requires prior DSA approval.

3.11 PROTECTION

A. Protect concrete from injurious action of the elements and defacement of any nature during construction operations.

B. Protect exposed corners of concrete from traffic or use which will damage them in any way.

C. Make provisions to keep all exposed concrete free from laitance caused by spillage or leaking forms or other contaminants. Do not allow laitance to penetrate, stain, or harden on surfaces, which have been textured.

3.12 FIELD QUALITY CONTROL

A. The District’s Testing Agency will:
   1. Perform testing in accordance with ACI 318 and CBC Section 1901A.4and 1903A.
2. Review concrete mix designs.
3. Inspect concrete and grout placement continuously.
4. Test concrete to control slumps according to ASTM C143.
5. Continuously monitor concrete temperature as it arrives on the site.
6. Test concrete for required compressive strength in accordance with CBC Section 1905A.1.2 and ACI 318, Section 5.6.
   a. Make and cure three specimen cylinders according to ASTM C31 for each 50 cubic yards, or fraction thereof, of each class poured at site each day.
   b. Retain one cylinder for 7-day test and two for the 28-day test.
   c. Number each cylinder 1A, 1B, 1C, 2A, 2B, 2C, etc; date each set; and keep accurate record of pour each set represents.
   d. Transport specimen cylinders from job to laboratory after cylinders have cured for 24-hours on site. Cylinders shall be covered and kept at air temperatures between 60 and 80 degrees Fahrenheit.
   e. Test specimen cylinders at age 7-days and age 28-days for specified strength according to ASTM C39.
   f. Base strength value on average of two cylinders taken for 28-day test.

B. Test and inspect materials, as necessary, in accordance with ACI 318, CMM California Test 227 (Coarse Aggregates) and CMM California Test 217 (Fine Aggregates), for compliance with requirements specified in this section.

C. Testing Agency will inspect all reinforcing and embedded items.

D. The Contractor shall:
   1. Submit ticket for each batch of concrete delivered to job site. Ticket shall bear the following information:
      a. Design mix number.
      b. Signature or initials of ready mix representative.
      c. Time of batching.
      d. Weight of cement, aggregates, water and admixtures in each batch with maximum aggregate size.
      e. Total volume of concrete in each batch.
      f. Notation to indicate equipment was checked for contaminants prior to batching.
   2. Allow access for the District’s Testing Agency for taking core specimens of hardened structure and testing specimen according to ASTM C88 and ASTM C42 when laboratory tests of specimen cylinders show compressive strengths below specified minimum.

3.13 SLAB FINISHES

A. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete paving, steps and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.
2. Medium Broom finish on concrete surface less than 6% slope and Heavy Broom finish on concrete surfaces greater than 6% slope.

3.14 SEALING

A. Preparation: Remove dirt, loose matter, scale, salt and alkali powder and other foreign matter. Remove oil and grease with solution of trisodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water; allow to dry.

B. Application: Sealing product may be used in lieu of curing material.
   1. Conform to manufactures installation and application instructions.
   2. Stir sealer thoroughly before using.
   3. Apply a continuous, uniform film by solvent-resistant low pressure spray only, short nap roller, or lambs wool applicator.
   4. For curing, apply first coat evenly and uniformly as soon as possible after final finishing. Apply additional coats in full strength when all construction is completed and concrete is ready for use and occupancy.
   5. Drying Time per Coat:
      a. Light Traffic Or Between Coats: 4 hours.
      b. Normal Traffic: 12 hours.
      c. Maximum hardness: 7 days.

3.15 CLEAN UP

Perform Work under this Section to keep affected portions of building site neat, clean, and orderly. Remove, immediately upon completion of Work under this Section, surplus materials, rubbish, and equipment associated with or used in performance. Be aware that failure to perform clean-up operations within 24 hours of notice by Architect will be considered adequate grounds for having work done by others at no added expense to the District.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Work of this Section shall include all material and installation necessary to provide unit masonry assemblies as shown and detailed on the Drawings including but not limited to the following:
1. Concrete masonry units.
2. Mortar and grout.
3. Reinforcing steel.
4. Ties and anchors.
5. Miscellaneous accessories.
6. Steel top plate with steel stud embedment assembly.
   a. Coordinate assembly with steel deck work.
7. Seal coat interior face of unit masonry assembly with 2 coats.

B. Related Work:
1. Cast-in-Place Concrete: Section 03300.
2. Preformed Metal Roofing: Section 07610.
3. The following items interfacing with masonry unit assemblies as indicated on Drawings:
   a. Steel decking.
   b. Sealant.
   c. Coiling counter door.
   d. Elastomeric painting.

C. Products installed, but not furnished herein: Galvanized hollow metal door frame.

1.02 REFERENCED STANDARDS

A. Published specifications, standards, tests, and recommended methods of trade or industry apply to the work of this Section where cited by the abbreviations noted below.
   b. ASTM A82 Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
   d. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
   e. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   g. ASTM C90 Standard Specification for Load Bearing Concrete Masonry Units.
h. ASTM C140 Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
i. ASTM C144 Standard Specification for Aggregate for Masonry Mortar.
j. ASTM C150 Standard Specification for Portland Cement
m. ASTM C404 Standard Specification for Aggregates for Masonry Grout.
n. ASTM C426 Standard Test Method for Linear Drying Shrinkage of Concrete Masonry Units.
r. ASTM C1093 Standard Practice for Accreditation of Testing Agencies for Masonry.

2. American Concrete Institute (ACI), American Society of Civil Engineers ASCE) and The Masonry Society (TMS):
a. ACI 315 Details and Detailing of Concrete Reinforcement.


4. Division of the State Architect (DSA), Interpretation of Regulations (IR):
a. IR 21-4 Concrete Masonry Unit Standards
b. IR 21-2.13 Concrete Masonry High Lift Grouting Method: 2013 CBC.
i. CBC 2104A.5.1.1.1.2, High Lift Grouted Construction.
ii. CBC 2104A.5.1.2.1.2, High Lift Grouted Construction.

5. National Concrete Masonry Association (NCMA): TEK 8.2 Removal Of Stains From Concrete Masonry.

1.03 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent testing agency, acceptable by DSA’s Laboratory Acceptance Program shall conduct the testing indicated and reported to conform to ASTM C140, Section 10.

B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.

D. Preconstruction Testing Service: District will engage a qualified independent testing agency to perform preconstruction testing indicated below. Payment for these services will be made by the District. Retesting of materials failing to meet specified requirements shall be done at Contractor's expense.
   1. Sample unit masonry in accordance to ASTM C90, Section 4 and perform the following test:
      b. Compressive Strength Test: ASTM C140, Section 6.
      c. Absorption Test: ASTM C140, Section 8.
      d. Prism Test: For each type of wall construction indicated, per ASTM C1314.
      e. Mortar Test: For mortar properties per ASTM C270.
      f. Grout Test: For compressive strength per ASTM C1019.

E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 "Coordination"

1.04 SUBMITTALS

A. Submit in accordance with the provisions of Section 00800, Submittal Procedures.

B. Manufacturer's Product Data: Submit manufacturer's descriptive product data.

C. Shop Drawings: Show fabrication and installation details.
   1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315.

D. Sample: 2 each exposed masonry units.

E. Material Test Reports: From a qualified testing agency indicating and interpreting test results of the following for compliance with requirements indicated:
   1. Include test results, measurements, and calculations establishing net-area compressive strength of masonry units.
   2. Materials shall show conformance CBC Section 2103A.
   3. Mortar complying with property requirements of ASTM C270.
   4. Grout mixes complying with compressive strength requirements of ASTM C476. Include description of type and proportions of grout ingredients.

F. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:
   1. Include test data, measurements, and calculations establishing net-area compressive strength of masonry units.
   2. Each cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
   3. Each combination of masonry unit type and mortar type. Include statement of net-area compressive strength of masonry units, mortar
type, and net-area compressive strength of masonry determined according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

4. Each material and grade indicated for reinforcing bars.
5. Each type and size of joint reinforcement.
6. Each type and size of anchors, ties, and metal accessories.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

B. Protect Type I concrete masonry units from moisture absorption so that, at the time of installation, the moisture content is not more than the maximum allowed at the time of delivery.

C. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

E. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

F. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.06 PROJECT CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
   1. Extend cover a minimum of 24-inches down both sides and hold cover securely in place.
   2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24-inches down face next to unconstructed wythe and hold cover in place.

B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.

C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
   1. Protect base of walls from rain-splashed mud and from mortar splatter by coverings spread on ground and over wall surface.
   2. Protect sills, ledges, and projections from mortar droppings.
   3. Protect surfaces of door frames, as well as similar products with painted and integral finishes, from mortar droppings.
   4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
D. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required.

1. When ambient temperature exceeds 100°F or 90°F with a wind velocity greater than 8 mph do not spread mortar beds more than 48-inches ahead of masonry. Set unit masonry within one minute of spreading mortar.

PART 2 - PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. General: Provide shapes indicated and as follows:
   1. Special shapes for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.
   2. Square-edged units for outside corners

B. Concrete Masonry Units: ASTM C 90 and as follows:
   1. Unit Compressive Strength: Minimum 28-Day Compressive Field Strength, f’m, of the Completed Assemblage: 1,900 psi.
   2. Weight Classification: Medium Weight.
   4. Exposed Face: Ground face in standard color.

2.02 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150, Type I or II. Provide natural color as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C207, Type S hydrated.

C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C150, Type I or Type III, and hydrated lime complying with ASTM C207.

D. Aggregate for Mortar: ASTM C144; use aggregate graded with 100% passing the No. 16 sieve.

E. Aggregate for Grout: ASTM C404; size 1 for sand and size 8 for coarse aggregate (pea gravel.)

F. Water: Fresh, clean and potable.

G. Grout Admixture: Controlled expansion additive.
   1. Sika Corporation, Lyndhurst, NJ; Grout Aid.

2.03 REINFORCING STEEL

A. Recycled content: Minimum of 80% recycled content. Reinforcement may contain post-consumer or pre-consumer recycled content.

B. Bar Reinforcement: Deformed, billet steel, ASTM A615, Grade 60.

2.04 TIES AND STEEL DECK ANCHOR ASSEMBLY, GENERAL

A. General: Provide ties and anchors, specified in subsequent articles, made from materials that comply with this Article, unless otherwise indicated.

C. Galvanized Steel Sheet: ASTM A653, G60, commercial-quality, steel sheet zinc coated by hot-dip process on continuous lines before fabrication.

D. Steel Plates, Shapes, and Bars: ASTM A36.

2.05 MISCELLANEOUS MASONRY ACCESSORIES

A. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication.
   1. Provide units with either two loops or four loops as needed for number of bars indicated.

2.06 MASONRY CLEANERS

A. Job-Mixed Detergent Solution: Solution of ½-cup dry measure tetrasodium polyphosphate and ½-cup dry measure laundry detergent dissolved in 1 gallon of water.

B. Proprietary Acidic Cleaner: Manufacturer’s standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.07 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
   1. Do not use calcium chloride in mortar or grout.
   2. Add cold-weather admixture (if used) at the same rate for all mortar, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in the form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C270, Property Specification.
   1. Compressive Strength: Minimum 1,800 psi. at 28 days.
   2. Proportions: In accordance with ASTM C270, Type S for reinforced masonry.
   3. Limit cementitious materials in mortar to portland cement, mortar cement, and lime.
   4. Limit cementitious materials in mortar for exterior and reinforced masonry to portland cement, mortar cement, and lime.

D. Grout for Unit Masonry: Comply with ASTM C476.
   1. Compressive Strength: Minimum 2,000 psi at 28 days.
   a. For Pouring: Fluid consistency (suitable for pouring without segregation) meeting requirements of ASTM C476.
2. For Pumping: Fluid consistency with minimum seven sacks of cement in each cubic yard.

2. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 5 of ACI 530.1 for dimensions of grout spaces and pour height.


4. Add approved grout expansion admixture in accordance with manufacturer's recommendations. Premix admixture with water and add resulting solution to grout mix and thoroughly mix. Do not exceed quantity of admixture recommended by manufacturer.

5. Provide grout with a slump of 8 to 11-inches as measured according to ASTM C143.

2.08 SEALER

Concrete Sealer: Tamms Industries, Chemstop WB Heavy Duty or equal product. Clear water repellent treatment, blend of six resins containing no silicones or stearates, no darkening or change of color.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

1. Verify that foundations are within tolerances specified.

2. Verify that reinforcing dowels are properly placed.

3. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Before installation, examine rough-in and built-in construction to verify actual locations of piping connections.

3.02 GENERAL INSTALLATION

A. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide a continuous pattern and to fit adjoining construction. Where possible, use full-size units without cutting. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.

1. Mix units from several pallets or cubes as they are placed.

3.03 CONSTRUCTION TOLERANCES

A. Comply with tolerances in ACI 530.1 and the following:

1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than ¼-inch in 20 feet, nor ½-inch maximum.

2. For vertical alignment of exposed head joints, do not vary from plumb by more than ¼-inch in 10 feet, nor ½-inch maximum.
3. For conspicuous horizontal lines, such as exposed lintels, sills, parapets, and reveals, do not vary from level by more than ¼-inch in 20 feet, nor ½-inch maximum.

4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus ½-inch, with a maximum thickness limited to ½". Do not vary from bed-joint thickness of adjacent courses by more than ½-inch.

5. For exposed head joints, do not vary from thickness indicated by more than plus or minus ½-inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than ½-inch.

3.04 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thickness and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern: Running Bond with one-half running bond with vertical joint in each course centered on units in courses above and below.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 8-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 8-inches horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: In each course, rack back one-half-unit length for one-half running bond or one-third-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar before laying fresh masonry.

E. Fill space between hollow-metal frames and masonry solidly with mortar, unless otherwise indicated.

3.05 MORTAR BEDDING AND JOINTING

A. General:
   1. Straight, clean, with uniform thickness of 3/8-inch.
   2. Horizontal and vertical mortar joints shall have full mortar coverage on face shells.
   3. Vertical Head Joints:
      a. Butter well on each unit for a width equal to face shell of unit, shove tightly so mortar bonds well to both units.
      b. Solidly fill joints from face of block to at least the depth of face shell.
   4. As units are laid, remove excess mortar from grout space of cells to be filled.
   5. Place mortar before initial setting of cement takes place. Do not retemper mortar that has started to set or is not used within one hour. Retempering of colored mortar is not allowed.

B. Exposed Joints:
   1. Tool joints exposed to view after final construction, unless otherwise noted or shown.
2. Cut joints flush and, as mortar takes its initial set, tool to provide a concave joint.
3. Perform tooling when mortar is partially set but still sufficiently plastic to bond.
4. Perform tooling with a tool which compacts mortar, pressing excess mortar out rather than dragging it out.
5. Rake out joints that are not tight at time of tooling, point, and then tool.

C. Concealed Joints: Strike flush with no further treatment required.

3.06 LINTELS

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

3.07 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores to support reinforced masonry elements during construction.
1. Construct formwork to conform to shape, line, and dimensions shown. Make it sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
B. Placing Reinforcement: Comply with requirements of ACI 530.1.
C. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
1. Comply with requirements of ACI 530.1 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

3.08 FIELD QUALITY CONTROL

A. District will engage a qualified independent testing agency to perform field quality-control testing indicated below.
1. Payment for these services will be made by District.
2. Retesting of materials failing to meet specified requirements shall be done at Contractor's expense.
B. Testing Frequency: Tests and Evaluations listed in this Article will be performed during construction for each 5000 sq. ft. of wall area or portion thereof.
C. Mortar properties will be tested per ASTM C780.
D. Grout will be sampled and tested for compressive strength per ASTM C1019.
E. Concrete Masonry Unit Tests: For each type of concrete masonry unit indicated, units will be tested according to ASTM C140.

F. Prism-Test Method: For each type of wall construction indicated, masonry prisms will be tested per ASTM C1314, and as follows:
1. Prepare 1 set of prisms for testing at 7 days and 1 set for testing at 28 days.

3.09 REPAIRING, POINTING, AND CLEANING
A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain District's Representative's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
5. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain on exposed surfaces.

3.10 SEALING
A. Preparation: Remove dirt, loose matter, scale, salt and alkali powder and other foreign matter. Remove oil and grease with solution of trisodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water; allow to dry.

B. Application: Sealing product may be used in lieu of curing material.
1. Conform to manufactures installation and application instructions.
2. Stir sealer thoroughly before using.
3. Apply a continuous, uniform film by solvent-resistant low pressure spray only, short nap roller, or lambs wool applicator.
4. For curing, apply first coat evenly and uniformly as soon as possible after final finishing. Apply additional coats in full strength when all construction is completed and concrete is ready for use and occupancy.

5. Drying Time per Coat:
   a. Light Traffic Or Between Coats: 4 hours.
   b. Normal Traffic: 12 hours.
   c. Maximum hardness: 7 days.

3.11 MASONRY WASTE DISPOSAL

A. Recycling: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

B. Excess Masonry Waste: Remove all excess masonry waste and other masonry waste, and legally dispose of off District's property.

END OF SECTION
PART 1 - GENERAL

1.01 SUMMARY

A. Work Included: Work of this Section shall include all material and installation necessary to provide preformed metal roofing as shown and detailed on the Drawings including but not limited to the following:
   1. Preformed, prefinished metal roofing and flashings.
   2. Miscellaneous trim, flashing, closures, drip flashing, and accessories.
   3. Underlayment assembly:
      a. Plywood roof sheathing.
      b. Felt.
   4. Sealant.
   5. Fastening devices.

B. Related Work:
   1. Unit Masonry Assemblies: Section 03300.
   2. The following items interfacing with masonry unit assemblies as indicated on Drawings: Steel decking.

1.02 REFERENCED STANDARDS

A. Published specifications, standards, tests, and recommended methods of trade or industry apply to the work of this Section where cited by the abbreviations noted below.
      a. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
         i. AZ-50 Alloy Coated Steel (Galvalume Sheet Metal.)
      d. ASTM C661 Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer
      e. ASTM C719 Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle.)


3. American Plywood Association (APA.)


5. Spec Data Sheet - Aluminum Zinc Alloy Coated Steel (Galvalume) Sheet Metal by Bethlehem Corp.


1.03 ASSEMBLY DESCRIPTION

A. The roofing assembly includes preformed sheet metal panels, related accessories, eaves, corners, rakes, miscellaneous flashing and attaching devices.

B. Design Criteria: The roof system manufacturer shall provide an attachment schedule or supporting calculations to resist UL 90 Wind Uplift load.

1.04 QUALITY ASSURANCE

Manufacturer: Company specializing in architectural sheet metal products with ten (10) years minimum experience.

1.05 SUBMITTALS

A. Submit in accordance with the provisions of Section 00800, Submittal Procedures.

B. Submit results indicating compliance with minimum requirements of the following performance tests:

1. Air Infiltration: ASTM E1680.


3. Wind Uplift: UL90.

C. Submit calculations with California registered Structural Engineer’s seal, verifying roof panel and attachment method resist wind pressures imposed on it pursuant to applicable building codes.

D. Manufacturer's Product Data: Submit manufacturer's descriptive product data.

E. Shop Drawings: Show layout of panels, anchoring details, joint details, trim, flashing, and accessories. Show details of weatherproofing, terminations, and penetrations. Show fabrication and installation details.
F. Sample: 2 each roof panel complete with factory finish.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Upon receipt of panels and other materials, installer shall examine the shipment for damage and completeness.

B. Panels should be stored in a clean, dry place. One end should be elevated allowing moisture to run off.

C. Panels with strippable film must not be stored in the open, exposed to the sun.

D. Stack all materials to prevent damage and to allow adequate ventilation.

1.07 WARRANTY

E. Paint finish shall have a twenty-year warranty against cracking, peeling and fading.

F. Galvalume material shall have a twenty-year warranty against failure due to corrosion, rupture or perforation.

G. Roofing Installer shall furnish guarantee covering watertightness of the roofing system for the period of two years from the date of Substantial Completion.

H. Roofing Installer to furnish manufacturer’s standard watertightness warranty; Roofing Installer to comply with manufacturer’s watertightness warranty program and submit to manufacture all required documents. Watertightness warranty program to include roofing installation inspections which metal roofing installer shall participate.

PART 2 - PRODUCTS

2.01 MANUFACTURERS AND PRODUCT

A. Berridge Manufacturing Company, Cee-Lock Panel (basis of design) or equal:

1. Panels shall have 1½-inches high vertical legs, spaced 11½-inches on center and shall have no exposed fasteners.

2. Standing seam to be of an interlocking, snap-lock design.

3. Panels shall be factory-formed.

4. Continuous Hold-Down Ribs: 2 1/8-inches wide and 1 3/8-inches high. Ribs shall be connected to substrate with two stainless steel pancake head #12-14 x 1-inch self-drilling/tapping fasteners at 36-inches on center.

5. Vinyl weatherseal: Insert into the panel female leg.

6. Panel assembly to bear Underwriter’s Laboratories Label UL 90, pursuant to Construction Number 404 over solid substrate.

   a. Certification shall be submitted, based on independent testing laboratory, indicating no measurable water penetration or air leakage through the system when tested in accordance with ASTM E1680 and E1646.

2.02 SHEET MATERIALS
A. Prefinished metal shall be Aluminum-Zinc Alloy Coated (AZ-50 Galvalume) Steel Sheet, 22-Gage, ASTM A792, Grade 40, yield strength 40 ksi min.

B. Finish: Kynar 500/Hylar 5000 fluoropolymer coating applied by the manufacturer on a continuous coil coating line. Finish shall conform to all tests for adhesion, flexibility, and longevity as specified by the Kynar 500/Hylar 5000 finish supplier.
   1. Top Face Dry Film Thickness: 0.75 ± 0.05 mil over 0.20 ± 0.05 mil prime coat.
      a. Total Face Dry Film Thickness: of 0.95 ± 0.10 mil.
   2. Bottom Face Thickness: Coat with a primer (non-metallics only) and beige urethane coating.
      a. Total Dry Film Thickness: 0.35 ± 0.05 mil.

C. Strippable film shall be applied to the top side of all prefinished metal to protect the finish during fabrication, shipping and field handling.
   1. Remove film immediately before installation.

D. Unpainted metal shall be Aluminum-Zinc Alloy Coated (AZ-55 Acrylic Coated Galvalume) Steel Sheet, 22 gage, ASTM 792, Grade 40, yield strength 40 ksi min., with clear acrylic coating on both sides of material.

E. Field protection must be provided by the contractor at the job site so stacked or coiled material is not exposed to weather and moisture.

F. Flashing maybe factory fabricated or field fabricated. Unless otherwise specified all exposed adjacent flashing shall be of the same material and finish as panel system.

2.03 ACCESSORY MATERIALS

A. Fasteners: Stainless Steel with washers at exposed fasteners where approved by Architect.

B. Sealant: Sealant shall be an ultra low modulus, high performance, one-part, moisture curing silicone joint sealant.
   1. Acceptable Manufactures: Do not use a clear sealant or sealants which release a solvent or acid during curing.
      a. Tremco Spectrum One.
      b. Dow 790.
      c. Pecora 890NST.
      d. Duralink.
      e. Titebond Metal Roof Sealant.
   2. Sealant must be resistant to environmental conditions such as wind loading, wind driven rain, snow, sleet, acid rain, ozone, ultraviolet light and extreme temperature variations.
   3. Features:
      a. Joint movement capabilities of +100% & -50% ASTM C719.
      b. Capable of taking expansion, compression, transverse and longitudinal movement, service temperature range -65ºF to 300ºF Flow.
      c. Sag or Slump: ASTM C639; Nil.
      d. Hardness (Shore A): ASTM C-661; 15.
      e. Tensile strength at maximum elongation: ASTM D412; 200 psi
f. Tensile Strength at 100% Elongation: ASTM D412; 35 psi

g. Tear Strength, (Die “C”): ASTM D624; 40 pli

h. Peel Strength (Aluminum, Glass, Concrete): ASTM C794; 30 pli

C. Vinyl Weatherseal Insert.

2.04 UNDERLAYMENT ASSEMBLY


B. Asphalt-saturated organic felt complying with ASTM D226, Type II (30 pound asphalt felt), unperforated.

C. Felt Fasteners: Fasteners shall be galvanized roofing nails with felt caps.
   1. Felt Caps: 24 gage, G-90 galvanized washers.
      a. Berridge Coated Felt Caps.

2.05 FABRICATION

A. All exposed adjacent flashing shall be of the same material and finish as the roof panels.

B. Hem all exposed edges of flashing on underside, ½ inch.

PART 3 - EXECUTION

3.01 INSPECTION

A. Substrate:
   1. Examine plywood or metal deck to ensure proper attachment to framing.
   2. Inspect roof deck to verify deck is clean and smooth, free of depressions, waves or projections, level to ¼-inch in 20 feet and properly sloped to eaves.
   3. Flutes in steel deck to be clean and dry.
   4. Joints in wood deck to be solidly supported and fastened.
   5. Underlayment Assembly: Verify felt has been installed over plywood sheathing and plywood sheathing is securely fastened in place.
      a. Ensure that all nail heads and felt caps are totally flush with the substrate.

3.02 INSTALLATION

A. Underlayment Assembly:
   1. Plywood Sheathing: Secure with fasteners indicates on Drawings.
      a. 
   2. Felt: Installed horizontally, starting at eave to ridge with a 6-inches minimum overlap and 18-inches end laps.
      a. Install felt wrinkle free as possible.
      b. Unroll the underlayment parallel with the eaves.
      c. The eaves edge of the underlayment should go over the drip edge eaves flashing, but go under the drip edge flashing along the rake.
d. Fastening:

B. Comply with manufacturers standard instructions and conform to standards set forth in SMACNA’s Architectural Sheet Metal Manual published by, in order to achieve a watertight installation.

C. Install panels in such a manner that horizontal lines are true and level and vertical lines are plumb.

D. Install starter and edge trim before installing roof panels.

E. Remove protective strippable film prior to installation of roof panels.

F. Attach panels using manufacturer’s standard clips and fasteners, spaced in accordance with approved Shop Drawings.

G. Install sealants for preformed roofing panels as approved on Shop Drawings.

H. Do not allow panels or trim to come into contact with dissimilar materials.

I. Do not allow traffic on completed roof. If required, provide cushioned walk boards.

J. Protect installed roof panels and trim from damage caused by adjacent construction until completion of installation.

K. Remove and replace any panels or components which are damaged beyond successful repair.
3.03 CLEANING
   A. Clean any grease, finger marks or stains from the panels per manufacturer's recommendations.
   B. Remove all scrap and construction debris from the site.

3.04 FINAL INSPECTION
   Final inspection will be performed by manufacturer’s representative.

END OF SECTION