



**CITY OF CRESCENT CITY
PUBLIC WORKS DEPARTMENT**

**NOTICE INVITING SEALED BIDS,
SPECIAL PROVISIONS,
PROPOSAL AND CONTRACT**

**ATPL-501(014)
SUNSET CIRCLE MULTI-USE TRAIL PROJECT**

CRESCENT CITY, DEL NORTE COUNTY, CALIFORNIA

**For Use in Connection with CALTRANS 2018 Standard Specifications and Standard Plans, and
Current Labor Surcharge and Equipment Rental Rates.**

CONTRACT NUMBER 2020-010

**Bids Open: June 22, 2020
Dated: May 19, 2020**

SUNSET CIRCLE MULTI-USE TRAIL PROJECT

SECTION 00 01 10

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SECTION 00 10 00

INVITATION TO BID SUNSET CIRCLE MULTI-USE TRAIL PROJECT

CRESCENT CITY

Sealed bids for the construction of the Sunset Circle Multi-Use Trail Project will be received by the Owner, the City of Crescent City at the Crescent City Public Works Department office until 2:00 PM on 30 June 2020. The bids will be opened publicly and read aloud at 2:00 PM on the same day outside the Public Works Office. Bids must be addressed to:

City of Crescent City
Public Works Department
377 J Street
Crescent City, CA 95501

and labeled "Bids for the SUNSET CIRCLE MULTI-USE TRAIL PROJECT."

The work includes the furnishing of the labor, materials, and equipment for the construction of drainage inlets, minor grading and paving, and related piping per the drawings and specifications per the drawings and specifications. The project is located on Sunset Circle, Crescent City, CA.

The project manual may be inspected at the following locations:

City of Crescent City
Public Works Department
377 J Street
Crescent City CA 95531
https://www.crescentcity.org/rfp_bid.html

Humboldt Builders Exchange
624 C Street
Eureka, CA 95501
www.humbx.com
(707) 442-3708

Shasta Builders Exchange
2985 Innsbruck Drive
Redding, CA 96003
www.shastabe.com
(530) 221-5556

Placer County Contractors Association
10656 Industrial Ave #160
Roseville, CA 95678
www.pccamembers.com
(916) 771-7229

Dodge Data & Analytics
830 Third Avenue, 6th Floor
New York, NY 10022
www.construction.com
(877) 784-9556

Construction Bidboard (Ebidboard)
11622 El Camino Real #100
San Diego, CA 92130
www.ebidboard.com
(619) 688-0588

Medford Builders Exchange
701 E Jackson Street
Medford, OR 97504
(541) 773-5327

Full-size and half-size copies of the project manual may be obtained at City of Crescent City Public Works Department 377 J Street, Crescent City, CA 95531 ((707) 464-9506), upon payment of postage fees.

A mandatory pre-bid conference will be held at the Project Site in Crescent City, CA on 12 June 2020 at 2:00 PM. Due to COVID-19 all participants are required to wear masks.

Bidders must correctly prepare and submit the documents listed in Section 00 40 00, Bid. Each bid must be accompanied by a bid guaranty bond, or a certified or cashier's check payable to the order of the Owner in an amount not less than ten percent (10%) of the amount of the bid as a guaranty that the bidder will execute the contract if it is awarded in conformity with the bid form. The successful bidder will be required to furnish performance and payment bonds, each in an amount not less than one hundred percent (100%) of the contract price.

At the successful Bidder's option, securities may be substituted for the required retention, in accordance with the provisions of Section 22300 of the State of California Public Contract Code.

The Owner reserves the right to reject any or all bids and to determine which bid is, in the Owner's judgment, the lowest responsive bid of a bidder or group of bidders. The Owner also reserves the right to waive any informalities in any bid and to delete items listed in the bid.

Bids received after the time established for receiving bids will not be considered. Except as provided in paragraph 00 20 10-1.04(A), no bidder may withdraw his bid after the time established for receiving bids or before the award and execution of the contract, unless the award is delayed for a period exceeding ninety (90) calendar days.

Bidders are hereby notified that pursuant to Section 1773 et seq. of the Labor Code of the Statutes of the State of California, the Owner has obtained from the Director of the Department of Industrial Relations the general prevailing rate of wages and employer payments for health and welfare, vacation, pension, and similar purposes for work to be done within Del Norte County, California. Regulations regarding the application of these wage rates are given in paragraph

00 20 00-1.12.

No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

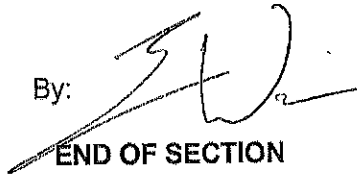
No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

Bidders on this work must comply with all applicable governmental and local agency requirements.

Date: June 1, 2020

By:



END OF SECTION

ERIC WIEN
CITY MANAGER

SECTION 00 20 00

INSTRUCTIONS TO BIDDERS

1.01 INSPECTION OF SITE

Bidders are required to inspect the site of the work to satisfy themselves by personal examination or by such other means as they may prefer, of the location of the proposed work, and of the actual conditions of and at the site of work. Bidders should plan to inspect the site of the work during the pre-bid meeting and can schedule additional time by special arrangement with the Owner.

Entrance by bidders to the site of the work for purposes of making exploratory excavations shall be by special arrangement with the Owner and under conditions established by the Owner. If, during the course of his examination, a bidder finds facts or conditions which appear to him to be in conflict with the letter or spirit of the project manual, he may apply to the Owner, in writing, for additional information and explanation before submitting his bid.

Submission of a bid by the bidder is an acknowledgment that, if awarded the contract, bidder has relied and is relying on bidder's own examination of (1) the site of the work, (2) access to the site, and (3) all other data and matters requisite to the fulfillment of the work and on his own knowledge of existing facilities on and in the vicinity of the site of the work to be constructed under the contract.

The information provided by the Owner is not intended to be a substitute for, or a supplement to the independent verification by the bidder to the extent such independent investigation of site conditions is deemed necessary or desirable by the bidder. Bidder acknowledges that he has not relied upon Owner-furnished information regarding site conditions in preparing and submitting a bid.

1.02 EXAMINATION OF PROJECT MANUAL

Each bidder must thoroughly examine and be familiar with those contract documents contained in the project manual. Submission of a bid constitutes acknowledgment, upon which the Owner may rely, that the bidder has thoroughly examined and is familiar with the project manual. Failure or neglect of a bidder to examine any of the contract documents contained in the project manual in no way relieves bidder from any obligation with respect to his bid or to the contract. No claim for additional compensation will be allowed that is based upon a lack of knowledge of the contract documents or the work.

1.03 INTERPRETATION OF PROJECT MANUAL

Bidders, prospective subcontractors, manufacturers and suppliers may request interpretation of the project manual prior to bid opening. Requests for interpretation must be directed in writing to Jon Olson, City Engineer, 733 J. Street, Crescent City, CA 95531 (707-464-9506). Requests to clarify the source of materials, equipment, suppliers, or any other matter that does not modify, change, increase, or decrease the scope of work, requires no action by the Owner other than a response to the bidder requesting the clarification. Requests to clarify possible ambiguous, conflicting or incomplete statements or designs, or any other clarification that modifies,

changes, increases or decreases the scope of work, requires issuance of an addendum by the Owner for the interpretation to become effective.

Reference information has been made available on the City's website that includes information used by the Engineer to prepare the Contract. This information is for use by bidder during preparation of the bid and execution of the Contract. The Owner disclaims responsibility for the interpretation by bidders of the reference information. In some cases, the information was prepared for design purposes and is not intended to provide all the information required by the bidder to tender a bid, construct the system, and provide startup and commissioning services. Reference information available at www.crescentcity.org/rfp_bid.html includes:

1. CDP (Coastal Development Permit)

1.04 BID DOCUMENTS

A. BID FORMS:

1. **GENERAL:** Bids must be made on the blank bid forms prepared and provided by the Owner. Bids must give the prices proposed, both in writing and in figures, must give all other information requested, and must be signed by the bidder or his authorized representative, with his address.

2. **BID PRICES:** Bid prices must include everything necessary for the completion of the work including but not limited to providing the materials, equipment, tools, plant and other facilities, and the management, superintendence, labor and services, and bonds. Bid prices must include allowance for federal, state, and local taxes. Bid prices shall be guaranteed by the Contractor for 90 days.

In the event of a difference between a price quoted in words and a price quoted in figures for the same quotation, the words are the amount bid. In the event that the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price governs, and the correct product of the unit price and the estimated quantity is deemed to be the amount bid. If the sum of two or more items in a bidding schedule does not equal the total amounts quoted, the individual item amounts govern and the correct total is deemed to be the amount bid.

3. **BIDDER'S SIGNATURE AND AUTHORITY:** If the bid is made by an individual, his name, signature, and post office address must be shown; if made by a firm or partnership, the name and post office address of the firm or partnership, a list of the partners, and the signature of at least one of the general partners must be shown; if made by a corporation, the bid must show the name of the state under the laws of which the corporation is chartered, the name and post office address of the corporation, and the title of the person who signs on behalf of the corporation. If the bid is made by the corporation, a certified copy of the bylaws or resolution of the Board of Directors of the corporation must be furnished, showing the authority of the officer signing the bid to execute contracts on behalf of the corporation. If the bid is made by a joint venture, the bid must be signed by a representative of one of the joint venture firms. Additionally, the bid must include a copy of the resolution or agreement empowering the representative to execute the bid and bind the joint venture.

4. **BID IRREGULARITIES:** Each bid and the information requested, bound in the project manual, shall be enclosed in a sealed envelope and labeled as specified in the Invitation to Bid. Bidders are warned against making erasures or alterations of any kind, and bids containing omissions, erasures, or irregularities of any kind may be rejected. No oral, telegraphic, or telephonic bids or modifications will be considered.

5. **MODIFICATION OF BID:** Modification of a bid already received will be considered only if the modification is received prior to the time established for receiving bids. Modifications must be made in writing, executed, and submitted in the same form and manner as the original bid.

6. **WITHDRAWAL OF BIDS:** Within five days after the opening of bids, a bidder may withdraw his bid, if he establishes to the Owner's satisfaction that a mistake was made in preparing the bid. A bidder who wants to withdraw must give written notice to the Owner, specifying, in detail, how the mistake occurred and how the mistake made the bid materially different than it was intended to be. Withdrawal is not permitted for mistakes resulting from errors in judgment or carelessness in inspecting the site of the work or in reading the project manual.

7. **MAJOR EQUIPMENT ITEMS:** Certain items of major equipment to be provided under this contract are shown on the plans. The bidder shall provide the name of the manufacturer of the equipment to be provided for all major equipment. Only one manufacturer shall be indicated for each item. By so indicating, the bidder warrants that equipment manufactured and/or supplied by the named manufacturer will be provided on the project unless review of submittal information or performance under tests reveals that the manufacturer is unresponsive to the contract. Failure to indicate a manufacturer for any equipment may render the bid unresponsive to the invitation to bid and may be a basis for rejection of the bid.

The arrangements specified on the drawings are based on a particular manufacturer's equipment. Where the Contractor selects a manufacturer whose equipment arrangement is different than specified, the total amount listed in the bid shall provide for a complete operating installation for each equipment item listed, including any and all changes and additions in structure, piping, buildings, mechanical, electrical and control systems and accessories required to accommodate the listed manufacturer's equipment. The bid shall also include the preparation and submission of detailed drawings, calculations and manufacturer's data to allow evaluation of the proposed equipment and to show all modifications to the work as necessary to accommodate the proposed manufacturer's equipment.

In the event that the Owner, at its sole discretion, determines that the equipment of the manufacturer listed by the Contractor and submitted for review does not meet the requirements of the contract, the Contractor shall select and submit for review equipment of another manufacturer which does meet the contract, and no increase in the total amount of the contract shall be allowed.

B. ALTERNATIVE MATERIALS AND EQUIPMENT:

The bidder may offer a deductive price to the Owner for supplying alternative or substitute equipment or material for items specified or shown in the plans by listing the specification section, item description, manufacturer, and deductive amount as a supplement to the bid. The bid shall be based on supplying equipment or material from manufacturers or suppliers specified or shown on the plans. Alternative or substitute equipment or material will be considered by the Owner after

contract award and shall not be used in determining the basis of award. Selection of any offered alternate or substitution shall be at the Owner's sole discretion and will be accomplished by issuing a deductive change order for an amount agreed upon.

Manufacturers or suppliers of materials and equipment may offer an alternative product to the Contractor and request that alternatives to specified products be considered equal. Inclusion of such alternatives in the bid is the responsibility of the Contractor. Inclusion should only be considered if the Contractor believes the offered alternative is equal in quality to the specified product. After award of contract, such offers of alternative products will be reviewed and processed as a substitution provided under paragraph 00 72 00-4.05.

C. BID GUARANTY:

The bid form must be accompanied by a bid guaranty bond provided by a guaranty company authorized to carry on business in the State of California for payment to the Owner in the sum of at least ten (10) percent of the total amount of the bid price, or, alternatively, by a certified or cashier's check, payable to the Owner in the sum of at least ten (10) percent of the total amount of the bid price. The bonds must be executed by a duly licensed surety company, listed in the latest Circular 570 of the United States Treasury Department as being acceptable as surety on federal bonds. The bid guaranty bond must be provided on the form included in Section 00 43 13 of this project manual. The amount payable to the Owner under the bid guaranty bond or the certified or cashier's check, as the case may be, must be forfeited to the Owner as liquidated damages in case of a failure or neglect of the bidder to furnish, execute, and deliver to the Owner the required performance and payment bonds provided respectively in Sections 00 61 05 and 00 61 10, the evidences of insurance, and to enter into, execute, and deliver to the Owner the agreement on the form provided in Section 00 52 00, within ten (10) calendar days after receiving written notice from the Owner that the award has been made and the agreement is ready for execution.

D. LIST OF SUBCONTRACTORS:

Each bidder must have listed, on the form provided in Section 00 43 36, the name, address, and description of the work, of each subcontractor to whom the bidder proposes to sublet portions of the work in excess of 0.5 percent of the total amount of his bid. For the purpose of this paragraph, a subcontractor is defined as one who contracts with the Contractor to provide materials and labor, labor only, or who specially fabricates and installs a portion of the work or improvement according to drawings contained in the project manual. Listings and subsequent substitutions, if any, must be done in conformance with the Subletting and Subcontracting Fair Practices Act, commencing at Section 4100 of the Public Contract Code of the State of California. Failure to list subcontractors may render a bid nonresponsive and may be grounds for rejection of the bid.

1.05 BIDDER'S CERTIFICATIONS

A. QUALIFICATION OF BIDDER:

Bidder must certify that he is, at the time of bidding, and will be, throughout the period of the contract, licensed under the provisions of Chapter 9, Division 3 of the Business and Professions Code of the State of California to do the type of work contemplated in the project manual. Bidder

must further certify that he is skilled and regularly engaged in the general class and type of work called for in the project manual.

The bidder must also certify that he is knowledgeable of the unusual and peculiar hazards associated with the general class and type of work required to construct the specified project within the terms given in the project manual. Bidder must be competent and skilled in the protective measures necessary for the safe performance of the construction work with respect to such unusual and peculiar hazards.

B. ADDENDA:

Each bid form must include specific acknowledgment, in the space provided, of receipt of all addenda issued and mailed by the Owner during the bidding period. Failure to so acknowledge may result in the bid being rejected as not responsive.

C. NONCOLLUSION AFFIDAVIT:

Pursuant to Section 7106 of the California Public Contract Code, a noncollusion affidavit is required on any public works contract of a public entity. The noncollusion affidavit must be executed by the bidder and notarized on the form provided in Section 00 45 19 of this project manual.

D. ANTI-LOBBYING CERTIFICATION

The bidder shall require that the language of this certification be included in all contracts or subcontracts entered into in connection with this grant activity(ies) and that all subrecipients shall certify and disclose accordingly. The anti-lobbying certification must be executed by the bidder on the form provided in Section 00 45 21 of this project manual.

1.06 POSTPONEMENT OF OPENING

The Owner reserves the right to postpone the date and time for receiving and/or opening of bids at any time prior to the date and time established in the Invitation to Bid. Postponement notices will be transmitted via email or mailing service to bidders in the form of addenda.

1.07 REJECTION OF BIDS

A. IRREGULAR BIDS:

The Owner reserves the right to reject bids which are incomplete, obscure, or irregular; bids which omit a bid on any one or more items for which bids are required; bids which omit unit prices if unit prices are required; bids in which unit prices are unbalanced in the opinion of the Owner; bids accompanied by insufficient or irregular bid security; and bids from bidders who have previously failed to perform properly or to complete on time contracts of any nature.

B. COLLUSION:

If the Owner has reason to believe that collusion exists among bidders, the Owner will reject the bids of the known participants in such collusion and may, at its option, require that all

bidders certify under penalty of perjury that no collusion has occurred or exists. The Owner also, at its option, may reject all bids received.

1.08 RETURN OF BID GUARANTIES

Within 15 calendar days after the bids are opened, the Owner will return the bid guaranties accompanying the bids which are not to be considered in making the award. All other bid guaranties will be held until the contract has been fully executed. After that time they will be returned to the respective bidders whose bids they accompanied.

1.09 AWARD OF CONTRACT

Within ninety (90) calendar days after the date of opening bids, the Owner will act either to accept a bid or to reject all bids. Acceptance of a bid will be evidenced by a notice of award of contract in writing, delivered in person, or by certified mail, to the bidder whose bid is accepted. No other act of the Owner constitutes acceptance of a bid. The award of contract obligates the bidder whose bid is accepted to furnish performance and payment bonds and evidences of insurance, and to execute the agreement set forth in the project manual. The Owner will award a contract to the lowest responsive bidder on the basis of lowest total bid.

The Owner may initially Award the Contract for a portion of the work and reserves the right to add or remove any Bid Item or Alternative during the course of the Contract. Owner expects to receive additional funding in February that will affect selected scope of the final project. Items added or deleted after the Award will be completed as Change Orders at the Bid Price.

1.10 BASIS OF AWARD

The award will be made by the Owner to the lowest responsive and responsible bidder. Inclusion of bid items and alternatives in the final contract awarded will be at the Owner's sole discretion.

If, at any time the contract is to be awarded, the total of the lowest acceptable Proposal exceeds the funds then estimated by the Owner as available, the Owner may reject all bids or take such other action as best serves the Owner's interests.

The Owner, reserves the right to accept or reject any or all proposals, and to waive any informalities and irregularities in said proposals, delete certain items from the proposal and postpone the award decision date to one that is mutually agreeable to the Owner and the low bidder.

1.11 EXECUTION OF CONTRACT

Within 10 calendar days after receiving written notice of the award of the contract, the contract agreement as provided in Section 00 52 00 must be executed in quadruplicate by the successful bidder and returned with the performance and payment bonds and evidences of insurance. After execution by the Owner, one copy of the agreement will be returned to the Contractor.

1.12 LABOR REQUIREMENTS

A. WAGE DETERMINATION:

Wages to be paid laborers and mechanics on this project must be no less than the minimum as determined by the Director of Industrial Relations in accordance with California Labor Code, Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1. Copies of the applicable prevailing rate of per diem wages must be posted at each job site.

B. SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION:

The Contractor must comply with all state and federal laws and county and local ordinances and regulations which in any manner affect those engaged or employed in the work.

C. EMPLOYMENT PERMITS:

The Contractor shall provide an employment permit prior to the initiation of any practices, work, method, or operation in accordance with Labor Code Section 6500.

1.13 SOIL INFORMATION

No soil information is available.

1.14 SHEETING, SHORING AND BRACING

In accordance with the provisions of Section 6707 of the California State Labor Code, each bidder must list, in the bid item indicated, the amount included in his bid for trench and excavation, adequate sheeting, shoring and bracing, or equivalent method for the protection of life and limb, work which must conform to applicable State of California Construction Safety Orders. By listing this sum in his bid, the bidder warrants that his action does not convey tort liability to the Owner, the Owner's employees, or the Construction Manager.

1.15 OFFER OF ASSIGNMENT OF ANTITRUST ACTIONS

As provided by Sections 4550 and 4552 of the California Government Code, in submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the Owner all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the purchasing body pursuant to the bid. Such assignment is made and becomes effective at the time the purchasing body tenders final payment to the bidder.

1.16 SALES AND USE TAX

Bidder shall refer to General Conditions paragraph 00 72 00-2.04 K for sales and use tax requirements for this project.

1.17 BID PROTEST PROCEDURE

Bid protest procedures are contained in Chapter 14.24 of the Crescent City Municipal code:

14.24.0190 Application

The protest procedures contained in this chapter apply to formal sealed bids and competitive proposals only. For purposes of this chapter any person who submitted either a bid or proposal is referred to as a “bidder” and any submitted big or proposal is referred to as a “bid.”

14.24.020 Eligibility to protest

Only a bidder who has actually submitted a bid is eligible to submit a bid protest against another bidder. Subcontractors are not eligible to submit big protests. A bidder may not rely on the bid protest submitted by another bidder, but must timely pursue its own protest.

14.20.030 Bid protest deadline

Any bid protest must be in writing and received by the City before 5:00 p.m. no later than two business days following the bid opening (the “Bid Protest Deadline”). The protesting bidder may submit the bid protest by personal delivery, courier, or facsimile transmission.

14.24.040 Bid protest - contents and procedure

A. Protest contents. The bid protest must contain a complete statement of the basis for the protest and all supporting documentation. Material submitted after the Bid Protest Deadline will not be considered. The protest must refer to the specific portion or portions of the contract documents upon which the protest is based. The protest must include the name, address, email address and telephone number of the person representing the protesting bidder if different from the protesting bidder.

B. Copy to protested bidder. A copy of the protest and all supporting documents must be concurrently transmitted by facsimile transmission or electronic mail (email), before the Bid Protest Deadline, to the protested bidder.

14.24.50 Response to bid protest – contents

A. Response to protest. The protested bidder may submit a written response to the protest, provided the response is received by City before 5:00 p.m., within two business days after the Bid Protest Deadline or after actual receipt of the bid protest, whichever is sooner (the “Response Deadline”). The protested bidder may submit the response to bid protest by personal delivery, courier, or facsimile transmission. The response must include all supporting documentation. Material submitted after the Response Deadline will not be considered. The response must include the name, address, email address, and telephone number of the person representing the protested bidder if different from the protested bidder

B. Copy to protesting bidder. A copy of the response and all supporting documents must be concurrently transmitted by facsimile transmission or electronic mail (email), before the Bid Protest Deadline, to the protesting bidder.

14.24.060 Decision

Within five business days of the Response Deadline, the City Manager will issue a Decision on the bid protest. The decision of the City Manager is final.

14.24.070 Exclusive remedy

The procedure and time limits set forth in this section are mandatory and are the bidder's sole and exclusive remedy in the event of bid protest. A bidder's failure to comply with these procedures will constitute a waiver of any right to further pursue a bid protest, including filing a Government Code claim or initiation of legal proceedings.

END OF SECTION

SECTION 00 31 46

PERMITS

PART 1 – GENERAL

1.01 The following permits for this project must be obtained and paid for by the Contractor:

A. City Business License

1.02 The Owner has obtained the following Permits or Waivers, but the Contractor is responsible for implementation of all permit Conditions.

A. Coastal Development Permit (Waiver)

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 00 40 00

BID

City of Crescent City
377 J Street
Crescent City, CA 95531

Date: _____

The undersigned, as bidder, declares that we have received and examined the project manual entitled "Sunset Circle Multi-Use Trail Project" and will contract with the Owner, on the form of agreement provided herewith, to do everything required for the fulfillment of the contract for the construction on the project at the prices and on the terms and conditions herein contained.

We agree that the contract documents include Parts A, B and C of this project manual as well as the referenced federal, state and local agency requirements.

We agree that the following are part of this bid:

Section	Title
00 40 00	Bid
00 41 00	Bidding Schedule
00 43 13	Bid Guaranty Bond
00 43 36	Proposed Subcontractors
00 45 13	Certification of Bidder's Experience and Qualifications
00 45 19	Non-Collusion Affidavit
00 45 21	Anti-Lobbying Certification

We acknowledge that addenda numbers _____ through _____ have been received and have been examined as part of the project manual.

Attached is a bidder' security in the amount of at least ten (10) percent of the total amount of our bid in one of the following acceptable forms: (i) a guaranty bond duly completed by a guaranty company authorized to carry on business in the State of California; (ii) a certified or cashier's check payable to the Owner; or (iii) cash.

If our bid is accepted, we agree to sign the agreement without qualifications and to furnish the performance and payment bonds and the required evidences of insurance within 10 calendar days after receiving written notice of the award of the contract.

We further agree, if our bid is accepted and a contract for performance of the work is entered into with the Owner, to so plan work and to prosecute it with such diligence that the work shall be completed within the time stipulated.

The bidder declares that the Contractor's license number and expiration date and representations made therein are stated under penalty of perjury under the laws of the State of California.

Name of Bidder

Contractor's License No.

License Expiration Date

Signature of Bidder

Title of Signatory

Witness

Address of Bidder

Title of Witness

State of Incorporation

END OF SECTION

SECTION 00 41 00

BIDDING SCHEDULE

PROJECT IDENTIFICATION: Sunset Circle Multi-Use Trail Project

THE BID IS SUBMITTED TO: City of Crescent City

BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY.	UNIT PRICE	TOTAL PRICE
1	Mobilization	LS	1		
2	Construction Signs	LS	1		
3	Traffic Control	LS	1		
4	Water Pollution Control	LS	1		
5	Sheeting Shoring Bracing	LS	1		
6	Remove Concrete and HMA	LS	1		
7	Trench Drain	LF	33		
8	Trail Excavation	CY	741		
9	Class II Agg Base	TON	1,069		
10	Hot Mix Asphalt Paving	TON	451		
11	Concrete Curb	LF	835		
12	Split Rail Fence (Concrete)	LF	1,080		
13	Detectable Warning Surface	LS	1		
14	4" Thermoplastic Striping	LF	2,476		
15	6" Thermoplastic Striping	LF	184		
16	Thermoplastic Marking (Arrow/Stop)	SF	294		
17	Roadside Sign	EA	41		
18	Adjust Utility Manhole/Box to Grade	EA	8		
19	Trail Lights	EA	14		
20	Metered Service Pedestal Box	LS	1		
21	Pre-cast Junction Boxes	EA	20		
22	Electrical Conduit in Trench	LF	1,274		
23	Quality Control	LS	1		
24	Testing Lab Services	LS	1		
Total (Items 1 - 24)					\$

TOTAL BID AMOUNT:

(\$ _____).

The cost of all work in the Contract Documents not specifically identified as an item or described as an item shall be included in the items and no additional compensation shall become due the

Contractor by nature of compliance with the Contract Documents except as provided for in the provisions relating to extra work or changes in the work.

Bid award will be based on the lowest aggregate of the Total Bid Amount.

Actual contract amount will include all items and alternatives selected by the Owner in accordance with paragraph 00 20 00 - 1.10.

END OF SECTION

SECTION 00 43 13

BID GUARANTY BOND

KNOW ALL MEN BY THESE PRESENTS:

THAT _____, hereinafter called the Principal, and _____, hereinafter called the Surety, are jointly and severally held and firmly bound unto the City of Crescent City, hereinafter called the Obligee, each in the penal sum of ten (10) percent of the total amount of the bid of the Principal for the work, this sum not to exceed _____ dollars (\$ _____) of lawful money of the United States for the payment thereof unto the Obligee, the Principal and Surety jointly and severally bind themselves forever firmly by these presents.

WHEREAS, the Principal is herewith submitting its offer for the fulfillment of Obligee's contract for construction of the Sunset Circle Multi-Use Trail Project.

NOW, THEREFORE, the condition of this obligation is such that if the Principal is awarded the contract, and if the Principal, within the time specified in the bid for such contract, enters into, executes, and delivers to the Obligee an agreement in the form provided herein complete with evidences of insurance, and if the Principal within the time specified in the bid gives to the Obligee the performance and payment bonds on the form provided herein, then this obligation shall be void; otherwise, the Principal and Surety will pay unto the Obligee the difference in money between the total amount of the bid of the Principal and the amount for which the Obligee legally contracts with another party to fulfill the contract if the latter amount be in excess of the former, but in no event shall the Surety's liability exceed the penal sum hereof.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable under this obligation as Principal, and that nothing of any kind or nature whatsoever that will not discharge the Principal shall operate as a discharge or a release of liability of the Surety.

IT IS HEREBY FURTHER DECLARED AND AGREED that this obligation shall be binding upon and inure to the benefit of the Principal, the Surety, and the Obligee and their respective heirs, executors, administrators, successors and assigns.

SIGNED AND SEALED this _____ day of _____, 20____.

(SEAL)

Principal

Signature for Principal

Title of Signatory

(SEAL)

Surety

Signature for Surety

Title of Signatory

END OF SECTION

SECTION 00 43 36

PROPOSED SUBCONTRACTORS

The following information gives the name, the location of the place of business, the California contractor license number, and public works contractor registration number issued pursuant to Section 1725.5 of the Labor Code of each subcontractor who will perform work or labor or render service to the prime contractor in or about the construction of the work or improvement, or a subcontractor licensed by the State of California who, under subcontract to the prime contractor, specially fabricates and installs a portion of the work or improvement according to detailed drawings contained in the plans and specifications, in an amount in excess of one-half of 1 percent of the prime contractor's total bid or, in the case of bids or offers for the construction of streets or highways, including bridges, in excess of one-half of 1 percent of the prime contractor's total bid or ten thousand dollars (\$10,000), whichever is greater. No subcontractor who is not listed may be used without the written approval of the Owner in accordance with the Subletting and Subcontracting Fair Practices Act, commencing with Section 4100 of the Public Contract Code. (Additional supporting data may be attached to this page. Each page must be sequentially numbered, e.g., 00 43 36-2, and headed "Proposed Subcontractors" and shall be signed.)

Contractor shall attach verification sheet from Department of Industrial Relations (DIR) showing that all subcontractors are registered in accordance with Labor Code Section 1725.5.

Name	Location Place of Business	Description of Work	DIR

Signature of Bidder

END OF SECTION

SECTION 00 45 13
CERTIFICATION OF BIDDER'S
EXPERIENCE AND QUALIFICATIONS

The undersigned bidder certifies that he or she is, when the bid is submitted and will be, throughout the period of the contract, licensed by the State of California to do the type of work required under terms of the contract documents. Bidder further certifies that he or she is skilled and regularly engaged in the general class and type of work called for in the contract documents.

In accordance with the requirements of paragraph 00 20 00-1.05 A, the bidder represents that he is competent, knowledgeable and has special skills with respect to the nature, extent, and inherent conditions of the work to be performed. Bidder acknowledges that there are certain peculiar and inherent conditions existent in the construction of the particular facilities he is bidding on that may create, during the construction program, unusual or peculiar unsafe conditions that will be hazardous to persons or property. Bidder expressly acknowledges that he is aware of these peculiar risks and that he has the skill and experience to foresee them, assess them, and to adopt protective measures to adequately and safely perform the construction work with respect to the hazards.

Signed this _____ day of _____, 20____.

Name of Bidder

Contractor's License No. and State

Contractor's DUNS Number

Signature of Bidder

Title of Signatory

END OF SECTION

SECTION 00 45 19

NON-COLLUSION AFFIDAVIT

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA)
)ss
COUNTY OF _____)

_____ being first duly sworn, deposes and says
(name)

that he or she is _____ of
(Position Title)

_____,
(the Bidder)

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

DATED: _____ By _____
(Person signing for Bidder)

Subscribed and sworn to before me on

(Notarial Seal)

(Notary Public)

END OF SECTION

SECTION 00 45 21

ANTI-LOBBYING CERTIFICATION

The following certification and disclosure regarding payments to influence certain federal transactions are made per the provisions contained in 2 CFR 200 – Appendix II and 31 U.S.C. 1352, the “Byrd Anti-Lobbying Amendment.”

(a) 2 CFR 200 – Appendix II, “Contract Provisions for Non-Federal Entity Contracts Under Federal Awards” is hereby incorporated by reference into this certification

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of \$150,000 shall certify and disclose accordingly.

(c) This certification is a material representation of fact upon which reliance is placed when this transaction was made or entered into. Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person making an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

SIGNATURE: _____

COMPANY NAME: _____

DATE: _____

END OF SECTION

SECTION 00 52 00

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20____, by and between the City of Crescent City, a California municipal corporation, hereinafter called the "Owner," and _____, hereinafter called the "Contractor."

WITNESSETH:

WHEREAS, the Owner has caused a project manual to be prepared comprised of one volume of bidding and contract requirements and technical specifications and one volume of drawings for the construction of the Crescent City Sunset Circle Multi-Use Trail Project as described therein, and

WHEREAS, the Contractor has offered to perform the proposed work in accordance with the terms of the contract as defined in Section 00 72 00 of the specifications.

NOW, THEREFORE, in consideration of the mutual covenants and agreements of the parties contained in the contract and to be performed, the Contractor hereby agrees to complete the work at the price and on the terms and conditions therein contained, and the Owner agrees to pay the Contractor the contract price provided therein for the fulfillment of the work and the performance of the covenants set forth herein.

The further terms, conditions, and covenants of this agreement are set forth in the contract documents, each of which is attached hereto and by this reference made a part hereof:

Volume one containing Part A, Bidding and Contract Requirements (including Addenda numbers ____ through ____); Part B, Technical Specifications; and Part C, a set of drawings consisting of one volume.

IN WITNESS WHEREOF, this agreement has been executed on this _____ day
of _____, 20____.

Signature for Owner

Title of Signatory

Attest: _____
Signature

Title of Signatory

Name of Contractor

Signature for Contractor

Title of Signatory

Attest: _____
Signature

Title of Signatory

END OF SECTION

SECTION 00 61 05

FAITHFUL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, THAT,

WHEREAS, the City of Crescent City hereinafter designated the "Owner," has, on _____, 20____, awarded to _____, hereinafter designated as the "Principal," a contract for the construction of the Crescent City Sunset Circle Multi-Use Trail Project; and

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

NOW, THEREFORE, WE, the Principal, and _____, as Surety, are held and firmly bound unto the Owner the penal sum of _____ dollars (\$ _____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bounden Principal, his or her or its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and faithfully perform the covenants, conditions, and agreements in the said contract and any alterations made as therein provided, on his or her or their part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meaning, and shall indemnify and save harmless, the Owner, its officers and agents as therein stipulated, then this obligation will become null and void; otherwise it will be and remain in full force and virtue and Principal and Surety, in the event suit is brought on this bond, will pay to the Owner such reasonable attorney's fees as fixed by the court.

As a condition precedent to the satisfactory completion of the said contract, the above obligation in the said amount will hold good for a period of one (1) year after the completion and acceptance of the said work, during which time if the above bounden Principal, his or her or its heirs, executors, administrators, successors or assigns shall fail to make full, complete, and satisfactory repair and replacements or totally protect the said Owner from loss or damage made evident during said period of one year from the date of acceptance of said work, and resulting from or caused by defective materials and/or faulty workmanship in the prosecution of the work done, the above obligation in the said amount will remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligation of the Surety hereunder will continue so long as any obligation of the Principal remains.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same will, in any way, affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the work or to the specifications. Said Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this ____ day of _____, 20__, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(Seal)

Principal

Signature for Principal

Title of Signatory

(Seal)

Surety

Signature for Surety

Title of Signatory

END OF SECTION

SECTION 00 61 10

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, THAT,

WHEREAS, the City of Crescent City, hereinafter designated the "Owner," has, on _____, 20____, awarded to _____, hereinafter designated as the "Principal," a contract for the construction of the Crescent City Sunset Circle Multi-Use Trail Project; and

WHEREAS, said Principal is required to furnish a bond in connection and with said contract, providing that if said Principal, or any of his or her or its subcontractors, should 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 done thereon of any kind, the Surety of this bond will pay the same to the extent hereinafter set forth:

NOW, THEREFORE, WE, the Principal, and _____, as Surety, are held and firmly bound unto the Owner the penal sum of _____ dollars (\$ _____) lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if said Principal, his or its heirs, executors, administrators, successors, or assigns, should 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 amount due under the Unemployment Insurance Act with respect to such work or labor, or for any amounts due, or to be withheld pursuant to Sections 18806 of the Revenue and Taxation Code of the State of California with respect to such work or labor, as required by the provisions of Chapter III, Division V, Title I, of the Government Code of the State of California, and provided that the persons, companies, or corporations so furnishing said materials, provisions, or other supplies, appliances, or power use, in, upon, for, or about the performance of the work contracted to be executed or performed, or any person who performs work or labor upon same, or any person who supplies both work and materials, thereto, shall have complied with the provisions of said Government Code, then said surety will pay the same in or to an amount not exceeding the amount hereinabove set forth, and also will pay in case suit is brought upon this bond, such reasonable attorney's fees to the Owner as fixed by the court.

This bond will inure to the benefit of any and all persons, companies, and corporations entitled to file claims under said Government Code, so as to give a right of action to them or their assigns in any suit brought upon this bond.

And the said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition of the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same will, in any way, affect its obligations of this bond, and it does hereby waive notice of any change, extension of time, alteration, or addition to the terms of the contract or to the work or to the specifications. Said Surety hereby waives the provisions of Sections 2819 and 2845 of the Civil Code of the State of California.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their seals this ____ day of _____, 20__, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(Seal)

Principal

Signature for Principal

Title

(Seal)

Surety

Signature for Surety

Title

END OF SECTION

SECTION 00 62 00

CERTIFICATES AND OTHER FORMS

The forms listed below and included in this Section shall be used for this project and may be referenced from other Sections of the project manual:

Form No.	Title
01300-A	Submittal Transmittal Form

Contractor may use electronic versions of these forms.

Submittal Description: _____

Submittal No.:¹ _____

Spec Section: _____

	Routing	Sent	Received
OWNER:	Contractor/CM		
PROJECT:	CM/Engineer		
	Engineer/CM		
CONTRACTOR:	CM/Contractor		

We are sending you Attached Under separate cover via _____.
 Submittals for review and comment
 Product data for information only

Remarks: _____

Item	Copies	Date	Section No.	Description	Review action ^a	Reviewer initials	Review comments attached

^aNote: NET = No exceptions taken; MCN = Make corrections noted; A&R = Amend and resubmit; R = Rejected Attach additional sheets if necessary.

Contractor

Certify either A or B:

- A. We have verified that the material or equipment contained in this submittal meets all the requirements, including coordination with all related work, specified (no exceptions).
- B. We have verified that the material or equipment contained in this submittal meets all the requirements specified except for the attached deviations.

<u>No.</u>	<u>Deviation</u>
_____	_____
_____	_____
_____	_____

Certified by: _____

Contractor's Signature

¹See paragraph 00 33 00-4.0 A, Transmittal Procedure.

SECTION 00 72 00

GENERAL CONDITIONS

PART 1--GENERAL INFORMATION

1.01 DEFINITIONS OF WORDS AND TERMS

Where used in the project manual, the following words and terms have the meanings indicated. The meanings are applicable to the singular, plural, masculine and feminine forms of the words and terms.

Acceptance. Formal action of the Owner in determining that the Contractor's work has been completed in accordance with the contract and in notifying the Contractor in writing of the acceptability of the work.

Act of God. A cataclysmic phenomenon of nature, such as an earthquake, flood, tsunami or cyclone. Rain, wind, high water, or other natural phenomenon which might reasonably have been anticipated from historical records of the general locality of the work are not be treated as Acts of God.

Addenda. Supplemental written specifications or drawings issued prior to execution of the contract which modify or interpret the project manual by addition, deletion, clarification, or corrections.

Bid. Offer of a bidder submitted on the prescribed form setting forth the price or prices of the work to be performed.

Bidder. Individual, partnership, corporation, or a combination thereof, including joint venturers, offering a bid to perform the work.

City of Crescent City. To be considered the same as "Owner", refer to "Owner".

Construction Manager. The person designated, in writing, by the Owner to act as its representative at the construction site and to perform construction inspection services and administrative functions relating to this contract. Initial contact by the Contractor with the Owner will be through the Construction Manager.

Contract. The writings and drawings embodying the legally binding obligations between the Owner and the Contractor for completion of the work. The contract includes the following documents:

Project Manual	Special Conditions	Notice of Award
Invitation to Bid	Specifications	Notice to Proceed
Information for Bidders	Contract Drawings	Change Orders
Bid Proposal	Addenda	Directives
General Conditions	Bonds	Design Brief
Supplementary Conditions	Agreement	

Contract Drawings. The drawings included in the project manual plus those prepared by the Owner and the Contractor pursuant to the terms of the contract. They include:

1. Drawings in Part C of the project manual.
2. Modifying drawings issued by addenda.
3. Drawings submitted by the Contractor during the progress of the work and accepted by the Owner either as attachments to change orders or as non-modifying supplements to drawings in Part C and drawings issued by addenda.
4. Drawings submitted by the Owner to the Contractor during the progress of the work either as attachments to the change orders or as explanatory supplements to drawings in Part C and drawings issued by addenda.

Contract Price. Amount payable to the Contractor under the terms and conditions of the contract based on the price given on the bidding schedule, with adjustments made in accordance with the contract. The base amount given in the bidding schedule must be either a lump sum bid or the summation of the unit price bids multiplied by the estimated quantities set forth in the bid form.

Contract Time. Number of calendar days stated in the contract for the completion of the work or portions thereof.

Contractor. The individual, partnership, corporation, or combination thereof, including joint venturers who enter into the contract with the Owner for the performance of the work. The term covers subcontractors, equipment and material suppliers, and their employees.

Contractor's Plant and Equipment. Equipment, material, supplies, and all other items, except labor, brought onto the site by the Contractor to carry out the work, but not to be incorporated in the work.

Day. Calendar day.

Department. Department of Housing and Community Development.

Design Professional. Professional Engineer licensed to practice in the State of California retained by the Contractor.

Direct. Action of the Owner or Construction Manager by which the Contractor is ordered to perform or refrain from performing work under the contract.

Directive. Written documentation of the actions of the Owner or Construction Manager in directing the Contractor.

Equipment. Mechanical, electrical, instrumentation, or other device with one or more moving parts, or devices requiring an electrical, pneumatic, electronic, or hydraulic connection.

Furnish. To deliver to the job site or other specified location any item, equipment or material.

Herein. Refers to information presented in the project manual.

Holidays. Legal holidays designated by the state or specifically identified in the supplementary conditions.

Install. Placing, erecting, or constructing complete in place any item, equipment, or material.

May. Refers to permissive actions.

Owner. A public or quasi-public agency or authority, corporation, association, partnership, or individual for whom the work is to be performed. Under this contract, the Owner is identified by name in the agreement.

Owner's Representative. The person other than the Construction Manager designated in writing by the Owner to act as its agent on matters relating to this contract.

Paragraph. For reference or citation purposes, paragraph shall refer to the paragraph, or paragraphs, called out by section number and alphanumeric designator. For example, this definition is found in paragraph 00 72 00-1.01; permits and licenses are discussed in paragraph 00 72 00-1.05 B.

Person. The term, person, includes firms, companies, corporations, partnerships, and joint ventures.

Project. The undertaking to be performed under the provisions of the contract.

Project Manual. Those contract documents prepared for bidding and as amended by addenda.

Provide. Furnish and install, complete in place.

Punch List. List of incomplete items of work and of items of work that are not in conformance with the contract. The list will be prepared by the Construction Manager when the Contractor (1) notifies the Construction Manager in writing that the work has been completed in accordance with the contract and (2) requests in writing that the Owner accept the work.

Shall. Refers to actions by either the Contractor or the Owner and means the Contractor or Owner has entered into a covenant with the other party to do or perform the action.

Shown. Refers to information presented on the drawings, with or without reference to the drawings.

Specifications. That part of the contract documents consisting of written descriptions of the technical features of materials, equipment, construction systems, standards, and workmanship.

Specify. Refers to information described, shown, noted or presented in any manner in any part of the contract.

Submittals. The information which is specified for submission to the Construction Manager in accordance with Division 1 of the project manual.

Substantial Completion. Sufficient completion of the project or the portion thereof to permit utilization of the project, or portion thereof for its intended purpose. Substantial completion requires not only that the work be sufficiently completed to permit utilization, but that the Owner can effectively utilize the substantially completed work. Determination of substantial completion is solely at the discretion of the Owner. Substantial completion does not mean complete in accordance with the contract nor shall substantial completion of all or any part of the project entitle the Contractor to acceptance under the contract.

Substantial Completion Date. Date when the Owner puts into service the project, or that portion of the project that has been determined to be substantially complete.

Will. Refers to actions entered into by the Contractor or the Owner as a covenant with the other party to do or to perform the action.

Work. The labor, materials, equipment, supplies, services, and other items necessary for the execution, completion and fulfillment of the contract.

Working Day. Refers to definition as outlined in Section 8-1.06 of the State of California, Department of Transportation, Standard Specifications, 2006 edition.

1.02 JOINT VENTURE CONTRACTOR

If Contractor is a joint venture of two or more contractors, the grants, covenants, provisos and claims, rights, power, privileges and liabilities of the contract are joint and several. Any notice, order, direct request or any communication required to be or that may be given by the Owner or the Construction Manager to the Contractor under this contract, is sufficiently given to all persons in the joint-venture Contractor if it is given to any one or more of such persons. Any notice, request or other communication given by any one of such persons to the Owner or the Construction Manager under this contract is deemed to have been given by and binds all persons in the joint-venture Contractor.

1.03 CONTRACT REQUIREMENTS

A. SUCCESSORS' OBLIGATIONS:

The grants, covenants, provisos and claims, rights, powers, privileges and liabilities obtained in the contract documents must be read and held as made by and with, and granted to and imposed upon, the Contractor and the Owner and their respective heirs, executors, administrators, successors, and assigns.

B. ASSIGNMENT OF CONTRACT:

The contract must not be assigned in whole or in part without the written consent of the Owner. Involuntary assignment of the contract as caused by the Contractor being adjudged bankrupt, assignment of the contract for the benefit of Contractor's creditors or appointment of a receiver on account of Contractor's insolvency is considered as failure to comply with the provisions of the contract and subject to the termination provisions contained herein.

C. WAIVER OF RIGHTS:

Except as herein provided, no action or want of action on the part of the Contractor, Owner, Owner's Representative, or Construction Manager at any time with respect to the exercise of any right or remedies conferred upon them under this contract is a waiver on the part of the Contractor and Owner of any of their rights or remedies. No waiver is effective except in writing by the party to be charged. No waiver of one right or remedy acts as a waiver of any other right or remedy or as a subsequent waiver of the same right or remedy.

D. OFFER OF ASSIGNMENT OF ANTITRUST ACTIONS:

As provided by Sections 4550 and 4551 of the Government Code, in entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or subcontractor offers and agrees to assign to the awarding body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment is effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

E. AMENDMENT OF GENERAL CONDITIONS:

These general conditions may be amended only by mutual consent of the Owner and the Contractor in writing.

1.04 LABOR STANDARDS

A. WAGES:

1. GENERAL: The Contractor and each subcontractor engaged in the work must pay each employee an amount not less than the rate established for each trade or occupation listed by the Director of the Department of Industrial Relations, State of California, or the Secretary of Labor, whichever is greater. An employee whose type of work is not covered by any of the classified wage rates must be paid not less than the rate of wage listed for the classification which most nearly corresponds to the type of work to be performed.

2. STATE: The Contractor is directed to the Department of Industrial Relations website for the general prevailing rate of wages in the vicinity of the work to be performed under this contract.

The Contractor must forfeit, as penalty, to the Owner twenty-five dollars (\$25.00) for each laborer, worker, or mechanic employed for each calendar day or portion thereof such laborer, worker, or mechanic is paid less than the general prevailing rate of wages for any work done under this contract, by him or by a subcontractor under him, in violation of the provisions of the California Labor Code, and, in particular, Sections 1770 and 1780 thereof.

B. PREFERENCE FOR RESIDENT LABOR:

In the employment of labor for performance of the work, the Contractor must give preference to qualified persons residing within the general area of the work.

C. HOURS OF LABOR:

Pursuant to the California Labor Code, eight hours of labor constitutes a legal day's work. The Contractor or any subcontractor may not require any more than eight hours of labor in a day from any person employed in the performance of the work under this contract. Failure of the Contractor to perform the work in accordance with this policy of the State of California is a failure on his part to comply with the provisions of this contract.

D. OVERTIME WORK:

Overtime and shift work may be established as a regular procedure by the Contractor with reasonable notice and written permission of the Owner. No work other than overtime and shift work established as a regular procedure will be performed between the hours of 6:00 p.m. and 7:00 a.m. nor on Saturdays, Sundays or holidays except such work as is necessary for the proper care and protection of the work already performed or in case of an emergency.

Contractor agrees to pay the costs of overtime inspection except those occurring as a result of overtime and shift work established as a regular procedure. Overtime inspection includes inspection required during holidays, Saturdays, Sundays and weekdays between the hours of 6:00 p.m. and 7:00 a.m. Costs of overtime inspection will cover engineering, inspection, general supervision and overhead expenses that are directly chargeable to the overtime work. Contractor agrees that Owner will deduct such charges from payments due the Contractor.

E. APPRENTICES:

The Contractor and subcontractors under him must comply with the requirements of Sections 1777.5 and 1777.6 of the Labor Code in the employment of apprentices.

Information relative to apprenticeship standards, wage schedules, and other requirements may be obtained from the Director of Industrial Relations, ex-officio the Administrator of Apprenticeship, San Francisco, California, or from the Division of Apprenticeship Standards and its branch offices.

F. TRAVEL AND SUBSISTENCE PAY:

The Contractor and subcontractors under him must comply with the requirements of Section 1773.8 of the Labor Code in the payment of travel and subsistence payments to each workman needed to execute the work, as such travel and subsistence payments are defined in the applicable collective bargaining agreements filed in accordance with Section 1773.8.

1.05 LAWS, REGULATIONS AND PERMITS

A. GENERAL:

The Contractor must give the notices required by law and comply with all laws, ordinances, rules, and regulations pertaining to the conduct of the work. The Contractor is liable for violations of the law in connection with any work provided by the Contractor. If the Contractor observes that the drawings, specifications or other portions of the project manual are at variance with any laws, ordinances, rules or regulations, he must promptly notify the Construction Manager in writing of such variance. The Owner must promptly review the matter and, if necessary, issue a change

order or take any other action necessary to bring about compliance with the law, ordinance, rule or regulation in question. Contractor agrees not to perform work known to be contrary to any laws, ordinances, rules or regulations.

B. PERMITS AND LICENSES:

Unless otherwise specified herein, permits and licenses from governmental agencies that are necessary only for and during the prosecution of the work and the subsequent guarantee period must be secured and paid for by the Contractor. Permits and licenses of regulatory agencies that are necessary to be maintained after completion of the guarantee period must be secured and paid for by the Owner.

C. PATENTS AND ROYALTIES:

The costs involved in fees, royalties or claims for any patented invention, article, process or method that may be used upon or in a manner connected with the work under this contract or with the use of completed work by the Owner, must be paid by the Contractor. The Contractor and his or her sureties must protect and hold the Owner, the design engineer, and the Construction Manager, together with their officers, agents and employees, harmless from any and all loss, defense costs and expenses, including attorneys fees, and against any and all demands made for such fees or claims brought or made by the holder of any invention or patent. Before final payment is made on the account of this contract, the Contractor must, if requested by the Owner, furnish acceptable proof of a valid release from all such fees or claims.

Should the Contractor, his or her agent, employee or any of them be enjoined from furnishing or using any invention, article, material or plans supplied or required to be supplied or used under this contract, the Contractor must promptly pay such royalties and secure the requisite licenses; or, subject to acceptance by the Owner, substitute other articles, materials or appliances in lieu thereof which are of equal efficiency, quality, finish, suitability, and market value to those planned or required under the contract. Descriptive information of these substitutions must be submitted to the Construction Manager for determination of general conformance to the design concept and the construction contract. Should the Owner elect to refuse the substitution, the Contractor agrees to pay such royalties and secure such valid licenses as may be requisite for the Owner, his or her officers, agents and employees or any of them, to use such invention, article, material or appliance without being disturbed or in any way interfered with by any proceeding in law or equity arising from that use.

1.06 HEADINGS

Headings to parts, divisions, sections, paragraphs, subparagraphs and forms are inserted for convenience of reference only and do not affect the interpretation of the contract documents.

1.07 SUBCONTRACTS

The Contractor must perform with his or her own organization not less than one-half of the work and must not sublet to one subcontractor more than one-third of the work without the prior written consent of the Owner.

1.08 CONFLICT OF INTEREST

A. GENERAL:

If Contractor violates any provisions of the following Sections, such actions by the Contractor will render this Agreement void. (Public Contracts Code Section 10420).

B. CURRENT STATE EMPLOYEES: (Public Contracts Code Section 10410)

1. No officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any state agency, unless the employment, activity or enterprise is required as a condition of regular State employment.
2. No officer or employee shall contract on his or her own behalf as an independent contractor with any State agency to provide goods or services.

C. FORMER STATE EMPLOYEES: (Public Contracts Code Section 10411)

1. For the two-year period from the date he or she left State employment, no former state officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any State agency.
2. For the twelve-month period from the date he or she left State employment, no former State officer or employee may enter into a contract with any State agency if he or she was employed by the State agency in a policy-making position in the same general subject area as the proposed contract within the 12-month period prior to his or her leaving State service.

1.09 NON-DISCRIMINATION

Contractor, subcontractors, manufacturers and suppliers shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS, mental disability, medical condition (cancer), age (over 40), marital status, or request for pregnancy disability or family care leave. Contractor, subcontractors, manufacturers and suppliers shall ensure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment. Contractor, subcontractor, manufacturers and suppliers shall comply with the provisions of the Fair Employment and Housing Act (Government Code Section 12990 (a-f) et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations, are incorporated into this Agreement by reference and made a part hereof as if set forth in full. Contractor, subcontractors, manufacturers and suppliers shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other Agreement.

Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Agreement.

1.10 EQUAL OPPORTUNITY

A. The Civil Rights, Housing and Community Development, and Age Discrimination Act Assurances:

The Contractor, subcontractor, manufacturers and suppliers assures that no otherwise qualified person shall be excluded from participation or employment, denied program benefits, or be subjected to discrimination based on race, color, national origin, sex, age, handicap, religion, familial status, or religious preference, under any grant activity funded by this Agreement, as required by Title VI of the Civil Rights Act of 1964, Title I of the Housing and Community Development Act of 1974, as amended, the Age Discrimination Act of 1975, the Fair Housing Amendment Act of 1988, and all implementing regulations.

B. Rehabilitation Act of 1973 and the "504 Coordinator":

The Contractor, subcontractors, manufacturers and suppliers further agrees to implement the Rehabilitation Act of 1973, as amended, and its regulations, 24 CFR Part 8, including, but not limited to, for Contractors, subcontractors, manufacturers and suppliers with fifteen (15) or more permanent full or part time employees, the local designation for a specific person charged with local enforcement of this Act, as the "504 Coordinator."

PART 2--OWNER-CONTRACTOR RELATIONS

2.01 AUTHORITY OF OWNER

A. GENERAL:

The Owner, acting through the Owner's Representative and the Construction Manager, has the authority to act as the sole judge of the work and materials with respect to both quantity and quality as set forth in the contract. It is expressly stipulated that the drawings, specifications and other contract documents establish the requirements as to the nature of the completed work and, except in those instances where the nature of the completed work is dependent on the method of performance, do not purport to control the method of performing work.

B. AUTHORITY OF OWNER'S REPRESENTATIVE:

1. GENERAL: Except for those decisions expressly reserved to the City Council of the City of Crescent City, the Owner's Representative has the authority to act on behalf of the Owner on change orders, progress payments, contract decisions, and acceptability of the Contractor's work.

2. CHANGE ORDERS: Up to an aggregate limit of 10% of the Contract price, the Owner's Representative has the authority to accept or reject change orders proposed by either the Construction Manager or the Contractor.

3. PROGRESS PAYMENTS: The Owner's Representative has the authority to accept or reject requests for progress payments which have been submitted by the Contractor and recommended by the Construction Manager.

4. **CONTRACT DECISIONS:** Should the Contractor disagree with the Construction Manager's decision with respect to the contract, the Contractor may request that the Owner's Representative review the Construction Manager's decision and make a determination on behalf of the Owner in the manner provided under paragraph 00 72 00-2.05 F.2.

5. **ACCEPTABILITY OF WORK:** The Owner's Representative has the authority to make the initial determination of the acceptability of the work as provided under paragraph 00 72 00-7.05. The Owner's Representative also has the authority to accept or reject initially the Construction Manager's recommendations regarding retention of defective work as provided in paragraph 00 72 00-4.09 B. Each of these determinations is made subject to the authority of the City Council of the City of Crescent City.

6. **EARLY POSSESSION:** The Owner's Representative has the authority to take early possession in accordance with paragraph 00 72 00-7.06.

C. AUTHORITY OF CONSTRUCTION MANAGER:

1. **GENERAL:** The Construction Manager is the construction site representative of the Owner, employed to act as advisor and consultant to the Owner in construction matters related to the contract. The Owner has delegated his authority to the Construction Manager to make initial decisions regarding questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the manner of performance and rate of progress of the work under the contract. The Construction Manager interprets the intent and meaning of the contract and makes initial decisions with respect to the Contractor's fulfillment of the contract and the Contractor's entitlement to compensation. The Contractor must look initially to the Construction Manager in matters relating to the contract. The Construction Manager's decisions are subject to review by the Owner's Representative in accordance with paragraph 00 72 00-2.05 F.2.

2. **INSPECTION OF CONSTRUCTION:** The Construction Manager has access to the work and to the site of the work and to the places where work is being prepared or where materials, equipment, and machinery are being obtained for the work. If requested by the Construction Manager, the Contractor must provide the assistance necessary for obtaining such access, and must provide information related to the inspection of construction.

3. **CHANGE ORDERS:** The Construction Manager has the authority to initiate or recommend change orders. Change orders are subject to review and approval by the Owner.

D. USE OF CONTRACTOR'S PLANT AND EQUIPMENT:

Contractor agrees to make available to the Owner his plant and equipment for the performance of work at the project site. The Owner agrees that the use of such plant and equipment is extra work and will be paid for accordingly.

2.02 RESPONSIBILITIES OF OWNER

A. ATTENTION TO WORK:

The Owner will notify the Contractor in writing of the name of the Owner's Representative and of the Construction Manager. The Construction Manager normally will be at the site of the

work. During his absences, the Contractor may contact a previously designated representative of the Construction Manager.

B. OWNER'S EMPLOYEES:

The Owner is responsible for the adequacy, efficiency, and sufficiency of his employees and of any consultant, supplier or subcontractor employed by the Owner.

2.03 AUTHORITY OF CONTRACTOR

A. CONTRACTOR'S REPRESENTATIVE:

The Contractor must notify the Owner in writing of the name of the person who will act as the Contractor's representative and will have the authority to act in matters relating to this contract. This person must have authority to carry out the provisions of the contract and to supply materials, equipment, tools, and labor without delay for the performance of the work.

B. CONSTRUCTION PROCEDURES:

The Contractor will supervise and direct the work. He has the authority to determine the means, methods, techniques, sequences and procedures of construction, except in those instances where the Owner, to define the quality of an item of work, specifies in the contract, a means, method, technique, sequence or procedure for construction of that item of work.

C. SUBCONTRACTORS:

Subcontractors do not have a direct relationship with the Owner. The persons engaged in the work, including employees of subcontractors and suppliers, are considered employees of the Contractor and their work is subject to the provisions of the contract. References in the project manual to actions required of subcontractors, manufacturers, suppliers, or any person other than the Contractor, the Owner or the Construction Manager require the Contractor in turn to require that subcontractor, manufacturer, supplier or person to perform the specified action.

2.04 RESPONSIBILITIES OF CONTRACTOR

A. SUBCONTRACTORS, MANUFACTURERS AND SUPPLIERS:

The Contractor is responsible for the adequacy, efficiency and sufficiency of subcontractors, manufacturers, suppliers and their employees. The Contractor shall perform, with Contractor's own organization, contract work amounting to not less than 50 percent of the original total contract price.

B. CONTRACTOR'S EMPLOYEES:

The Contractor is responsible for the adequacy, efficiency, and sufficiency of his employees. Workers must have sufficient knowledge, skill, and experience to perform properly the work assigned to them.

C. PAYMENT FOR LABOR AND MATERIALS:

The Contractor must pay and require his subcontractors to pay any and all accounts for labor including Workers Compensation premiums, State Unemployment and Federal Social Security payments and other wage and salary deductions required by law. The Contractor also must pay and require his or her subcontractors to pay any and all accounts for services, equipment, and materials used by him and by his subcontractors during the performance of work under this contract. These accounts must be paid as they become due and payable. If requested by the Owner, the Contractor must furnish to the Owner proof of payment of these accounts.

D. ATTENTION TO WORK:

The Contractor, acting through his or her representative, must give personal attention to and manage the work so that it is prosecuted faithfully. When his or her representative is not personally present at the project site, his designated alternate must be available and have the authority to act on the contract.

E. EMPLOYEE SAFETY:

The Contractor alone is responsible for the safety of his or her own employees and his or her subcontractor's employees. The Contractor must maintain the project site and perform the work in a manner that meets the Owner's responsibility under statutory and common law for the provision of a safe place to work.

F. PUBLIC SAFETY AND CONVENIENCE:

The Contractor must conduct his or her work so as to insure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work. Work will be performed so as to insure the protection of persons and property. No road or street will be closed to the public except with the permission of the Construction Manager and the proper governmental authority. Fire hydrants on or adjacent to the work must be accessible to fire fighting equipment. Temporary provisions must be made by the Contractor to insure the use of sidewalks, private and public driveways and proper functioning of gutters, sewer inlets, drainage ditches and culverts, irrigation ditches, and natural water courses.

G. COOPERATION WITH CONSTRUCTION MANAGER:

The Contractor, when requested, must assist the Construction Manager in obtaining access to work which is to be inspected. The Contractor must provide the Construction Manager with information requested in connection with the inspection of the work.

H. RECORDS RETENTION

The Contractor shall retain all books, records, accounts, documentation, and all other materials relevant to this Agreement for a period of five (5) years from date of termination of this Agreement, or five (5) years from the conclusion or resolution of any and all audits or litigation relevant to this Agreement and any amendments, whichever is later.

I. WORK SITE SECURITY

The Owner has limited security at the area the work is to take place; therefore the Contractor shall not rely upon the Owner's security to protect the work site from theft or vandalism. The Contractor is responsible for providing necessary security measures to prevent theft or

vandalism of material and equipment stored on site, work that has been completed, and work that is in the process of being completed. The Contractor shall repair or replace any damage or theft that occurs throughout the course of the work at no additional cost to the Owner.

J. CONTRACTOR AND SUBCONTRACTORS DAILY WORK REPORTS

The Contractor shall submit a daily report to the Construction Manager at the end of each shift worked. Daily reports shall include the following:

1. List all personnel working on the project and their classification,
2. Equipment utilized,
3. Shift and hours worked,
4. Accident report(s) if applicable,
5. Material/Equipment deliveries,
6. Production report covering day's activities.

K. SALES AND USE TAX REQUIREMENTS

During the performance of this Agreement, Contractor, for itself, its assignees and successors in interest, must:

1. **USE TAX DIRECT PAYMENT PERMIT:** For all leases and purchases of materials, equipment, supplies or other tangible property used to perform the Contract and shipped from outside California, the Contractor and any subcontractor leasing or purchasing the materials, equipment, supplies or other tangible personal property must obtain a Use Tax Direct Payment Permit from the California State Board of Equalization (SBE) in accordance with the applicable SBE criteria and requirements.

2. **SELLER'S PERMIT:** Contractor and any construction subcontractor whose subcontract is for \$5,000,000 or more must elect to allocate the local sales and use tax derived from the Contract directly to the local jurisdiction (Del Norte County) where the jobsite is located. For this purpose, the Contractor and such subcontractors must obtain a seller's permit or a sub-permit of their seller's permit for the specific jobsite and allocate the local tax to the jobsite on Schedule C of their sales and use tax return.

2.05 OWNER-CONTRACTOR COORDINATION

A. SERVICE OF NOTICE:

Notice, order, direction, request or other communication given by the Construction Manager or Owner to the Contractor is well and sufficiently given to the Contractor if left at any office used by the Contractor or delivered to any of his officers, clerks or employees or posted at the site of the work or mailed to the Contractor at the address given in the contract document or mailed to the Contractor's last known place of business. If mailed by first-class mail, any form of communication is deemed to have been given to and received by the Contractor a day after the day of mailing.

B. SUGGESTIONS TO CONTRACTOR:

A plan or method of work suggested by the Owner or the Construction Manager to the Contractor but not specified or required, if adopted or followed by the Contractor in whole or in part, is used at the risk and responsibility of the Contractor. The Owner and the Construction Manager

assume no responsibility for the decision to use that plan or method of work and they are not liable for any defects in the work that result from or are caused by use of such plan or method of work.

C. COOPERATION:

The Contractor agrees to permit entry to the site of the work by the Owner or other contractors performing work on behalf of the Owner. The Contractor must afford to the Owner and other contractors and their employees, reasonable facilities and cooperation and must arrange his or her work and dispose of his or her materials so as not to interfere with the activities of the Owner or of others upon the site of the work. The Contractor must promptly make good any injury or damage that may be sustained by other contractors or employees of the Owner at his or her hands. The Contractor must join his work to that of others and perform his work in proper sequence in relation to that of others.

If requested by the Contractor, the Owner will arrange meetings with other contractors performing work on behalf of the Owner to plan coordination of construction activities. The Owner must keep the Contractor informed of the planned activities of other contractors.

Differences or conflicts arising between the Contractor and other contractors employed by the Owner or between the Contractor and the workers of the Owner with regard to their work must be submitted to the Construction Manager for his decision in the matter. If the work of the Contractor is affected or delayed because of any act or omission of other contractors or of the Owner, the Contractor may submit for the Owner's consideration, a documented request for a change order.

D. DEVIATION FROM CONTRACT:

Neither the Contractor nor the Owner may make an alteration or variation in, addition to, or deviation or omission from the terms of this contract without the written consent of the other party.

E. DIFFERING SITE CONDITIONS:

Pursuant to Public Contract Code Section 7104, the Contractor shall promptly, and before such conditions are disturbed, notify the Owner in writing of:

1. Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law.
2. Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids
3. Unknown physical conditions at the site of an unusual nature, differing materially from those both ordinarily encountered and generally recognized as inhering in work of the character provided for in this contract.

The Owner shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the contractor's cost of, or the time required for, performance of any part of the work under this

contract, whether or not the work is changed as a result of such conditions, an equitable adjustment will be made and the contract modified in writing accordingly.

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

No claim by the Contractor under this clause is allowed unless the Contractor has given the notice required, except that the Owner may extend the prescribed time.

No claim by the Contractor for an equitable adjustment under this clause will be allowed if it is asserted after final payment under this contract.

F. CLAIMS:

1. DETERMINATION BY CONSTRUCTION MANAGER: Questions regarding the meaning and intent of the contract documents must be referred by the Contractor in writing to the Construction Manager for his decision. The Construction Manager must respond to the Contractor in writing with his decision. If the Contractor disagrees with the Construction Manager's decision or considers that the decision requires extra work, he must, within five calendar days, notify the Construction Manager in writing of the disagreement or of the claimed extra work involved and of the estimated cost of said work.

2. APPEALS TO THE OWNER'S REPRESENTATIVE: In the event the Contractor disagrees with any determination or decision of the Construction Manager, the Contractor may, within 15 calendar days of the date of such determination or decision, appeal the determination or decision to the Owner's Representative. The Owner's Representative must review the appeal and transmit his decision in writing to the Contractor within 30 calendar days from the receipt of the appeal. Any failure of the Contractor to appeal the decision or the determination of the Construction Manager within the 15-day period is a waiver of the Contractor's right thereafter to assert a claim resulting from such determination or decision.

3. ARBITRATION: All claims, counterclaims, disputes and other matters in question between the Owner and the Contractor that are not resolved between the Owner's Representative and the Contractor will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the state in which the Owner is located.

PART 3--SPECIFICATIONS AND DRAWINGS

3.01 INTERPRETATION OF SPECIFICATIONS AND DRAWINGS

A. GENERAL:

The specifications and drawings are intended to be explanatory of each other. Work specified on the drawings and not in the specifications, or vice versa, must be executed as if it were specified in both.

B. REQUEST FOR CLARIFICATION:

In the event the work to be done or matters related to the work are not sufficiently detailed or explained in the contract documents, the Contractor must apply to the Construction Manager for further explanations as may be necessary and must conform thereto so far as may be consistent with the terms of the contract. In the event of doubt or question arising respecting the true meaning of the specifications or drawings, reference must be made to the Construction Manager for his decision. Should the Contractor disagree with the Construction Manager's decision, he may appeal to the Owner's Representative in accordance with paragraph 00 72 00-2.05 F.2.

3.02 DIVISION OF SPECIFICATIONS AND DRAWINGS

Specifications and drawings are divided into groups for the convenience of the Owner and Construction Manager. These divisions are not for the purpose of apportioning work or responsibility for work among subcontractors, suppliers and manufacturers.

3.03 DISCREPANCIES IN SPECIFICATIONS AND DRAWINGS

A. ERRORS AND OMISSIONS:

If the Contractor, in the course of the work, becomes aware of any claimed errors or omissions in the contract documents or in the Owner's field work, he must immediately inform the Construction Manager in writing. The Construction Manager must promptly review the matter and if he finds an error or omission has been made, he must determine the corrective actions and advise the Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of work called for in the contract, the Owner must issue an appropriate change order. After discovery of an error or omission by the Contractor, related work performed by the Contractor is done at his risk unless authorized by the Construction Manager. In the event the Contractor disagrees with the determination of the Construction Manager under this provision, he may appeal to the Owner's Representative in accordance with paragraph 00 72 00-2.05 F.2.

B. CONFLICTING PROVISIONS:

In cases of conflict between the specifications and drawings, the more stringent governs. Figure dimensions on drawings govern over scale dimensions and detail drawings govern over general drawings. In the event an item of work is described differently in two or more locations on the drawings and in the specifications, the Contractor must request a clarification from the Construction Manager.

C. UTILITIES:

The Owner has endeavored to determine the existence of utilities at the site of the work from the records of the owners of known utilities in the vicinity of the work. The positions of these utilities as derived from such records are shown on the drawings. No excavations were made to verify the locations shown for underground utilities. The service connections to these utilities are not shown on the drawings. It is the responsibility of the Contractor to determine the exact location of utilities and service connections thereto. The Contractor must make his own investigations, including exploratory excavations, to determine the locations and type of existing utilities, including service connections, prior to commencing any work that could result in damage to those utilities.

The Contractor must immediately notify the Construction Manager as to any utility discovered by him in a different position than shown on the drawings or that is not shown on the drawings.

Work on utilities must be performed and paid for as follows:

1. Known utilities. The Contractor must provide all labor, equipment, materials, and services necessary to remove, relocate or maintain utilities specified on the drawings. The work on each utility must be performed in a manner satisfactory to the utility owner. The utility owner has the option of doing such work with his own forces at the Contractor's expense, or permitting the work to be performed by the Contractor.
2. Service connections. Locations of service connections are not specified on the drawings. The Contractor must provide all labor, equipment and material to remove, relocate or maintain service connections. The work on service connections must be performed in a manner satisfactory to the service connection owner. The service connection owner has the option of doing such work with his own forces at the Contractor's expense, or permitting the work to be performed by the Contractor.
3. Unknown utilities. When a utility is not specified on the drawings, or it is located in a position different from that specified on the drawings, and interferes with the work, a change order based on changed site conditions will be issued in accordance with paragraph 00 72 00-7.02. Interference with the work is defined as a utility that crosses or projects into the plane of the work at an elevation between the top and bottom of the work. If it is necessary to remove, relocate, or temporarily maintain the utility, that work shall be included in the change order. The utility owner has the option of doing such work at the Contractor's expense, or permitting the work to be performed by the Contractor. In either case, the cost of the work will be included in the change order.

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

The right is reserved to governmental agencies and to owners of utilities to enter upon streets, alleys, rights-of-way or easements for the purpose of making changes in their property made necessary by the work and for the purpose of maintaining and making repairs to their property.

3.04 SUBMITTALS

Where required by the specifications, the Contractor must submit specified information that will enable the Construction Manager to advise the Owner whether the Contractor's proposed materials, equipment or methods of work are in general conformance to the design concept and in compliance with the drawings and specifications. The requirements for submittals are specified in Part B. Digital submittals are required.

3.05 CONTRACTOR'S COPIES OF PROJECT MANUALS

Within 10 days after notice to proceed, the Owner will furnish to the Contractor 4 sets of project manuals including half-size drawings, and 2 sets of full-size drawings. The Contractor is advised that revisions incorporating changes by addenda will not be incorporated into the reduced or full-size drawings furnished under the provisions of this paragraph. Additional copies of the project manual, if required by the Contractor, will be furnished by the Owner at cost. The Contractor must keep at the construction site at least one set of the project manual and one set of full-size drawings.

PART 4--MATERIAL, EQUIPMENT AND WORKMANSHIP

4.01 GENERAL

Unless otherwise specifically stated in the contract documents, the Contractor must provide and pay for materials, labor, tools, equipment, water, light, power, transportation, supervision, and temporary construction of any nature, and other services, and facilities of any nature, to execute, complete and deliver the work within the specified time. Material and equipment must be new and of a quality at least equal to that specified. Equipment offered must be current modifications which have been in successful regular operation under comparable conditions. This requirement does not apply to minor details, nor to thoroughly demonstrated improvements in design or in materials of construction. All construction work must be executed in conformity with the standard practice of the relevant trade.

4.02 PRODUCT DATA

Where required by the specifications, the Contractor must provide product data, which is a submittal furnished for information only. The information and data furnished is required by the Owner for inspecting, testing, operating and maintaining parts of the work. The requirements for product data are specified in Part B.

4.03 QUALITY

Where the contract requires that materials or equipment be provided or that construction work be performed, and detailed specifications of such materials, equipment or construction work are not set forth, the Contractor must perform the work using materials and equipment of the best grade in quality and workmanship obtainable in the market, from firms of established good reputations, and must follow standard practices in the performance of construction work. The work performed must be in conformity and harmony with the intent to secure the highest standard of construction and equipment of work as a whole and in part.

4.04 MATERIAL AND EQUIPMENT SPECIFIED BY NAME

When material or equipment is specified by reference to two or more patents, brand names, or catalog numbers, it is understood that this is referenced for the purpose of defining the performance or other salient requirements, and that other materials or equipment, of equal capacities, quality and function will be considered by the Owner upon the Contractor's request for substitution. Requests for substitution must be made in accordance with paragraph 00 72 00-4.05.

4.05 REQUESTS FOR SUBSTITUTION

The Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified. The Owner will consider offers for substitution only from the Contractor and will not acknowledge or consider such offers from suppliers, distributors, manufacturers, or subcontractors. The Contractor's offers of substitution must be made in writing to the Construction Manager and must include sufficient data to enable the Construction Manager to assess the acceptability of the material or equipment for the particular application and requirements.

If the offered substitution necessitates changes to or coordination with other portions of the work, the data submitted must include drawings and details showing such changes. Contractor agrees to perform these changes as part of the substitution of material or equipment at no additional cost to the Owner. Within 30 calendar days after receipt of the offer of substitution, the Construction Manager will review the material submitted by the Contractor and advise the Contractor of objections, if any, to the proposed substitution or if further information is required. Upon notification by the Construction Manager, the Contractor must either provide material or equipment that complies with project specifications or if requested, furnish additional information. Although the Construction Manager may not take any objections to the proposed substitution, that will not relieve the Contractor from responsibility for the efficiency, sufficiency, quality and performance of the substitute material or equipment, in the same manner and degree as the material and equipment specified by name. Any cost difference associated with a substitution must be reflected in the offer and the contract documents must be modified by a change order.

4.06 DEMONSTRATION OF COMPLIANCE WITH CONTRACT REQUIREMENTS

A. INSPECTION:

To demonstrate his or her compliance with the contract requirements, the Contractor must assist the Construction Manager in his or her performance of inspection work. The Contractor must grant the Construction Manager access to the work and to the site of the work, and to the places where work is being prepared, or whence materials, equipment or machinery are being obtained for the work. The Contractor must provide information requested by the Construction Manager in connection with inspection work.

If the contract documents, laws, ordinances, or any public regulatory authority require parts of the work to be specially inspected, tested or approved, the Contractor will give the Construction Manager adequate prior written notice of the availability of the subject work for examination.

If parts of the work are covered in contravention of the Construction Manager's directive, the cost of exposing the work for inspection and closing must be borne by the Contractor regardless of whether or not the work is found to be in compliance with the contract.

If any work is covered in the absence of the Construction Manager's directive to the contrary, the Contractor must, if directed to do so by the Construction Manager, uncover, expose or otherwise make available for inspection, portions of covered work. If it is found that such work is defective, the Contractor must bear the expense of uncovering and reconstructing. If the work is found to be in compliance with the contract, the Contractor will be allowed an increase in the contract price, or an extension in the contract time, or both. A change order will be issued to document the increase, extension or both.

B. SAMPLES OF MATERIALS:

In cases where compliance with contract requirements for materials to be incorporated in the work requires laboratory examination or special testing, the Contractor must provide samples or specimens as requested by the Construction Manager. Such samples or specimens must be provided in ample time to permit making proper test analysis and examinations before incorporating the material into the work. Tests of material will be conducted in accordance with the technical specifications. In the absence of a specific test requirement, the Construction Manager will determine the appropriate standard test to be used.

C. CERTIFICATION:

In cases where compliance of materials or equipment to contract requirements is not readily determinable through inspection and tests, the Construction Manager will request that the Contractor provide properly authenticated documents, certificates or other satisfactory proof of compliance. These documents, certifications, and proofs must include performance characteristics, materials of construction and the physical or chemical characteristics of materials.

D. INSPECTION AT POINT OF MANUFACTURING:

If Owner's inspection and testing of materials or equipment in the vicinity of the work is not practicable, the specifications may require that the inspection and testing or witnessing of tests take place at the point of manufacture. In this case and in the event the remote inspection and testing is not specified and is requested by the Owner, the required travel, subsistence, and labor expenses will be paid by the Owner. If the Contractor requests the Owner to inspect and test material or equipment at the point of manufacture, then the additional cost to the Owner for travel, subsistence, and labor expenses must be paid by the Contractor.

4.07 STORAGE OF MATERIALS AND EQUIPMENT

Materials and equipment must be stored so as to insure the preservation of their quality and fitness for the work. Stored equipment and materials must be located so as to facilitate inspection. The Contractor is responsible for damages that occur in connection with the care and protection of materials and equipment until final acceptance of the work.

4.08 MANUFACTURER'S DIRECTIONS

Manufactured articles and materials and equipment must be applied, installed, connected, erected, adjusted, tested, operated and maintained as recommended by the manufacturer, unless otherwise specified. Manufacturer's installation instructions and procedures must be provided or obtained prior to installation of the manufactured articles, material, and equipment.

4.09 DEFECTIVE WORK

A. CORRECTION OF DEFECTIVE WORK:

When, and as often as the Construction Manager determines through his or her inspection procedures to be the case, material, equipment or workmanship incorporated in the project do not meet the requirements of the contract, the Construction Manager will give written notice of the noncompliance to the Contractor. Within five days from the receipt of the notice, the Contractor must undertake the work necessary to correct the deficiencies, and to comply with the contract. If

the Contractor disagrees with the Construction Manager's determination and believes that the corrective work should be covered by a change order, he or she must immediately notify the Owner's Representative, in writing, setting forth his position. Within five days after receipt of the Contractor's notification, the Owner's Representative will review the matter and notify the Contractor, in writing, of his determination. If the Owner's Representative determines that the corrective work is required to comply with the contract, the Contractor must proceed with that work. As a condition precedent to the Contractor's request for either additional compensation or time extension, or both, resulting from the performance of the corrective work, the Contractor must, within 15 calendar days after receipt of the Owner's Representative's determination, notify the Owner's Representative in writing of his intent to claim additional compensation, time or both. The Contractor must document the cost information associated with the corrective work with daily records in accordance with paragraph 00 72 00-7.02 F and provide that information to the Construction Manager monthly. Receipt of the cost data by the Construction Manager will not be construed to be an acceptance of the corrective work, or an authorization for a change order to cover the corrective work.

B. RETENTION OF DEFECTIVE WORK:

Prior to acceptance of the project, the Owner may, at his option, retain work which is not in compliance with the contract if the Owner determines that such defective work is not of sufficient magnitude or importance to make the work dangerous or undesirable. The Owner also may retain defective work, if, in the opinion of the Construction Manager, and with concurrence of the Owner's Representative, removal of that work is impractical or will create conditions that are dangerous or undesirable. Just and reasonable value for such defective work will be judged by the Owner and appropriate deductions will be made in the payments due, or to become due to the Contractor. Final acceptance does not act as a waiver of the Owner's right to recover from the Contractor an amount representing the deduction for retention of defective work.

4.10 GUARANTEE

The guarantee period is 365 days from the Notice of Completion. During the guarantee period, the Contractor must, upon the receipt of notice in writing from the Owner, promptly make all repairs arising out of defective materials, workmanship or equipment. The Owner is hereby authorized to make such repairs, if ten days after giving of such notice to the Contractor, the Contractor has failed to make or undertake the repairs with due diligence. In case of an emergency where, in the opinion of the Owner, delay could cause serious loss or damage, repairs may be made without notice to the Contractor and the expenses in connection with those repairs are chargeable to the Contractor.

For the purpose of this paragraph, "acceptance of the work" means the acceptance of the project by the Owner, in accordance with paragraph 00 72 00-7.07. "Acceptance of the work" does not extinguish any covenant or agreement on the part of the Contractor to be performed or fulfilled under this contract that has not, in fact, been performed or fulfilled at the time of such acceptance. All covenants and agreements continue to be binding on the Contractor until they have been fulfilled.

The Owner and the Contractor agree that guarantee on the equipment possessed and used by the Owner in accordance with paragraph 00 72 00-7.06 will commence on the date that the Owner takes possession of the equipment and so notifies the Contractor in writing. Owner and Contractor further agree that such taking possession and use may not be deemed as substantial completion or acceptance of any part of the work. Takeover of equipment will be at the Owner's

option and will not be made until the equipment can be put into routine service on a permanent basis.

PART 5--LIABILITY AND INSURANCE

5.01 LIABILITY OF CONTRACTOR

The Contractor is liable for any and all losses or damages from whatever cause that, prior to final acceptance, may occur on or to any part of the work. The Contractor is not liable for losses or damages caused solely by the act of the Owner.

The Contractor is liable for damages and injury to persons owning property, on or in the vicinity of the work, or which occur to a person, persons or any property whatsoever, arising out of the Contractor's performance of this contract. The Contractor's liability is not dependent upon whether or not such damage or injury be caused by the negligence of the Contractor, and whether or not such damage or injury is caused by the inherent nature of the work as specified.

The Contractor must indemnify and hold the Owner, the Construction Manager, the design engineer, and their officers, principals, agents, subcontractors, and employees, harmless from any and all loss, defense cost, expense, claims, demand or liability whatsoever, arising from allegations of injuries to persons or damage to property related to the performance of this contract, regardless of concurrent negligence on the part of such indemnitees. This indemnification obligation is not limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers compensation acts, disability benefit acts, or another employee benefit act.

In case any suit or legal proceeding is brought against the Owner, the Construction Manager, the design engineer, or their officers, principals, agents, subcontractors, or employees, on account of loss or damage sustained by a person, or persons, or property, as a result of the performance of the work covered by this contract, the Contractor agrees to assume the cost of defense of that action, and to pay the expenses connected therewith, and the judgments that may be obtained against the Owner, the Construction Manager, the design engineer, or their officers, principals, agents, subcontractors, or employees, in such suits. In the event that a lien is placed against the property of the Owner, the Construction Manager, the design engineer, or their officers, principals, agents, subcontractors, or employees, as a result of such suits, the Contractor agrees immediately to cause the same to be dissolved and discharged by giving bond or otherwise. This agreement to defend and to pay the related expenses exists whether or not the alleged injuries or damage are due to the negligence of the Contractor, and whether or not the alleged injuries or damage are caused by the inherent nature of the work, as specified.

The mention of specific duties or liabilities imposed on the Contractor are not a limitation or restriction of general duties or liabilities imposed upon the Contractor by the contract. Reference to specific duties or liabilities is made herein, merely for the purpose of explanation.

5.02 BONDS

The Contractor must provide two bonds, each in the amount of 100 percent of the contract price. One bond will serve as security for the faithful performance of the work and the other as security for the faithful payment and satisfaction of the persons furnishing materials and performing

labor on the work. The bonds must be issued by a corporation duly and legally licensed to transact surety business in the State of California. The two bonds must remain in force throughout the period required to complete the work, and thereafter for a period of 365 calendar days after final acceptance of the work. The bonds must be executed by a duly licensed surety company that is listed in the latest Circular 570 of the United States Treasury Department as being acceptable as surety on federal bonds. No surety's liability on the bonds may exceed the underwriting limitations for the respective surety specified in Circular 570. The scope of the bonds or the forms thereof prescribed in these contract documents in Sections 00 61 05 and 00 61 10 in no way affect or alter the liabilities of the Contractor to the Owner.

5.03 INSURANCE

A. GENERAL:

1. EVIDENCE OF INSURANCE: Prior to execution of the contract, the Contractor must file, with the Owner, evidences of insurance from the insurer, certifying to the coverage of the insurance required herein. The evidences of insurance must be certified by a properly authorized officer, agent, general agent or qualified representative of the insurer, and must certify the names of the insured, the type and amount of insurance, the location and operations to which the insurance applies, and the expiration date. The evidences must include the agreement of the insurer to give, by registered mail, notice to the Owner at least 30 calendar days prior to the effective date of cancellation, lapse, or material change in the policy.

This Certificate of Insurance is not an insurance policy and does not amend, extend or alter the coverage afforded by the policies listed herein. Notwithstanding any requirement, term, or condition of the contract with respect to which this certificate is issued, the insurance afforded by the policies described herein is subject to the terms, exclusions, and conditions of such policies.

2. CANCELLATION OF INSURANCE: The Contractor must deliver to the Owner policies of insurance and the receipts for payment of premiums thereon. Should the Contractor neglect to obtain and maintain in force such insurance, and deliver such policy or policies and receipts to the Owner, then Owner may obtain and maintain such insurance. The Contractor hereby appoints the Owner his true and lawful attorney, to do the things necessary for this purpose. Money expended by the Owner under the provisions of this paragraph for insurance premiums will be charged to the Contractor. Failure of the Owner to obtain such insurance in no way relieves the Contractor of his responsibilities under this contract.

B. PUBLIC LIABILITY:

The Contractor must provide public liability insurance covering bodily injury, in an amount of not less than a combined single limit of four million dollars (\$4,000,000) for one or more persons injured in each occurrence. This insurance must cover bodily injuries or death suffered, or alleged to have been suffered by any person or persons by reason of or in the course of operations under this contract, whether occurring by reason of acts or omissions of the Contractor, or any subcontractor, or both. The required insurance must be maintained until final acceptance of the work and must include completed-operations and products-liability insurance, with aggregate limit in the amount specified above, and must continue for a period of 365 calendar days after final acceptance of the work.

The Contractor must provide property damage insurance in an amount of not less than a combined single limit of one million dollars (\$1,000,000) for property damaged in each occurrence.

The insurance must cover damages to property suffered or alleged to have been suffered, by person, or persons, by reason of, or in the course of, the operations under the contract, whether occurring by reason of acts or omissions of the Contractor or any subcontractor or both. The required insurance must be maintained until final acceptance of the work, and must include completed operations and products liability insurance, and must continue for a period of 365 calendar days after the final acceptance of the work.

The required liability insurance must indemnify the Contractor and his subcontractors against loss from liability, imposed by law upon or assumed under contract by the Contractor or his subcontractors, for damages on account of bodily injury and property damage. The insurance must also indemnify the Contractor and his subcontractors against losses related to completed operations and products. The insurance must be contained in a comprehensive, broad-form, occurrence, bodily injury and property damage liability policy written by licensed underwriters. The policies must cover operations, owned- and nonowned-vehicles and equipment, contractors' protective coverage blanket, contractual liability, and completed operations liability. The liability insurance must not exclude explosion, collapse, underground excavation, or removal of lateral support and must include cross liability. The Owner, the Construction Manager, the design engineer, and their officers, principals, agents, subcontractors, and employees must be named as insured on the liability policies.

C. WORKERS COMPENSATION INSURANCE:

The Contractor and each subcontractor must cover or insure under applicable laws relating to workers compensation or employers liability insurance, their employees, working on or about the construction site, regardless of whether such coverage or insurance is mandatory or merely elective under the law. The Contractor must defend, protect, save harmless the Owner from and against claims, suits and actions arising from failure of the Contractor or the subcontractors to maintain such insurance.

D. BUILDERS RISK:

Contractor must secure an all-risk type of builders risk insurance covering work performed under the contract and the materials, equipment or other items to be incorporated therein, while the same are located at the construction site, stored off site, or at the place of manufacture. The policy must cover not less than losses due to fire, flood, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke until the date of final acceptance of the work. The policy may exclude loss or damage caused by or resulting from errors in design or from the use of substandard materials or supplies used knowingly by or at the direction of the insured, but must not exclude results, physical loss, or damage to other property covered hereunder. Neither exclusion will apply in the event of fire, explosion, or acts of God. The maximum deductible allowable under this policy is \$50,000. The policies providing this insurance must name the Owner, the Construction Manager, the design engineer, and their subconsultants as additional insureds as their respective interests appear. The making of progress payments to the Contractor does not create an insurable interest by or for the Owner or relieve the Contractor or his subcontractors of responsibility for loss or direct physical loss, damage or destruction occurring prior to final acceptance.

Consistent with California Public Contracts Code, Section 7105, builders risk insurance is not required for coverage of losses in excess of five percent of the contract price for damages resulting from earthquakes in excess of magnitude of 3.5 on the Richter scale or from tidal waves.

Coverage in the amount of five percent of the contract price for such losses must be provided by the Contractor.

PART 6--PROGRESS AND COMPLETION

6.01 NOTICE TO PROCEED

After execution of the contract by the Owner, written notice to proceed will be given by the Owner to Contractor. Notwithstanding other provisions of the contract, the Contractor is not obligated to perform work and the Owner is not obligated to accept or pay for work performed by the Contractor prior to date of the notice to proceed. The Owner's knowledge of work being performed prior to date of the notice to proceed does not obligate the Owner to accept or pay for such work.

6.02 CONTRACT TIME

A. GENERAL:

Time is of the essence of the contract. The Contractor must promptly start the work after the date of the notice to proceed and must prosecute the work so that the project is complete within the time specified in Section 01 11 05. During periods when weather or other conditions are unfavorable for construction, the Contractor will pursue only such portions of the work as will not be damaged thereby. No portions of the work where acceptable quality or efficiency will be affected by unfavorable conditions may be constructed while those conditions exist. It is expressly understood and agreed by and between the Contractor and the Owner that the contract time for completion of the work is reasonable, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

B. CONSTRUCTION SCHEDULE:

The Contractor shall provide a construction schedule and reports for scheduling and coordinating the work within the contract time. Contract time extensions must be incorporated into updated schedules, reflecting their effect at the time of occurrence. Failure of the Contractor to comply with these requirements for submittal of the construction schedule and reports will be cause for delay in review of progress payments by the Construction Manager.

C. CONSTRUCTION PROGRESS:

The Contractor must furnish such manpower, materials, facilities, and equipment as may be necessary to insure the prosecution and completion of the work in accordance with the accepted schedule. If work falls behind the accepted construction schedule, the Contractor agrees that he or she will take some or all of the following actions to return the project to the accepted schedule. These actions may include the following:

1. Increase manpower in quantities and crafts;

2. Increase the number of working hours per shift, shifts per working day, working days per week, or the amount of equipment, or any combination of the foregoing; and/or
3. Reschedule activities.

If requested by the Construction Manager, the Contractor shall prepare a proposed schedule revision demonstrating a plan to make up the lag in progress and insure completion of the work within the contract time. The proposed revision must be submitted to the Construction Manager in accordance with Section 01 33 00. Upon receipt of an acceptable proposed schedule, the revision to the construction schedule will be made in accordance with paragraph 01 33 00-4. All actions to return the project to the accepted schedule are at the Contractor's expense.

The Contractor must pay all costs incurred by the Owner that result from the Contractor's action to return the project to its accepted schedule. Contractor agrees that Owner may deduct such charges from payments due the Contractor. It is further understood and agreed that none of the services performed by the Construction Manager in monitoring, reviewing, and reporting project status and progress operate to relieve the Contractor of responsibility for planning and managing construction work in conformance with the construction schedule.

D. DELAYS:

1. **NOTICE OF DELAYS:** When the Contractor foresees a delay in the prosecution of the work and, in any event, immediately upon the occurrence of a delay that the Contractor regards as unavoidable, he must notify the Construction Manager in writing of the probability of the occurrence of the delay, the extent of the delay, and its probable cause. The Contractor must take immediate steps to prevent, if possible, the occurrence or continuation of the delay. If this cannot be done, the Construction Manager must determine how long the delay is likely to continue and to what extent the prosecution and completion of the work are being delayed. The Contractor must also determine whether the delay is to be considered avoidable or unavoidable and notify the Contractor of his determination. The Contractor agrees that no claim is allowed for delays the causes of which are not called to the attention of the Construction Manager at the time of their occurrence or as soon thereafter as Contractor becomes aware of them.

2. **AVOIDABLE DELAYS:** Avoidable delays in the prosecution of the work include delays that could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or his subcontractors. Avoidable delays include:

- a. Delays which may in themselves be unavoidable but which affect only a portion of the work and do not necessarily prevent or delay the prosecution of other parts of the work nor the completion of the whole work within the contract time.
- b. Time associated with the reasonable interference of other contractors employed by the Owner which do not necessarily prevent the completion of the whole work within the contract time.

3. **UNAVOIDABLE DELAYS:** Unavoidable delays in the prosecution or completion of the work include delays that result from causes beyond the control of the Contractor and could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or his subcontractors. Delays in completion of the work of other contractors

employed by the Owner will be considered unavoidable delays insofar as they interfere with the Contractor's completion of the work. Delays due to normal weather conditions are not regarded as unavoidable because the Contractor agrees to plan his work with prudent allowances for interference by normal weather conditions. Delays caused by acts of God, fire, unusual storms, floods, tidal waves, earthquakes, strikes, labor disputes, freight embargoes and shortages of materials are considered unavoidable delays if they prevent the Contractor from proceeding with at least seventy-five percent (75%) of the normal labor and equipment force for at least five hours per day toward completion of the current controlling item on the accepted critical path schedule.

If abnormal conditions prevent the work from beginning at the usual starting time, or prevent the Contractor from proceeding with seventy-five percent (75%) of the normal labor and equipment force for a period of at least five hours per day, and the crew is dismissed as a direct consequence, Contractor will not be charged for a working day whether or not conditions change so that the major portion of the day could be considered to be suitable for work on the controlling item.

E. EXTENSION OF TIME:

1. **AVOIDABLE DELAYS:** If the work is not completed in the accepted construction schedule, including any extension of time that may have been granted for unavoidable delays, the Contractor will be assessed damages for those costs incurred by the Owner that are attributable to the fact that the work was not completed on schedule.

The Owner may grant an extension of time for avoidable delay if he deems it in his best interest. If the Owner grants an extension of time for avoidable delay, the Contractor agrees to pay actual costs, including charges for engineering, inspection, and administration, as specified in paragraph 00 72 00-7.04, incurred during the extension.

2. **UNAVOIDABLE DELAYS:** For delays that the Contractor considers to be unavoidable, he must submit to the Construction Manager complete information demonstrating the effect of the delay on the controlling operation in the accepted construction schedule. The submission must be made within 30 calendar days of the occurrence that is claimed to be the cause of the unavoidable delay. The Construction Manager will review the Contractor's submission and determine the number of days of unavoidable delay and the effect of any unavoidable delay on controlling operations of the work. The Owner agrees to grant an extension of time to the extent that unavoidable delays affect controlling operations in the construction schedule. During such extension of time, neither extra compensation, nor engineering inspection and administration, nor damages for delay will be charged to the Contractor. It is understood and agreed by the Contractor and Owner that time extensions due to unavoidable delays will be granted only if such unavoidable delays involve controlling operations which would prevent completion of the whole work within the specified contract time.

3. **LIQUIDATED DAMAGES:** It is agreed by the parties to the contract that in case all the work called for under the contract in all parts and requirements is not finished or completed within the number of working days as set forth in Section 01 11 05, damage will be sustained by the Owner, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Owner will sustain in the event of and by reason of the delay; and it is therefore agreed that the Contractor will pay to the Owner, the sum of **One Thousand Two Hundred dollars (\$1,200.00)** per day for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed; and the Contractor agrees to pay the liquidated damages herein provided for, and further agrees that

the Owner may deduct the amount thereof from any moneys due or that may become due the Contractor under the contract.

6.03 SUSPENSION PROCEDURES

The Owner may, at his convenience and at any time and without cause, suspend, delay, or interrupt all or any part of the work for a period of not more than 90 days by notice in writing to the Contractor. The Owner must specify the date on which the work must be resumed. The work must be resumed by the Contractor within 10 days after receiving written notice from the Owner to do so. The Contractor will be allowed an increase in the contract price or an extension of contract time, or both, directly attributable to any suspension if he makes a claim therefore as provided in the paragraphs related to change of contract price and change of contract time.

6.04 TERMINATION PROCEDURES

A. TERMINATION BY OWNER FOR DEFAULT:

The Owner may terminate the contract upon 7 days written notice to Contractor and his surety whenever the Contractor is deemed to be in default or if Contractor fails to fulfill, in a timely and proper manner, the contract obligations, or is in violation of any provisions or covenants of the contract.

For purposes of this paragraph, the Contractor is in default if any one or more of the following events occurs:

1. Contractor is bankrupt or insolvent.
2. Contractor makes a general assignment for the benefit of creditors.
3. A trustee or receiver is appointed for Contractor, or for any of Contractor's property.
4. Contractor files a petition to take advantage of any debtor's act, or to reorganize under any bankruptcy chapter or law.
5. Contractor repeatedly fails to make prompt payments to subcontractors or others for labor, materials, or equipment.
6. Contractor disregards laws, ordinances, rules, regulations, or orders of any public body having jurisdiction.
7. Contractor disregards the authority of Construction Manager.
8. Contractor violates in any substantial way the provisions of the contract documents by failing, neglecting, or refusing to proceed according to and in full compliance with the provisions and covenants of the contract documents.

After termination of the Contract for default, the Owner may exclude the Contractor from the site and take possession of the work and all of the Contractor's tools, appliances, construction equipment, and machinery at the site and use the same to the full extent they could be used by the

Contractor. The Owner may incorporate in the work all materials stored at the site or for which the Owner has paid the Contractor that are stored elsewhere. In such case, the Contractor is not entitled to receive any further payment until the work is finished.

If the unpaid balance of the contract price exceeds the direct and indirect cost of the completed work, including compensation for additional professional services, the excess must be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The costs incurred by the Owner will be verified by the Construction Manager and incorporated into a change order, but in finishing the work, the Owner will not be required to obtain the lowest figure for work performed.

Where the Contractor's services have been so terminated by the Owner, the termination does not affect any rights of the Owner against the Contractor then existing or that may thereafter accrue. Any retention or payment of monies due the Contractor by the Owner will not release the Contractor from liability.

If the Owner terminates this agreement for default, and it is thereafter determined that the Contractor had not so failed to perform its obligations or defaulted in any way, the termination will then be deemed to have been effected for the convenience of the Owner. In that event, any adjustment of compensation to Contractor must be in accordance with paragraph 00 72 00-6.04 B.

B. TERMINATION BY OWNER FOR OTHER THAN DEFAULT:

The Owner may, without prejudice to any other remedy it may have under the provisions of the contract, terminate this contract, in whole or in part, at any time by giving written notice to Contractor or its representative by certified mail, return receipt requested. Termination is effective upon receipt of the notice by Contractor. Contractor must immediately discontinue work and take all reasonable steps with its suppliers and subcontractors to minimize cancellation charges and other costs.

In the event of termination for reasons other than default of Contractor, Contractor is entitled to recover all reasonable costs incurred in connection with performance of the work, plus any cost and expense reasonably and necessarily incurred in connection with the termination, plus a percentage of the profit based on the percentage of completion of the work.

C. TERMINATION BY CONTRACTOR:

If the work is stopped by order of a court, a public authority or the Owner for a period of 90 calendar days or more, through no act or fault of the Contractor or anyone employed by him or his subcontractors, then the Contractor may terminate the contract upon 10 calendar days written notice to the Owner. Upon receipt of the written notice, the Owner must implement procedures as set forth in paragraph 00 72 00-6.04 B.

PART 7--MEASUREMENT AND PAYMENT

7.01 PAYMENTS TO CONTRACTOR

A. BREAKDOWN OF CONTRACT PRICES:

Except in cases where unit prices form the basis for payment under the contract, the Contractor must, within 20 days of receipt of the notice to proceed, submit a breakdown of the

contract price showing the value assigned to each part of the work including an allowance for profit and overhead. In submitting the breakdown, the Contractor certifies that it is not unbalanced and that the value assigned to each part of the work represents his estimate of the actual cost, including profit and overhead, of performing that part of the work. The breakdown must be sufficiently detailed to permit its use by the Construction Manager as one of the bases for evaluating requests for payment.

B. PROJECT STATUS REVIEW:

Contractor and Construction Manager shall meet each month prior to the Contractor submitting the progress payment request for the previous month. The purpose of the meeting is to review project status in relation to the construction schedule; review value of work completed during the previous month; and, if applicable, review Contractor's plans to return project status to that required by the schedule. Within 5 days following this meeting, the Contractor shall submit a written progress report comprising:

1. A copy of the current construction schedule marked up to indicate percent complete, actual completion or start dates since the previous review, and the estimated remaining duration for each activity in progress.
2. Reasons any activities are behind schedule and a description of the corrective steps being taken.

C. PROGRESS PAYMENTS:

1. **PAYMENT REQUEST PROCEDURES:** By the 5th day of each month, the Contractor must submit to the Construction Manager a partial-payment estimate, filled out and signed by the Contractor, covering acceptable work performed during the previous month or since the last partial payment estimate was submitted. If requested by the Construction Manager, the Contractor must provide additional data to support the payment estimate. Additional data may include satisfactory evidence of payment for equipment, materials, and labor including payments to subcontractors and suppliers. Requests for payment for delivered equipment and material must be accompanied by certified invoices by the suppliers. Such equipment and material must be suitably and safely stored at the site of the work.

2. **REVIEW PROCEDURES:** Within 7 days after receipt of the partial payment estimate, the Construction Manager will review the estimate and either (a) indicate in writing to the Owner's Representative his concurrence with the estimate and his recommendation that payment be made or (b) indicate in writing to the Contractor his reasons for not concurring with the estimate. If the Construction Manager recommends payment and the Owner's Representative concurs, the Owner will, within 30 calendar days after receipt of the Construction Manager's recommendation, pay the Contractor a progress payment on the basis of the approved partial-payment estimate. The payments will take into account the retention provisions provided for herein.

In the event the Construction Manager does not concur with the estimate, the Contractor may make the changes necessary to obtain the Construction Manager's concurrence and resubmit the partial-payment estimate, or submit the original progress-payment estimate directly to the Owner's Representative, indicating in writing his reasons for refusing to make the changes necessary to obtain concurrence.

3. **RETENTION:** The Owner will retain a percentage of each payment except as specified below in accordance with Public Contract Code Section 7201. The retained amount is

available for the protection and payment of the person, or persons, mechanics, subcontractors, or materialmen who perform labor or work under the contract, and persons who supply such person, persons or subcontractors with components and supplies for carrying on such work.

The Owner will retain 5 percent of each progress payment.

Under no circumstances shall any provision of this section be construed to limit the ability of the Owner to withhold 150 percent of the value of any disputed amount of work from the final payment, as provided for in Section 7107 of the Public Contract Code. In the event of a good faith dispute, nothing in this section shall be construed to require the Owner to pay for work that is not approved or accepted in accordance with the proper plans or specifications.

4. WITHHOLDING: The Construction Manager may refuse to recommend the whole or any part of any payment if in the Construction Manager's opinion it would be incorrect to make such recommendation to the Owner. The Construction Manager may also refuse to recommend any payment, or because of subsequently discovered evidence or the result of any tests, may nullify any payment previously recommended to such extent as may be necessary in the Construction Manager's opinion to protect the Owner from loss as a result of:

- a. Defective or damaged work.
- b. A deductive change order.
- c. Persistent failure of the Contractor to perform the work in accordance with the contract documents, including failure to maintain the progress of the work in accordance with the construction schedule. Persistent failure to maintain the progress of the work means that for a period of two consecutive months following a written notice from the Construction Manager, the Contractor fails to correct a behind-schedule condition at a rate that would reasonably indicate that he will finish the project on schedule.
- d. Disregard of authority of the Construction Manager or the laws of any public agency having jurisdiction.

The Owner may refuse to make payment of the full amount recommended by the Construction Manager because of claims made against the Owner on account of Contractor's performance or furnishing of the work or because liens have been filed in connection with the work or because there are other items entitling Owner to reduce the amount recommended. In such case, the Owner will give Contractor prompt written notice with a copy to the Construction Manager stating the reasons for each action.

5. STOP PAYMENT NOTICES: The Owner, by and through the Construction Manager or other authorized officers, may at its option and at any time retain out of any amounts due the Contractor, sums sufficient to cover claims filed pursuant to Section 3179, et seq., of the Civil Code of the State of California.

6. PROMPT PAYMENT: Prompt payment for partial-payment estimates will be made in accordance to Public Contracts Code Section 20104.50.

D. FINAL PAYMENT:

On the condition that no liens or claims are outstanding, Owner will make final payment to the Contractor in the manner provided by law following the expiration of 35 calendar days after acceptance of the work and filing of the notice of completion by the Owner. Final payment must include the entire sum found to be due under this contract after deducting previous payments and such other lawful amounts as the terms of this contract describe. Prior estimates and payments, including those relating to extra work or work omitted, are subject to correction by the final payment.

Acceptance by the Contractor of final payments as acts as a release to the Owner of all claims by and all liability to the Contractor other than claims in stated amounts that may be specifically excepted by the Contractor for things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. Payment by the Owner does not release the Contractor or his surety from any obligation under the contract or under the performance bond and payment bonds.

7.02 CHANGE ORDERS

A. GENERAL:

The Owner may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make any change in the work within the general scope of the contract, including but not limited to the following changes:

1. In the specifications (including drawings and designs).
2. In the method or manner of performance of the work.
3. In the Owner-furnished facilities, equipment, materials, services, or site.
4. Directing acceleration in the performance of the work.

Any other written order or an oral order (which terms as used in this paragraph shall include direction, instruction, interpretation, or determination) from the Owner, that causes any such change, must be treated as a change order under this clause, if the Contractor gives the Owner written notice stating the date, circumstances, and source of the order and if the Contractor regards the order as a change order.

Except as provided in this clause, no order, statement, or conduct of the Owner is or may be treated as a change order under this clause nor does it entitle the Contractor to an equitable adjustment.

If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any order, an equitable adjustment must be made and the contract modified in writing accordingly. However, except for claims based on defective specifications, claims will not be allowed for any costs incurred more than 20 days before the Contractor gives written notice as required. Also, in the case of defective specifications for which the Owner is responsible, the equitable adjustment includes any increased cost reasonably incurred by the Contractor in attempting to comply with such defective specifications.

If the Contractor intends to assert a claim for an equitable adjustment under this clause, he must, within 30 days after receipt of a written change order or the furnishing of a written notice, submit to the Owner a written statement setting forth the general nature and monetary extent of such claim, unless the Owner extends this period. The statement of claim hereunder may be included in the notice.

A claim by the Contractor for an equitable adjustment will not be allowed if it is asserted after final payment under this contract.

B. EXTRA WORK:

Extra work means providing materials and equipment and performing work not directly or by implication called for by the contract. Changes in measured quantity under a unit price contract or item are not extra work. If the Owner requires extra work he may (1) do it himself, (2) employ others to do it, (3) direct the Contractor to perform the extra work at unit bid price or a combination of such items, (4) direct the Contractor to perform the extra work at a mutually agreed upon lump sum, or (5) direct the Contractor to perform the extra work on a time and expense basis.

C. OMITTED WORK:

The Owner may, by written order to the Contractor, omit work, equipment, and material to be provided under the contract, and the value of the omitted work, equipment and material will be deducted from the contract price. The deducted value will be a lump sum or unit bid price agreed upon in writing by the Contractor and Owner based on the breakdown and cost information submitted by the Contractor.

D. UNIT BID PRICE CHANGE:

Increases or decreases in the quantity of a contract item of work that was bid on a unit basis will be made by comparing the total pay quantity of such item of work with the Construction Manager's estimate. When changes in quantities exceed 25 percent of the original bid quantity and the total dollar change of that bid item is significant, the Owner will review the unit price to determine if a new unit price should be negotiated. Methods for Changed Quantity Payment Adjustments shall be those specified in the Caltrans Standard Specifications, latest edition.

E. LUMP SUM CHANGES:

Whenever the Contractor is directed to perform extra work on a lump-sum basis, changes in contract price resulting from the extra work will be based on a mutually agreed upon lump-sum price. The Contractor's proposal for such changes must include a detailed breakdown of labor and materials costs for the extra work to be performed by his forces and the forces of his subcontractors or material suppliers as may be required. The breakdown must include any labor surcharge and any sales- or use-tax cost. Whenever the Owner requests that the Contractor prepare a lump-sum price in connection with a change order, the Contractor is entitled to the costs incurred in the preparation of that price whether or not the lump-sum amount is finally accepted by the Owner. Those costs will be incorporated in the lump-sum amount.

Compensation for the extra work will be based on the direct costs as listed in the detailed proposal, plus a mutually agreed upon percent of direct costs for overhead and profit, plus one percent (1%) of those direct costs for bond. The allowance for overhead and profit must include full compensation for overhead, including superintendence, and additional overhead attributable to a

time extension granted because of the change order and no separate charge may be made for overhead.

When the change order involves work omitted, the reduction of the contract price will be based on the direct costs listed in the detailed proposal submitted by the Contractor. An additional reduction may be made of an amount that is identified as reduced overhead costs attributable to the work omitted. No reduction will be made for profit originally attributable to the omitted work.

F. TIME AND EXPENSE CHANGES:

1. **GENERAL:** Whenever the Contractor is directed to perform extra work on a time and expense basis, he or she will maintain accurate records. Each day a record of labor, materials, and equipment costs will be submitted to the Construction Manager for verification. These records will reflect the actual and necessary expenses pertaining to the extra work and will be available for audit. Audits conducted under this provision must be in accordance with generally accepted auditing standards and established procedures and guidelines of the reviewing or audit agency(ies).

Payment to the Contractor for extra work performed on a time-and-expense basis will consist of the actual necessary expense for doing the extra work, plus an allowance of 15 percent of labor, material and equipment rental for overhead, general superintendence and profits, plus one percent (1%) of those direct costs for bond. This basis of payment applies to work done directly by the Contractor and to work done by a subcontractor, except the one percent (1%) allowance for bond does not apply to work performed by a subcontractor. When the work is done by a subcontractor, the Contractor may add five percent (5%) to the subcontractor's charges to cover overhead and profit and one percent (1%) for bond.

In determining time-and-expense compensation, the term "actual necessary expense" means the sum of (1) materials and equipment, (2) labor, (3) supervision, (4) construction equipment, (5) professional services, and (6) other costs. "Charges" for such items means the actual cost whether incurred by the Contractor, a subcontractor or others. The items making up "actual necessary expense" are defined as follows:

2. **MATERIALS AND EQUIPMENT:** Materials and equipment means costs for materials and equipment provided by the Contractor and necessarily used in the work includes applicable taxes.

3. **LABOR:** The cost of labor will be the sum of actual wages paid, labor surcharge, and subsistence and travel allowances. Actual wages paid include employer payments to or on behalf of the worker for health and welfare, pension, vacation and similar purposes. The labor surcharge includes applicable labor-related taxes, Workers Compensation Insurance premiums, public liability and property damage insurance premiums, and other legally required costs directly related to labor. Where subsistence and travel allowance are required for performance of extra work, the charges include the actual amount paid to each worker for these items.

4. **SUPERVISION:** If, in the Owner's judgment, full-time supervision of the extra work is required, it will be authorized in writing by the Construction Manager and charges for that supervision will be included as an actual necessary expense. Charges for supervision of the extra work by the Contractor's representative are not part of actual necessary expense.

5. CONSTRUCTION EQUIPMENT: Charges for the use of construction equipment required in the performance of extra work will be based on rental rates set forth in the State of California then-current official published document covering rental of equipment used on force account work. For equipment not listed in that document, the rental rate will be as listed by the local section of the Associated General Contractors. If the equipment is not listed by the Associated General Contractors, the rental rate will be mutually agreed upon in writing between the Contractor and Owner prior to the use of the unlisted equipment. The reasonable cost of moving equipment onto and off the job site will be included, but equipment rental will not be paid when the equipment is inoperative due to breakdowns. Individual pieces of equipment or small tools having a replacement value of \$100 or less are considered expendable and no payment will be made for these.

When equipment is used on the extra work for less than five days, hourly rates will be used. Less than 30 minutes of operation is considered one-half hour of operations. When equipment is used on the extra work for more than five days, daily rates apply. In that case, less than four hours of operation is considered to be one-half day of operation.

6. PROFESSIONAL SERVICES: Professional services are included in "actual necessary expense" provided both that the Owner has determined that such services are necessary and the Construction Manager has authorized in writing the provision of such services.

7. OTHER COSTS: Charges for items not included in paragraphs 7.02 F.1 through 6 may be included as "actual necessary expense" if such additional items are authorized in advance and in writing by the Construction Manager.

7.03 CHARGES TO CONTRACTOR

Everything charged to the Contractor under the terms of this contract must be paid by the Contractor to the Owner on demand. Such charges may be deducted by the Owner from money due or to become due to the Contractor under the contract. The Owner may recover such charges from the Contractor or from his surety.

7.04 COMPENSATION TO OWNER FOR TIME EXTENSION

The Owner, in exchange for granting an extension of time for avoidable delay, must be compensated by the Contractor for the actual costs to the Owner of engineering, inspection, general supervision, and overhead expenses that are directly chargeable to the work and accrue during the period of such extension. The actual costs do not include charges for final inspection and preparation of the final estimate by the Owner.

7.05 SUBSTANTIAL COMPLETION

The Contractor, on considering the work to be substantially complete and ready for its intended use, shall so notify the Construction Manager in writing. The notification must include an itemized list of remaining incomplete work. If the Construction Manager determines that the work is not substantially complete, he or she will so notify the Contractor in writing identifying the reasons for such a determination. If the Construction Manager finds the work substantially complete, he or she will meet with the Contractor to (1) prepare a punch list of incomplete items of work; (2) define the division of responsibility between Owner and Contractor with respect to security, operation, maintenance, utilities, insurance, and warranties; and (3) describe any other issues related to acceptance of the substantially completed work. Upon reaching agreement with the Contractor,

the Construction Manager will write to the Owner, certifying that the work is substantially complete, listing the items of incomplete work, stating the date for completion of incomplete work, defining the division of responsibilities, and setting forth any other terms related to acceptance.

The Owner, who has sole discretion for determination of substantial completion, will review the Construction Manager's certification that the work is substantially complete and concurring with that certification, will notify the Contractor, in writing, that the work is accepted as substantially complete. Except for any portion(s) of work specified for early completion or required by the Owner for early possession (paragraph 00 72 00-7.06), substantial completion will not occur for any work until the entire project is ready for possession and use. The acceptance notice will include a punch list of incomplete work items, set the date for their completion, describe the division of responsibility between the Owner and Contractor, and describe any other terms of acceptance. The Contractor will acknowledge receipt of the acceptance notice in writing, indicating acceptance of all of its terms and provisions.

Upon receipt of the Contractor's acknowledgment letter, the Owner may take possession of the work or portion of the work and put it into its intended service. The date that the work or portion of the work is put into service will become the date of substantial completion. Unless otherwise specified, warranties will begin on the date of substantial completion.

Subsequent to the substantial completion date, the Owner may exclude the Contractor from the work during such periods when construction activities might interfere with the operation of the project. The Owner, however, shall allow the Contractor reasonable access for completion or correction of incomplete punch list items.

7.06 POSSESSION OF PORTIONS OF THE PROJECT

Should the Contractor fail to meet any date specified for substantial completion of the work or any portion of the work requiring early possession and use by the Owner, the Owner may, after a 10-day written notice to the Contractor, take over such portion or all of the work that is behind schedule. In such case, the Construction Manager will prepare a punch list of incomplete work. The Owner may allow the Contractor reasonable access to the work at such times that the operation of the project will not be affected or the Owner may complete the work itself after giving the Contractor notice of his intention to do so. The cost of Owner's work will be charged to and deducted from amounts due to the Contractor. The substantial completion date will be established as the date when the Owner actually begins using the project or a portion of the project for its intended purpose. Division of responsibilities between Owner and Contractor, beginning of warranties, and any other issues relating to substantial completion will be as specified in paragraph 00 72 00-7.05.

7.07 ACCEPTANCE OF THE PROJECT

Upon completion of the work, including portions of the work previously accepted as substantially complete, the Contractor must notify the Construction Manager, in writing, that the work is complete. Upon receipt of the notification, the Construction Manager will determine if the work conforms to the terms of the contract. If the Construction Manager finds materials, equipment, or workmanship that do not meet the terms of the contract, he or she will prepare a punch list of non-conforming items and submit it to the Contractor. Following completion of the corrective work by the Contractor, the Construction Manager must notify the Owner that the work has been completed in accordance with the contract. Final determination of the acceptability will be made by the Owner. Upon acceptance of the project, the Owner will immediately file a notice of

completion. For portions of the project not previously accepted as substantially complete, the conditions of guarantee commence on the date that the Owner files a notice of completion.

The final application for payment must be accompanied by all required documentation called for in the contract, including complete and legally effective releases or waivers of liens in a form acceptable to Owner. Subject to prior approval of Owner, Contractor may submit in lieu of the lien releases and waivers: (1) receipts of releases in full; (2) an affidavit that the releases and receipts cover all labor, services, materials, and equipment for which a lien could be filed and that all payrolls, materials, and equipment bills and other indebtedness connected with the work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied; and (3) consent of the surety, if any, to final payment. If any subcontractor or supplier fails to furnish a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any lien.

If, after reviewing the Contractor's final application for payment, including all documentation required, the Construction Manager determines that the work is complete, he or she will recommend that final payment, including all retainages, be made by the Owner. The final payment will be due and payable by the Owner within 30 days after any legal notice periods have expired.

END OF SECTION

SECTION 01 11 00
SUMMARY OF WORK

1.01 GENERAL

- A. The following Summary of Work is not meant to be an all-inclusive description of every item of Work necessary for a complete project. This Summary of Work is meant to aid the Contractor in developing an accelerated understanding of the basic project requirements.
- B. Descriptions that are included in this Summary of Work shall be considered part of the Specifications and Contract.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. DESCRIPTION OF WORK:

- 1. Generally, the Work consists of furnishing all labor, materials, equipment and incidentals, and performing all work required to complete the Crescent City Sunset Circle Multi-Use Trail. The work includes, but is not limited to:
 - a. Construction of new segments of the California Coastal Trail
 - b. Installation of wayfinding elements
 - c. Installation of intermittent path lighting and electrical conduit
 - d. Installation of fences and barriers
 - e. Installation of new signage
 - f. Road paving and drainage improvements
 - g. Concrete Curb Barrier
- 2. Work is located in the urban use area of the City of Crescent City. The location of the project is shown on the Plans.

B. CONTRACTOR'S DUTIES:

- 1. Except as specifically noted, provide and pay for:
 - a. Labor, materials, and equipment
 - b. Tools, construction equipment, and machinery
 - c. Water, heat, and utilities required for construction
 - d. All other facilities and services necessary for proper execution and completion of work
- 2. Pay legally required sales, consumer, and use taxes.
- 3. Preparation of plans and implementation of stormwater BMPs.

4. Prepare a Construction Schedule and receive approval from the Owner as required by these Contract Documents.
5. Prepare a Traffic Control Plan and receive approval from the Owner as required by these Contract Documents.
6. Procure and maintain all insurance and bonds required by these Contract Documents.
7. Secure and pay for proper execution and completion of the Work, and applicable permits and licenses, as necessary.
8. Give required notices.
9. Comply with codes, ordinances, rules, regulations, orders, and other legal requirements of public authorities which bear on performance of the Work.
10. Promptly submit written notice to Engineer of observed variance of contract documents from legal requirements.
11. Enforce strict discipline and good order of the employees. Do not employ on work:
 - a. Unfit persons
 - b. Persons not skilled in assigned tasks

C. PERMITS AND AGREEMENTS:

1. Owner will obtain permits or notices of intent to issue permits from the appropriate agencies. See Section 01 41 00 for details.
2. Contractor is responsible for obtaining all other permits required.

END OF SECTION

SECTION 01 11 05

CONTRACT TIME

1.0 COMPLETION DATE SCHEDULE

Work shall be completed within 85 working days from the Notice to Proceed.

END OF SECTION

SECTION 01 14 00
WORK RESTRICTIONS

1.0 CONTINUITY OF ROADWAY ACCESS

A. GENERAL

The existing roadway on Sunset Circle is currently providing vehicle access to private property and businesses, those functions shall not be interrupted except as specified herein. The Contractor shall coordinate the work to avoid interference with normal operations to the greatest extent practicable. Access shall only be restricted in accordance with a detailed plan and schedule. The Construction Manager shall be notified in writing at least two weeks in advance of the planned access restrictions.

B. ACCESS TO FACILITIES

The Contractor shall provide two weeks' notice to the Owner and Construction Manager prior to restricting access to driveways. Access to driveways may only be restricted with the consent of the Construction Manager.

The Contractor shall post signs seven days in advance of planned closure at sidewalks, driveways, parking areas, or other appurtenances.

For planned driveway closures, signs shall indicate how businesses still open to the public will be accessed. Contractor shall make temporary parking or other means of accessing businesses available at no additional cost.

In the event that the Contractor's operations block access to facilities, the Owner shall immediately be entitled to employ others to remove equipment without giving written notice to the Contractor.

C. SUBMITTAL

In accordance with Section 01 30 00, the Contractor shall submit a detailed plan and time schedule for operations which will make it necessary to restrict access to private property. The schedule shall be coordinated with the construction schedule specified in paragraph 00 71 00-6.02 B and shall meet the restrictions and conditions specified in this and other sections. The detailed plan shall describe the Contractor's method for preserving access to temporary facilities, the length of time required to complete said operation when access must be restricted, the parking areas or other facilities that will be restricted and the temporary facilities which the Contractor shall provide in order to preserve access to the greatest extent practicable.

3.0 SEQUENCE AND SCHEDULE OF CONSTRUCTION

To permit continuous use of Sunset Circle, the construction schedule required in paragraph 00 71 00-6.02 B shall provide for the following specific conditions:

1. All existing and temporary facilities and associated equipment shall be kept in service for the duration of the project in accordance with the General Plan.
2. New facilities shall be completed, tested and fully operational before existing facilities are taken out of service to the greatest extent practicable.

3. Utility services to all buildings onsite shall remain in service. Utility services to all parts of the facility must remain online at all times. In the event that it is not possible for the Contractor to provide or maintain full utility services, the Contractor shall provide temporary facilities for the duration of the outage.

END OF SECTION

SECTION 01 20 00
MEASUREMENT AND PAYMENT

1.0 GENERAL

All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum or unit price item most closely associated with the work involved.

A. LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the Bid Schedule and described below. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

B. UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the Bid Schedule and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

2.0 BID ITEMS

1. Mobilization: This item is to be paid for on a lump sum basis. The contract price paid for mobilization includes transportation and location of Contractor support equipment and facilities as well as securing of the work site and material storage yards. Mobilization is eligible for partial payments as outlined under Pubic Contract Code, Section 10264.
2. Construction Signs: This item is to be paid for on a lump sum basis. The contract price paid for construction signs shall include full compensation for all labor, materials, and equipment needed to provide temporary signage to alert the public of the construction project area, partial road closures, hazardous areas, and restricted areas during construction project.
3. Traffic Control: This item is to be paid for on a lump sum basis. The contract price paid for traffic controls shall include full compensation for all, labor, equipment, and materials needed to safely divert or direct traffic during the construction project. Full road closure is not permitted and access for neighbor property owners and customers must be maintained at all times.
4. Water Pollution Control: This item is to be paid for on a lump sum basis. The contract price paid for water pollution control includes full compensation for all materials and labor necessary to implement water pollution best practices during

all stages of the construction project, so as to prevent topsoil and contaminants from leaving the site by erosion, tracking, storm water, or wind transport, and preventing prohibited discharges as described by the NPDES.

5. Sheeting, Shoring, and Bracing: This item is to be paid for on a lump sum basis. The contract price paid for sheeting, shoring, and bracing shall include full compensation for the costs for planning, design, engineering, furnishing and constructing, and removal and disposal of such temporary sheeting, shoring, and bracing as required under the provisions of any permits, and in accordance with the requirements of OSHA and the Construction Safety Orders of the State of California, pursuant to the provisions of Section 6707 of the California Labor Code. The structures, temporary or permanent, and all engineering required to maintain the lines and grades shown for slope excavation as well as the sheet drains shall be herein included.
6. Remove Concrete and HMA: This item to be paid for on a lump sum basis. The contract price paid to remove concrete and HMA shall include full compensation for all labor, tools, and equipment needed to remove and dispose of pavement, fences, bollards, curbs, curb ramps, sidewalks and drainage inlets as needed. This item shall also include saw cutting of asphalt and concrete as needed and shown on the Plans. Cold planing of asphalt to achieve needed grades or to match new sections is also included in this work.
7. Slotted Drain: This item to be paid for on a per lineal foot basis. The contract price paid for slotted drains shall include full compensation for furnishing all labor, materials, equipment, formwork, steel reinforcement, subgrade preparation, rock, utility sleeves, metal fabrication, and coordination with paving work for the installation of the slotted drains at Station 12+10 and Station 13+99.
8. Trail Excavation: This item is to be paid for on a per cubic yard basis. The contract price paid for trail excavation shall include full compensation for all labor, tools, and equipment for the excavation, grading, and hauling as needed to prepare the road and trail subgrade surfaces as shown on the Plans and as directed by the Engineer.
9. Class II Aggregate Base: This item is to be paid for on a per cubic yard basis. The contract price paid for aggregate base shall include full compensation for furnishing all labor, materials, and equipment required for placement of rock and compaction of rock including road base, trail base, under driveways, and the trail shoulder, in accordance with the Plans and Specifications and conforming to the CalTrans Standard Plans.
10. Hot Mix Asphalt Road Paving (Type B): This item to be paid for on a per ton basis. The contract price paid for HMA paving shall include full compensation for furnishing all labor, materials, tools, and equipment needed for placement of asphalt-containing materials for the pavement structure and any pavement surface treatments, such as HMA, tack coat, asphaltic emulsions, bituminous seals, asphalt binders, rock and modified asphalt binders placed in the work.

11. Concrete Curb: This item is to be paid on a per linear foot basis. The contract price paid for the concrete curbs shall include full compensation for furnishing all labor, materials, equipment, formwork, subgrade preparation, rock, utility sleeves, dowels, binding agent, and coordination with paving work as required for the installation of the concrete curb as shown on the Plans, in accordance with the CalTrans Standard Plans, and as directed by the Engineer.
12. Split Rail Fence (Concrete): Quantities of split rail fence will be measured on a linear foot basis. The contract price paid for concrete split rail fence shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all of the work involved in installing pre-cast concrete split rail fencing, complete and in place, as shown on the Plans, in accordance with the manufacturer's recommendations, and as directed by the Engineer.
13. Detectable Warning Surfaces: This item is to be paid on a lump sum basis. The contract price paid for detectable warning surfaces shall include full compensation for furnishing all labor, materials, and equipment needed for installation of a detectable warning surface placed at the crosswalk edge located at Station 1+41, as shown on the Plans and in accordance with the CalTrans Standard Plans and Specifications.
14. Thermoplastic 4" Striping: This item is to be paid on a per lineal foot basis. The contract price paid for four-inch thermoplastic striping shall include full compensation for furnishing all labor, materials, and equipment needed to apply four-inch wide thermoplastic striping within the planned road areas of Sunset Circle, as shown on the Signage and Striping Plan sheets and in accordance with the CalTrans Standard Plans and Specifications.
15. Thermoplastic 6" Striping: This item is to be paid on a per lineal foot basis. The contract price paid for six-inch thermoplastic striping shall include full compensation for furnishing all labor, materials, and equipment needed to apply six-inch wide thermoplastic striping within the planned road areas of Sunset Circle, as shown on the Signage and Striping Plan sheets and in accordance with the CalTrans Standard Plans and Specifications.
16. Thermoplastic Street Marking: This item is to be paid on a per square foot basis. The contract price paid for thermoplastic street marking shall include full compensation for furnishing all labor, materials, and equipment needed to apply thermoplastic arrow markings within the planned road areas of Sunset Circle, as shown on the Signage and Striping Plan sheets and in accordance with the CalTrans Standard Plans and Specifications.
17. Four Inch Trail Striping (Paint): This item is to be paid on a per lineal foot basis. The contract price paid for painted four-inch wide trail striping shall include full compensation for furnishing all labor, materials, and equipment needed to apply water-based striping paint on both edges of the trail and the centerline of the trail as shown on the Signage and Striping Plan sheets.
18. Trail Marking (Paint): This item is to be paid for on a per each basis. The contract price paid for painted trail markings shall include full compensation for furnishing

all labor, materials, and equipment needed to apply water-based marking paint for bike path markings and trail arrows as shown on the Signage and Striping Plan sheets.

19. Roadside and Trail Sign, 1-Post: The quantity of roadside and trail sign, 1-post shall be measured on a per each basis measured from an actual count of sign posts installed in place. The contract price paid for roadside signs shall include full compensation for furnishing all labor, tools, equipment, and incidentals, and for doing all of the work involved in furnishing and installing roadside signs complete and in place including posts, sign panels (meeting Section 56 of the Standard Specifications), concrete and all work as described by the plans, specifications, and CalTrans requirements.
20. Adjust Utility Manholes/Boxes to Grade: This item is to be paid for on a per each basis. The contract price paid for adjusting utility manholes and boxes to grade shall include full compensation for furnishing all labor, tools, equipment, and incidentals, and for performing all work which may include identifying structures prior to paving, protection of utility covers during operations, marking location of utilities after paving with white paint, installation and grouting of grade rings as required, control of water, providing concrete or other necessities, and site cleanup.
21. Trail Lights (Bollards and Wiring): This item is to be paid on a per each basis. The contract price paid for the trail lights shall include full compensation for furnishing all labor, materials, tools, equipment, circuit design, wiring, connection, testing, incidentals, and labor involved to install and test the lighted bollards with concrete footings and 4-pin fluorescent lamps, complete, functional, and in place, as shown on the plans, in accordance with the manufacturer's recommendations, and as directed by the Engineer.
22. Metered Service Pedestal Box: This item is to be paid on a lump sum basis. The contract price paid for the metered service pedestal box shall include full compensation for furnishing all labor, materials, tools, equipment, wiring, connection, testing, and incidentals involved to install and test the metered services pedestal box (enclosure) with concrete footing, photoreceptor control units for each circuit, manual bypass, and service disconnect, complete, functional, and in place, as shown on the plans, as required by Pacific Power, in accordance with the manufacturer's recommendations, and as directed by the Engineer.
23. Pre-cast Junction Boxes: This item is to be paid for on a per each basis. The contract price paid for the junction boxes shall include full compensation for furnishing all labor, materials, tools, equipment, wiring, connection, testing, and incidentals involved to install the junction boxes at the base of each lighted bollard and one street light in accordance with the National Electrical Code, as shown on the plans, and as directed by the Engineer.
24. Electrical Conduit in Trench: This item is to be paid for on a per lineal foot basis. The contract price paid for the electrical conduit shall include full compensation for furnishing all labor, materials, tools, equipment, wiring, connection, testing,

and incidentals to install the electrical conduit between each lighted bollard junction box and one street light junction box, in accordance with the National Electric Code, as shown on the plans, and as directed by the Engineer.

END OF SECTION

SECTION 01 31 13
PROJECT COORDINATION

PART 1 – GENERAL

DESCRIPTION

Contractor shall develop an operations plan in coordination with the Owner which shall eliminate or at the least minimize interference with existing trail facilities and any properties not owned by the City. No work shall be performed until said plan is approved by the Owner.

The Contractor shall abide by all conditions that are made part of permits and conditions of approval from local, state and federal agencies.

TENANT AND UTILITY NOTIFICATIONS

Call USA Underground Service Alert not less than the number of days required prior to commencing any work on the project if needed. The Construction Manager shall be given the Inquiry Identification Number prior to starting work.

Notify those affected by the work ten days prior to starting work.

Contractor's attention is directed to Section 01 41 00, "Regulatory Requirements" which contains additional notification requirements.

POLICE AND FIRE NOTIFICATION

Contractor shall notify the Crescent City Police, Del Norte County Sherriff's Office and Fire Department prior to the start of work.

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

1.0 GENERAL

Submittals covered by these requirements include manufacturers' information, shop drawings, test procedures, test results, samples, requests for substitutions, and miscellaneous work-related submittals. Submittals shall also include, but not be limited to, all mechanical, electrical and electronic equipment and systems, materials, reinforcing steel, fabricated items, and piping and conduit details. The Contractor shall furnish all drawings, specifications, descriptive data, certificates, samples, tests, methods, schedules, and manufacturer's installation and other instructions as specifically required in the contract documents to demonstrate fully that the materials and equipment to be furnished and the methods of work comply with the provisions and intent of the contract documents.

2.0 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment or method of work shall be as described in the submittal. The Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items, models, or series of equipment, which are being submitted for review. All extraneous materials shall be crossed out or otherwise obliterated. The Contractor shall ensure that there is no conflict with other submittals and notify the Construction Manager in each case where his submittal may affect the work of another contractor or the Owner. The Contractor shall coordinate submittals among his subcontractors and suppliers including those submittals complying with unit responsibility requirements specified in applicable technical sections.

The Contractor shall coordinate submittals with the work so that work will not be delayed. He shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed because of failure to properly schedule submittals. The Contractor shall not proceed with work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor stamped "No Exceptions Taken" or "Make Corrections Noted."

The Contractor shall certify on each submittal document that he has reviewed the submittal, verified field conditions, and complied with the contract documents.

The Contractor may authorize in writing a material or equipment supplier to deal directly with the Construction Manager or with the Owner with regard to a submittal. These dealings shall be limited to contract interpretations to clarify and expedite the work.

3.0 CATEGORIES OF SUBMITTALS

A. GENERAL

Submittals fall into two general categories; submittals for review and comment, and submittals which are primarily for information only. Submittals which are for information only are generally specified as PRODUCT DATA in Part 2 of applicable specification sections.

A copy of each specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. *Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.*

The Contractor shall submit a submittal schedule listing all submittals and associated submittal dates. Two separate lists shall be provided: submittals for review and comment and product data (submittals) for information only. No submittals shall be reviewed without a submittal schedule. Three (3) copies of the submittal schedule shall be provided to the Construction Manager within 15 days of the pre-construction meeting. The schedule shall be updated weekly with approval or rejection notes and dates, re-submittals with associated dates, and any additional information as required by the Construction Manager.

The Contractor shall maintain an accurate submittal log in a form acceptable to the Construction Manager, for the duration of the Contract. Show current status of all submittals at all times. Make the submittal log available for the Construction Manager's review upon request and with each submittal.

B. SUBMITTALS FOR REVIEW AND COMMENT:

All submittals except where specified to be submitted as product data for information only shall be submitted by the Contractor to the Construction Manager for review and comment.

C. SUBMITTALS (PRODUCT DATA) FOR INFORMATION ONLY:

Where specified, the Contractor shall furnish submittals (product data) to the Construction Manager for Information only. If the Construction Manager is dissatisfied with any submittal, submitted as Product Data, or for information only, they may be reviewed and commented upon.

4.0 TRANSMITTAL PROCEDURE

A. GENERAL:

Unless otherwise specified, submittals regarding material and equipment shall be accompanied by Transmittal Form 01300-A specified in Section 01999. A separate form shall be used for each specific item, class of material, equipment, and items specified in separate, discrete sections, for which the submittal is required. Submittal documents common to more than one piece of equipment shall be identified with all the appropriate equipment numbers. Submittals for various items shall be made with a single form when the items taken together constitute a manufacturer's package or are so functionally related that expediency indicates checking or review of the group or package as a whole.

A unique number, sequentially assigned, shall be noted on the transmittal form accompanying each item submitted. Original submittal numbers shall have the following format: "XXX"; where "XXX" is the sequential number assigned by the Contractor. Resubmittals shall have the following format: "XXX-Y"; where "XXX" is the originally assigned submittal number and "Y" is a sequential letter assigned for resubmittals, i.e., A, B, or C being the 1st, 2nd, and 3rd resubmittals, respectively. Submittal 25B, for example, is the second resubmittal of submittal 25.

B. DEVIATION FROM CONTRACT:

If the Contractor proposes to provide material, equipment, or method of work which deviates from the project manual, he shall indicate so under "deviations" on the transmittal form accompanying the submittal copies.

C. SUBMITTAL COMPLETENESS:

Submittals which do not have all the information required to be submitted, including deviations, are not acceptable and will be returned without review.

5.0 REVIEW PROCEDURE

A. GENERAL:

Submittals are specified for those features and characteristics of materials, equipment, and methods of operation which can be selected based on the Contractor's judgment of their conformance to the specified requirements. Other features and characteristics are specified in a manner which enables the Contractor to determine acceptable options without submittals. The review procedure is based on the Contractor's guarantee that all features and characteristics not requiring submittals conform as specified. Review shall not extend to means, methods, techniques, sequences or procedures of construction, or to verifying quantities, dimensions, weights or gages, or fabrication processes (except where specifically indicated or required by the project manual) or to safety precautions or programs incident thereto. Review of a separate item, as such, will not indicate approval of the assembly in which the item functions.

When the contract documents require a submittal, the Contractor shall submit the specified information as follows:

1. Six (6) copies of all submitted information plus one reproducible original of all information shall be transmitted with submittals for review and comment. The reproducible original shall be submitted in a three ring binder with spine identification, cover identification, and table of contents and index tabs to identify the various items. Contractor is also advised to submit these documents in electronic (pdf) format, to expedite Engineer's approval process.
2. Unless otherwise specified, 4 copies of all submitted information shall be transmitted with submittals (Product Data) for information only.

B. SUBMITTALS FOR REVIEW AND COMMENT:

Unless otherwise specified, within 30 calendar days after receipt of a submittal for review and comment, the Construction Manager shall review the submittal and return 2 copies of the

marked-up reproducible original noted in 1 above. The reproducible original will be retained by the Construction Manager. The returned submittal shall indicate one of the following actions:

1. If the review indicates that the material, equipment or work method complies with the project manual, submittal copies will be marked "NO EXCEPTIONS TAKEN." In this event, the Contractor may begin to implement the work method or incorporate the material or equipment covered by the submittal.
2. If the review indicates limited corrections are required, copies will be marked "MAKE CORRECTIONS NOTED." The Contractor may begin implementing the work method or incorporating the material and equipment covered by the submittal in accordance with the noted corrections.
3. If the review reveals that the submittal is insufficient or contains incorrect data, copies will be marked "AMEND AND RESUBMIT." Except at his own risk, the Contractor shall not undertake work covered by this submittal until it has been revised, resubmitted and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."
4. If the review indicates that the material, equipment, or work method does not comply with the project manual, copies of the submittal will be marked "REJECTED - SEE REMARKS." Submittals with deviations which have not been identified clearly may be rejected. Except at his own risk, the Contractor shall not undertake the work covered by such submittals until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

C. SUBMITTALS (PRODUCT DATA) FOR INFORMATION ONLY:

Such information is not subject to submittal review procedures and shall be provided as part of the work under this contract and its acceptability determined under normal inspection procedures.

6.0 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

Review of contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of his responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Construction Manager or the Owner, or by any officer or employee thereof, and the Contractor shall have no claim under the contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. A mark of "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED" shall mean that the Owner has no objection to the Contractor, upon his own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

END OF SECTION

SECTION 01 41 00
REGULATORY REQUIREMENTS

PART 1 – GENERAL

1.01 PERMITS

A. The following permits have been applied for or obtained. A breakdown of responsibilities are found in Part 3 of this section:

1. Coastal Development Permit (# _____)
2. Caltrans Encroachment Permit

Contractor shall conform to all requirements stated in these permits and shall make all necessary corrections to the installation that may be directed by agency engineers and inspectors.

B. Contractor shall secure all other permits or licenses required to complete the project and any that may be required to construct the project, including, but not limited to the following:

1. Post at the work site copies of Construction Safety Orders and General Safety Orders issued by the California State Division of Industrial Safety.
2. Any permits required by the appropriate Air Quality Management District to operate construction equipment. For information concerning permits contact North Coast Unified Air Quality Management District (AQMD), Permit/Application Receiving at (707) 443-3093.

C. Contractor shall be responsible for payment of any additional costs due to re-inspection and approval of the work or other related problems deemed necessary by an agency inspector.

1.02 FIRE SAFETY

A. Contractor is to be especially careful in all welding & cutting operations to avoid fire.

B. Onsite inspection shall be required for all hot work. Prior to starting hot work notify the Owner and any adjacent tenants of the property within 100 feet of the hot work location, 48 hours prior to the work.

C. Furnish all safety devices, extinguishers, and fire watch personnel, as necessary to protect the public, the work and the Owner.

1.03 TRAFFIC CONTROL

Provide all traffic control signs, barricades, and warning devices necessary to control traffic from all directions. Land traffic shall be in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) as required in Section 01570 of these specifications; and water traffic shall be in accordance with the requirements of the U.S. Coast Guard. Traffic control plans shall be submitted within 15 days of the pre-construction meeting.

PART 2 – MATERIALS (Not Used)

PART 3 – EXECUTION

3.01 Contractors Responsibilities

A. All

3.02 Owner Responsibilities

A. None

END OF SECTION

SECTION 01 42 19

REFERENCE STANDARDS

Wherever used in the project manual, the following abbreviations will have the meanings listed:

AA	Aluminum Association Incorporated 1525 Wilson Blvd. Suite 600 Arlington, VA 22209
AABC	Associated Air Balance Council 1518 K Street N.W. Washington, DC 20005
AAMA	American Architectural Manufacturers Association 1827 Walden Office Square, Suite 550 Schaumburg, Illinois 60173-4268
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, N.W., Suite 249 Washington, DC 20001
ABMA	American Bearing Manufacturers Association 2025 M St. NW, Suite 800 Washington, DC 20036
ACI	American Concrete Institute 38800 Country Club Dr. Farmington Hills, MI 48331 USA
AEIC	Association of Edison Illuminating Companies 600 North 18th Street P.O. Box 2641 Birmingham, AL 35291
AGA	American Gas Association ATTN: Records 1515 Wilson Boulevard Arlington, VA 22209
AGMA	American Gear Manufacturer's Association, Inc. 500 Montgomery Street, Suite 350 Alexandria, VA 22314

AHA American Hardboard Association
155 North Wacker Drive, Suite 400,
Chicago IL 60067

AISC American Institute of Steel Construction
One East Wacker Drive, Suite 3100
Chicago, IL 60601

ASI American Iron and Steel Institute
1101 Seventeenth Street, NW, Suite 1300
Washington, DC 20036

AITC American Institute of Timber Construction
7012 South Revere Parkway, Suite 140
Englewood, CO 80112

ALSC American Lumber Standard Committee
P.O. Box 210
Germantown, MD 20875

AMCA Air Movement and Control Association, Inc.
30 West University Drive
Arlington Heights, IL 60004

ANSI American National Standards Institute
25 West 43rd Street, 4th Floor
New York, NY 10036

APA American Plywood Association
7011 South 19th Street
Tacoma, WA 98466

API American Petroleum Institute
1220 "L" Street N.W.
Washington, DC 20005

ARI Air-Conditioning and Refrigeration Institute
4100 North Fairfax Drive
Arlington, VA 22203

ASCE American Society of Civil Engineers

United Engineering Center
345 East 47th Street
New York, NY 10017

ASCII American Standard Code for Information Interchange

United States of America Standards Institute
10 East 40th Street
New York, NY 10016

ASE Code American Standard Safety Code for Elevators, Dumbwaiter and Escalators

American National Standards Institute
25 W 43rd St
New York, NY 10018

ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers

1791 Tullie Circle, NE
Atlanta, GA 30329

ASME American Society of Mechanical Engineers

3 Park Avenue
New York, NY 10016-5902

ASTM American Society for Testing and Materials

100 Barr Harbor Drive
West Conshohocken, PA 19428

AWPA American Wood-Preservers' Association

9549 Old Fredrick Road
Ellicott City, MD 21042
or
P.O. Box 286
Woodstock, MD 21163-0286

AWS American Welding Society

550 NW LeJeune Road
P.O. Box 351040
Miami, FL 33135

AWWA American Water Works Association

6666 West Quincy Avenue
Denver, CO 80235

BOCA Building Officials and Code Administrators, International, Inc.
4051 West Flossmoor Road
Country Club Hills, IL 60478

CALTEST Materials Manual, State of California, Business and Transportation Agency
Department of Public Works
State of California, Department of Transportation
6002 Folsom Boulevard
Sacramento, CA 95819

CALTRANS Standard Specifications, State of California, Department of Transportation
State of California, Business and Transportation Agency
P.O. Box 1499
Sacramento, CA 95807

CBM Certified Ballast Manufacturers
1422 Euclid Ave #402
Cleveland, OH 44115

CMAA Crane Manufacturers Association of America, Inc.
(Formerly called: Overhead Electrical Crane Institute) (OECI)
8720 Red Oak Boulevard, Suite 201
Charlotte, NC 28217

CRSI Concrete Reinforcing Steel Institute
933 N Plum Grove Road
Schaumburg, IL 60173

CSA Canadian Standards Association
5060 Spectrum Way, Suite 100
Mississauga, Ontario L4W 5N6 CANADA

DEMA Diesel Engine Manufacturer's Association
30200 Detroit Road
Cleveland, OH 44145

DHI Door and Hardware Institute
14170 Newbrook Drive
Chantilly, VA 22021

DIS Division of Industrial Safety
California Department of Industrial Relations
2422 Arden Way
Sacramento, CA 95825

EI Edison Electric Institute
90 Park Avenue
New York, NY 10016

EIA Electronic Industries Association
Order from:
Global Engineering Documents
18201 McDermott West
Irvine, CA 92714

EJMA Expansion Joint Manufacturers Association
25 North Broadway
Tarrytown, NY 10591

ESO Electrical Safety Orders
California Administrative Code, Title 8, Chap. 4, Subarticle 5
Office of Procurement, Publications Section
P.O. Box 20191
8141 Elder Creek Road
Sacramento, CA 95820

FEDSPEC Federal Specifications
General Services Administration
Specification and Consumer Information
Distribution Branch
Washington Navy Yard, Bldg. 197
Washington, DC 20407

FEDSTDS Federal Standards
(see FEDSPECS)

FM Factory Mutual Engineering and Research Corporation
1151 Boston-Providence Turnpike
P.O. Box 9102
Norwood, MA 02062

HEI Heat Exchange Institute
1300 Sumner Avenue

Cleveland, OH 44115

- HI Hydraulic Institute
6 Campus Drive, First Floor North,
Parsippany, NJ 07054
- HPVA Hardwood Plywood & Veneer Association
1825 Michael Faraday Drive
P.O. Box 2789
Reston, VA 22090-2789
- IAPMO International Association of Plumbing and Mechanical Officials
20001 Walnut Drive S
Walnut, CA 91789
- ICBO International Conference of Building Officials
5360 Workman Mill Road
Whittier, CA 90601
- ICEA Insulated Cable Engineers Association
P.O. Box 440
South Yarmouth, MA 02664
- IEEE Institute of Electrical and Electronics Engineers
445 Hoes Lane
P.O. Box 1331
Piscataway, NJ 08855
- IES Illuminating Engineering Society of North America
120 Wall Street
New York, NY 10017
- ISA Instrument Society of America
67 Alexander Drive
P.O. Box 12277
Research Triangle Park, NC 27709
- JIC Joint Industrial Council
7901 West Park Drive
McLean, VA 22101
- MFMA Metal Framing Manufacturers Association

401 N. Michigan Avenue
Chicago, IL 60611

MILSPEC	Military Specifications
	Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
MSS	Manufacturers Standardization Society of the Valve & Fittings Industry, Inc.
	127 Park Street, N.E. Vienna, VA 22180
NAAMM	National Association of Architectural Metal Manufacturers
	11 South La Salle Street, Suite 1400 Chicago, IL 60603
NACE	National Association of Corrosion Engineers
	1440 South Creek Drive Houston, TX 77084
NBC	National Building Code
	Published by BOCA
NEC	National Electric Code
	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269
NELMA	Northeastern Lumber Manufacturers Association, Inc.
	272 Tuttle Road P.O. Box 87A Cumberland Center, ME 04021
NEMA	National Electrical Manufacturer's Association
	1300 17th St N # 1752 Arlington, VA 22209-3806
NESC	National Electric Safety Code
	American National Standards Institute 55 West 39th Street, 12th Floor New York, NY 10018

NFOR National Forest Products Association
 (Formerly National Lumber Manufacturer's Association)
 1111 19 Street NW, Suite 700
 Washington, DC 20036

NFPA National Fire Protection Association
 One Batterymarch Park
 P.O. Box 9101
 Quincy, MA 02269

NHLA National Hardwood Lumber Association
 6830 Raleigh LaGrange
 P.O. Box 34518
 Memphis, TN 38184-0518

NSF National Sanitation Foundation
 789 N. Dixboro Road
 P.O. Box 130140
 Ann Arbor, MI 48113

OSHA Occupational Safety and Health Act
 U.S. Department of Labor
 Occupational and Health Administration
 San Francisco Regional Office
 450 Golden Gate Avenue, Box 36017
 San Francisco, CA 94102

PCI Precast/Prestressed Concrete Institute
 200 W. Adams St. #2100
 Chicago, IL 60606

PPIC The Plumbing & Piping Industry Council, Inc.
 510 Shatto Place, Suite 402
 Los Angeles, CA 90020

RIS Redwood Inspection Service
 California Redwood Association
 405 Enfrente Dr., Suite 200
 Novato, CA 94949

RMA Rubber Manufacturers Association
 1400 K Street NW, Suite 900

Washington, DC 20005

- SAE Society of Automotive Engineers, Inc.
400 Commonwealth Drive
Warrendale, PA 15096
- SAMA Scientific Apparatus Makers Association
1101 16th Street, NW.,
Washington, DC 20036
- SBC Standard Building Code
Published by SBCCI
- SBCCI Southern Building Code Congress International Inc.
900 Montclair Road
Birmingham, AL 35213
- SCMA Southern Cypress Manufacturers Association
400 Penn Center Boulevard, Suite 530
Pittsburg, PA 15235
- SDI Steel Door Institute
30200 Detroit Road
Cleveland, OH 44145
- SMACNA Sheet Metal and Air Conditioning Contractors National Association, Inc.
4201 Lafayette Center Drive
P.O. Box 221230
Chantilly, VA 22021
- SPI Society of the Plastics Industry, Inc.
1801 K Street NW
Washington, DC 20006-1301
- SPIB Southern Pine Inspection Bureau
4709 Scenic Highway
Pensacola, FL 32504
- SSPC Steel Structures Painting Council
40 24th Street, 6th Floor,
Pittsburgh, PA 15222

SSPWC	Standard Specifications for Public Works Construction 900 S. Fremont Ave. Alhambra, CA 91803
TEMA	Tubular Exchanger Manufacturer's Association 25 North Broadway Tarrytown, NY 10591
TPI	Truss Plate Institute 583 D'Onofrio Drive, Suite 200 Madison, WI 53719
UBC	Uniform Building Code Published by ICBO
UL	Underwriters Laboratories Inc. 2600 N.W. Lake Rd. Camas, WA 98607-8542
UMC	Uniform Mechanical Code Published by ICBO
UPC	Uniform Plumbing Code Published by IAPMO
USBR	Bureau of Reclamation U.S. Department of Interior Engineering and Research Center Denver Federal Center, Building 67 Denver, CO 80225
WCLIB	West Coast Lumber Inspection Bureau 6980 SW Varns St. P.O. Box 23145 Portland, OR 97223
WWPA	Western Wood Products Association (Formerly called: West Coast Lumbermen's Association (WCLA)) Yeon Building 522 SW 5th Avenue Portland, OR 97204-2190

Upon request of the Construction Manager the Contractor shall make available any and all reference material cited here or elsewhere in the Contract Documents.

END OF SECTION

SECTION 01 45 00
QUALITY CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

This section specifies administrative and procedural requirements for quality control services, field inspections, and field testing of civil and structural constructs required for this project. Contractor is responsible for the quality assurance and quality control of their respective work.

1.02 DEFINITIONS

Quality Control System (QCS): The quality control, assurance, and inspection system established and carried out to ensure compliance with the Plans and Specifications.

QCS Supervisor: That person in responsible charge of the work occurring, as designated by the Contractor in the QCS Plan.

QCS Inspector: Responsible, certified personnel inspecting the various constructs at specified milestones and during the project overall and designated by the Construction Manager. The Special Inspector is part of the QCS Inspector team.

Factory Test: Tests made on various materials, products and component parts prior to shipment to the job site.

Field Tests: Tests and analyses made at or in the vicinity of the job site in connection with the actual construction.

Certified Inspection Report: Reports signed by approved inspectors attesting that the items inspected meet the specification requirements other than any exceptions included in the report

Certificate of Compliance: Certificate from the manufacturer of the material or equipment identifying said manufacturer, product and referenced standard, and shall be signed by a designated officer of the manufacturer.

Standard Compliance: Condition whereby specified materials or equipment must conform to the standards of organizations such as the American National Standard Institute (ANSI), American Society for Testing and Materials (ASTM), Underwriters Laboratories (UL) or similar organization.

Quality Assurance: The day-to-day, in-process supervisory observations of work and materials conducted by the Contractor to assure that the proper methods and materials are being used and installed by tradesmen.

Source Quality Control: The in-process testing and inspections conducted by the QCS Inspector(s) to verify that the materials, equipment, workmanship and shop manufactured constructs are in compliance with the Contract Documents, applicable Codes and standards.

Field Quality Control: The testing and inspections conducted by the QCS Inspector(s) in the field during and at the completion of each construct to verify that the in-process and completed construction is in compliance with the Contract Documents, applicable Codes and standards.

1.03 REFERENCES

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization, or if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued, or replaced.

Reference	Title
ASTM C102	Practice for Laboratories Engaged in the Testing of Building Sealants.
ASTM C802	Practice for Conducting an Inter-Laboratory Test Program to Determine the Precision of Test Methods for Construction.
ASTM D3740	Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
ASTM D4561	Practice for Quality Control Systems for an Inspection and testing Agency for Bituminous Paving Materials.
ASTM E329	Practice for Use in the Evaluation of Inspection and Testing Agencies as Used in Construction.
IBC	2006 International Building Code

1.04 CONTRACTOR'S RESPONSIBILITIES

Contractor's responsibilities shall be as follows:

1. Monitor quality assurance over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
2. Coordinate with, schedule specified inspections by, and provide normal and customary assistance to the QCS Inspectors.
3. Comply fully with manufacturers' instructions, including each step in sequence.
4. Should manufacturers' instructions conflict with Contract Documents, request clarification before proceeding from Construction Manager.

5. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
6. Perform work by persons qualified to produce workmanship of specified quality.

REGULATORY REQUIREMENTS

A. GENERAL:

Comply with all Federal, State, and local Codes as referenced herein. Such regulations apply to activities including, but not limited to, sitework and zoning, building practices and quality, on and offsite disposal, safety, sanitation, nuisance, and environmental quality.

B. SPECIAL INSPECTION:

Special Inspection shall be performed by the Special Inspector under contract with the Construction Manager in conformance with the IBC. Special Inspection is in addition to, but not replacing, other inspections and quality control requirements herein. Where sampling and testing required herein conforms to Special Inspection standards, such sampling and testing need not be duplicated.

C. STRUCTURAL OBSERVATION:

Engineer shall make visual inspections of the work to assess general conformance with the Contract Documents at significant construction stages and at completion of the structural system. The QCS shall include a preliminary set of Structural Observations and what items are expected to be observed. Contractor shall request this preliminary set from Engineer through Construction Manager and submit as part of their QCS submittal.

D. FIELD SAMPLE PROCEDURES

When field samples are specified in a unit of work, construct each field sample to include work of all trades required to complete the field sample prior to starting related field work. Field samples may be incorporated into the project after acceptance by Construction Manager. Remove unacceptable field samples when directed by Construction Manager. Acceptable samples represent a quality level for the work.

CONTRACTOR DESIGNED STRUCTURAL SYSTEMS

A. DESIGN ENGINEERING:

Contractor shall employ and pay for engineering services from a Professional Engineer registered in the State of California for structural design of Contractor designed structural systems including but not limited to temporary shoring and bracing, formwork support, and support systems for fire protection, plumbing, mechanical, and electrical systems and equipment.

B. TESTS AND INSPECTIONS OF CONTRACTOR DESIGNED STRUCTURAL SYSTEMS:

Contractor shall pay for preliminary testing of concrete, grout, and mortar mix designs where required by Code or the submittal process prior to start of such work. Contractor shall pay for required shop and site inspection of Contractor designed structural systems where

required by Code or these specifications, to the extent such testing and inspection exceeds that required for the structural system on the drawings and in these specifications.

C. MANUFACTURERS' FIELD SERVICES AND REPORTS

When specified in individual specification Sections, product suppliers or manufacturers shall provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to provide instructions when necessary. Contractor shall submit qualifications of observer to Construction Manager 30 days in advance of required observations. QCS Inspector shall record observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

D. JOB SITE CONDITIONS

Schedule to ensure all preparatory work has been accomplished prior to proceeding with current work. Proceeding with the work constitutes acceptance of conditions. Allow adequate time for materials susceptible to temperature and humidity to "stabilize" prior to installation.

E. SUBMITTALS

The following information shall be provided in accordance with Section 01 30 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. *Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.*
2. Written description of Contractor's proposed QCS plan in sufficient detail to illustrate understanding and approach. The QCS plan and submittal shall include a log showing anticipated inspections, Special Inspections, and source and field Quality Assurance procedures. Preliminary submittal of the QCS plan may be made prior to commencing field work. The preliminary submittal will illustrate the project's initial three (3) months of work and will be followed one month later by a final QCS plan submittal.
3. Contractor's proposed QCS Supervisor, qualifications, and if requested, references.

4. Preliminary structural observation set as described in paragraph 1.05 C.
5. Complete structural system information describing Contractor designed structural systems, including sealed calculations, shop and erection drawings, product literature for the various components, ICBO Evaluation Reports for structural components, and a discussion of risk issues associated with the proposed system which could adversely impact overall project completion.
6. If requested by the Construction Manager during the work, manufacturer's field services and reports. If not so requested, treat same as Product Data.

PART 2 – PRODUCTS

2.01 SOURCE QUALITY CONTROL

A. CONTRACTOR'S RESPONSIBILITIES:

Provide source quality control according to the reviewed and accepted QCS plan and paragraph 1.04 herein. Coordinate with Construction Manager to facilitate the work of the Testing Laboratory specified in Section 01410 and Special Inspector. Provide ready access to sampling and inspection locations and incidental labor customary in such sampling and inspections. Timely prepare and submit submittals, and revise as indicated by review comments. Comply with technical requirements in each specification Section that applies to the work.

B. CONSTRUCTION MANAGER RESPONSIBILITIES:

Review Contractor's tracking of QCS activities at monthly meetings. Facilitate completion of submittal review per Section 01300. Assist Contractor to ensure that Special Inspection occurs where and when specified.

C. ACCEPTANCE CRITERIA:

Acceptable characteristics and quality of a particular item or construct is defined in that item's or construct's specification Section.

2.02 PRODUCT DATA

The following product data shall be provided in accordance with Section 01300.

1. Manufacturers' field services and reports unless requested by Construction Manager to be submitted for review.
2. Special Inspection reports, unless otherwise directed in each technical specification Section.

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL

Field quality control responsibilities of the Contractor and Construction Manager are substantially the same as described in paragraph 2.01, with the exception that this work occurs primarily on the jobsite as the work progresses, and Special Inspection will occur more often than at the source.

Acceptable characteristics and quality of a particular item or construct is defined in that item's or construct's specification section.

3.02 REGULATORY COMPLIANCE – SPECIAL INSPECTIONS

The following types of work require Special Inspection according to Chapter 17 of the IBC and each system's specification section:

1. Structure fill.
2. Structural concrete and reinforcing.
3. Anchor bolts and post-installed anchor systems.
4. Structural steel and aluminum including connections.

Section 01 41 00 describes Testing Laboratory sampling, testing and reporting, much of which is conforming to Special Inspection requirements, and need not be replicated.

Contractor designed structural systems are subject to the same Special Inspection requirements as all other work.

3.03 CORRECTION OF DEFECTIVE WORK

Remove and replace defective, rejected, and condemned work at Contractor's expense until such work meets the requirements of Contract Documents.

END OF SECTION

SECTION 01 45 29

TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.01 DESCRIPTION

This Section specifies Quality Control testing and reporting performed by the Testing Laboratory. Construction Manager shall select a qualified Testing Laboratory and contract for the services specified herein, except as specifically noted where Contractor may elect to utilize Testing Laboratory to fulfill submittal requirements. Such an arrangement does not relieve the Contractor from their responsibility to provide the completed project as specified, and to perform Quality Assurance according to the QCS as reviewed and accepted.

1.02 REFERENCES

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued, or replaced.

Reference	Title
AASHTO T-27	Standard Method of Test for Sieve Analysis of fine and Course Aggregate
ACI 214	Evaluation of Strength Test Results of Concrete
ASTM A880	Criteria for Use in Evaluation of Testing Laboratories and Organizations for Examination and Inspection of Steel, Stainless Steel, and Related Alloys
ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C31	Making and Curing Concrete Test Specimens in the Field

Reference	Title
ASTM C39	Compressive Strength of Cylindrical Concrete Specimens
ASTM C42	Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C136	Standard Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143/C143M	Slump of Hydraulic Cement Concrete
ASTM C172	Sampling Freshly Mixed Concrete
ASTM C802	Conducting an Inter-laboratory Test Program to Determine the Precision of Test Methods for Construction Materials
ASTM C1021	Laboratories Engaged in the Testing of Building Sealants
ASTM C1077	Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM D75	Sampling Aggregates
ASTM D1556	Test Method for Density of Soil in Place by the Sand-Cone Method
ASTM D1557	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.5-kg) Rammer and 18-in. (457-mm) Drop
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2487	Classification of Soils for Engineering Purposes
ASTM D3017	Test Method for Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D3441	Standard Test Method for Mechanical cone Penetration Tests of Soil

Reference	Title
ASTM D3666	Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D3740	Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM D4318	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4561	Quality Control Systems for Organizations Producing and Applying Bituminous Paving Materials
ASTM D4832	Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders
ASTM E4	Force Verification of Testing Machines
ASTM E329	Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction
ASTM E543	Agencies Performing Nondestructive Testing
ASTM E994	Calibration and Testing Laboratory Accreditation Systems General Requirements for Operation and Recognition
IBC	International Building Code, Latest Adopted Edition as amended by the applicable state.

1.03 TESTING LABORATORY QUALIFICATIONS

Testing Laboratory shall satisfy the following qualifications:

1. Recommended Requirements for Independent Laboratory Qualification, published by American Council of Independent Laboratories.
2. Conform to the requirements of ASTM E329 in particular, and other reference standards as generally pertain to this project.
3. Authorized to operate in the State of California, with personnel and equipment based sufficiently close to the project to allow short-notice site access for sampling and testing.
4. Acceptable to Owner, Construction Manager, and local building authorities.

1.04 TESTING LABORATORY RESPONSIBILITIES

Testing Laboratory shall provide qualified personnel at the site and cooperate with Construction Manager and Contractor in performance of the following services:

1. Perform specified independent inspection, sampling, and testing of products in accordance with specified standards, to determine compliance with requirements of Contract Documents.
2. Provide sampling equipment and personnel, deliver samples to the testing laboratory, record field measurements, and cure samples as required by Contract Documents.
3. Perform Building Department required tests and inspections, including Special Inspection as specified in Section 01400.
4. Timely prepare and deliver reports summarizing results of tests and inspections.
5. Attend pre-construction conferences and, if requested, a limited number of progress meetings where Quality Control, testing, and inspection issues require discussion.
6. When directed by the Construction Manager or requested by the Contractor, provide special and additional tests and inspections to verify material compliance with requirements of Contract Documents.
 - a. Construction Manager shall pay for special tests and inspections where work conforms to the Contract Document requirements.
 - b. Contractor shall pay for additional tests and inspections where work fails to comply with Contract Document requirements (re-inspection) and for costs associated with cancelled or short-notice re-scheduling of requested sampling, testing, and inspection. Testing Laboratory work requested by Contractor to fulfill submittal requirements shall also be considered additional tests.

1.05 CONTRACTOR RESPONSIBILITIES

Contractor shall deliver adequate samples of materials proposed to be used and which require testing to the Testing Laboratory. Contractor shall cooperate with Testing Laboratory personnel, and provide access to the work and to manufacturer's facilities. Contractor shall provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.

Contractor shall notify Testing Laboratory and Construction Manager 24 hours prior to expected time for operations requiring inspection, sampling and testing services.

1.06 TEST AND INSPECTION REPORTS

A. REPORT CONTENTS:

At a minimum, Test and Inspection Reports shall include the following:

1. Project name and date of report.
2. Testing Laboratory name, address, telephone number, name of laboratory field sampling personnel, lab testing personnel, or QCS Inspector as applicable.
3. Date, time, and location of sampling, testing, and inspecting.
4. Ambient temperature and weather conditions at the site or shop and curing conditions of samples.
5. Product identification and referenced specification Section number.
6. Type of sample, test, and inspection and industry standard for sampling and testing.
7. Results of sample, test, and inspection.
8. Evaluation of compliance with requirements in Contract Documents.
9. Certified Inspection Reports shall specifically indicate the qualification of the inspector to render judgment and certify said inspection.
10. When requested by Construction Manager, interpretation of test results.

B. DISTRIBUTION OF TEST AND INSPECTION REPORTS:

Test and Inspection reports shall be submitted to the Construction Manager for distribution as Product Data described in Section 01 33 00, unless technical specification sections require submittal for review. Test reports shall be submitted not more than two days after completion of required tests. Inspection reports shall be submitted immediately if deficiencies or significant irregularities are noted, and in no case less than two working days after said inspection. Provide six (6) copies of all reports.

1.07 SUBMITTALS

The following information shall be provided in accordance with Section 01 33 00:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify

compliance on the part of the Contractor with the specifications. *Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.*

2. Documentation of conformance with Testing Laboratory Qualifications as specified in paragraph 01 45 29 - 1.03 herein.
3. Form A described in paragraph 01 45 29 - 3.03 herein, by both Testing Laboratory and Contractor.
4. Final laboratory report as described in paragraph 01 45 29 - 3.04.

1.08 LIMITS ON TESTING LABORATORY AUTHORITY

Testing Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents. Testing Laboratory may not approve or accept any portion of the work, nor assume any duties of Contractor. Testing Laboratory has no authority to stop the work.

PART 2 – PRODUCTS

2.01 SOURCE QUALITY CONTROL

A. GENERAL:

Source quality control is defined in Section 01 45 00. This Section provides general guidelines as to the sampling, tests, and inspections required of products and manufactures prior to delivery to the project site and should be considered a minimum. Additional information and requirements are provided in each technical specification Section and those requirements shall control over this Section when in conflict. Absence of a test, inspection or requirement listed herein from a subsequent specification Section does not relieve the Testing Laboratory or the Contractor from their respective responsibilities specified in this Section.

B. REFERENCE STANDARDS IN OTHER SECTIONS:

Codes, standards, and other references called out below, but which are not listed in paragraph 1.02 are described in other specification Sections and not repeated herein.

C. FILL MATERIALS:

1. IMPORTED FILL MATERIALS:

Testing Laboratory may conduct additional testing on behalf of Contractor to prepare required submittals as specified. Tests shall conform to the following for both Source and Field Quality Control:

Test	Standard Procedure
Moisture content	ASTM D3017
Gradation	ASTM C136
Density in-place	ASTM D1556
Moisture-density relationships	ASTM D1557
Liquid Limit, Plasticity Index	ASTM D4318

2. TYPE C FILL MATERIAL:

Testing Laboratory shall conduct required testing to verify on-site materials proposed for fill conforms to specifications. Contractor shall pay Testing Laboratory for such sampling and testing. Sampling and testing shall Classify Soil according to ASTM D2487 including Liquid Limit, Plasticity Index, and determine optimum moisture content and density relationship, and other data as required for proper use of this material.

B. PAVING MATERIALS:

Provide sampling and testing requested by Construction Manager or additional testing as requested by Contractor to verify materials proposed for use conform to specifications.

C. CONCRETE REINFORCING:

Provide sampling and testing requested by Construction Manager or additional testing as requested by Contractor to verify materials proposed for use conform to specifications.

D. CAST-IN-PLACE CONCRETE:

1. GENERAL:

Field sampling and testing shall be performed by the testing laboratory specified in paragraph 01 45 29 -1.01 A. Samples shall be taken at random locations and at such times to represent the quality of the materials and work throughout the project. The laboratory shall provide the necessary labor, materials and facilities for sampling. Aggregates shall be sampled not less than 30 days prior to the use of such aggregates in the work. At Contractor's expense, Testing Laboratory may assist Contractor in formulating concrete mix designs, testing and reporting same, and providing the services of a Professional Engineer to review and seal the mix design.

2. AGGREGATES:

Samples shall be taken at the discharge gates of the bins feeding the weigh hopper. The Contractor shall provide safe and suitable facilities for obtaining samples. Testing shall confirm continuing conformance with specifications for gradation, cleanliness and sand equivalent. A maximum of one test per day of each aggregate is required. Sampling shall be repeated when the source of material is changed or when unacceptable deficiencies or variations from the specified requirements of materials are found in testing. The full test program is required before source changes will be accepted. Aggregate samples shall be tagged and their sources identified.

3. COARSE AGGREGATE:

A sample weighing between 50 and 60 pounds shall be taken after the batch plant is brought up to full operation conforming to ASTM D75. Sample and test coarse aggregate each 400 cubic yards of concrete. The samples shall be taken so that a uniform cross section, accurately representing the materials on the belt or in the bins, is obtained.

4. FINE AGGREGATE:

Samples shall be taken as specified for coarse aggregate. Sample and test fine aggregate each 200 cubic yards of concrete. The samples shall be taken for sieve analysis of fine aggregate and specific gravity tests. Samples of sand shall be taken when the sand is moist.

E. STRUCTURAL STEEL:

1. SHOP WELD INSPECTION FOR STRUCTURAL STEEL, AND STEEL FABRICATIONS:

AWS Certified Welding Inspector shall visually inspect 100 percent of structural welds and will inspect 25 percent of fillet welds greater than 5/16 inch, 100 percent of butt welds, moment connection welds, and full penetration groove welds by ultra-sonic or magnetic particle inspection. Acceptance Criteria: AWS D 1.1. Paragraph 8.15.1 for visual inspection and Paragraphs 8.15.2.1 and 8.15.2.2 for ultra-sonic or magnetic particle inspection.

2. SHOP INSPECTION OF HIGH-STRENGTH BOLTED CONNECTIONS:

Inspect 100 percent of high-strength bolted connections according to AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts." All such bolts shall be fully tensioned unless otherwise noted on the drawings.

3. MATERIALS' CONFORMANCE TO SPECIFICATIONS:

Testing Laboratory shall sample and test such items to ensure Standard Compliance for any specified steel materials, connection hardware, and details for which mill certificates or other required certificates have not

been submitted. Contractor shall pay for the cost of such sampling, additional testing, and reporting.

F. MISCELLANEOUS METALWORK AND GUARDRAILING:

Provide sampling and testing requested by Construction Manager or additional testing as requested by Contractor to verify materials proposed for use conform to specifications.

G. COATING SYSTEMS:

Provide sampling and testing requested by Construction Manager or additional testing as requested by Contractor to verify materials proposed for use conform to specifications.

PART 3 – EXECUTION

3.01 FIELD QUALITY CONTROL

A. GENERAL:

Field quality control is defined in Section 01400. This Section provides general guidelines as to the sampling, tests, and inspections required of work in progress or completed in the field, and should be considered a minimum. Additional information and requirements are provided in each technical specification Section and those requirements shall control over this Section when in conflict. Absence of a test, inspection or requirement listed herein from a subsequent specification Section does not relieve the Testing Laboratory or the Contractor from their respective responsibilities specified in this Section.

B. REFERENCE STANDARDS IN OTHER SECTIONS:

Codes, standards, and other references called out below, but which are not listed in paragraph 1.02 are described in other specification Sections and not repeated herein.

C. EARTHWORK AND FILL:

1. GENERAL:

The Construction Manager will coordinate the taking of samples and making tests to check compliance with these specifications. The Contractor shall remove surface material at locations designated by the Construction Manager and provide such assistance as necessary for sampling and testing. The Construction Manager may direct the Contractor to construct inspection trenches in compacted or consolidated backfill to determine that the Contractor has complied with these specifications. Payment for inspection trenches shall be as specified in paragraph 00710-4.06.

2. SUBGRADE PREPARATION AND COMPACTION:

Verify depth of scarification, moisture content is within optimal limits for compaction, and degree of compaction achieved. Frequency of testing shall generally conform to 25 foot maximum spacing for strip footings, each isolated pad footing, every 900 square feet for slabs and mat foundations, or as directed by the Construction Manager in light of actual geometry and conditions extent.

3. STRUCTURE FILL:

Verify material provided, lift thickness, and compaction density. Frequency of sampling and testing shall be the same as for Subgrade Preparation and Compaction.

4. STRUCTURE BACKFILL:

Verify material provided, lift thickness, and compaction density. Frequency of sampling and testing shall be as directed by the Construction Manager but not less than every 2 feet vertical lifts and every 1600 square feet of filled area.

5. OTHER FILL MATERIALS:

Verify material used, lift thickness, and compaction density. Frequency of sampling and testing shall be as directed by the Construction Manager.

D. PAVING:

1. Earthwork and Base Aggregate: Provide sampling and testing same as Fill described above. Frequency shall conform to Asphalt Concrete Pavement, below.
2. Hot Mix Asphalt Pavement: Sample and test pavement thickness and installation per Caltrans Standard Specifications. Thickness verification shall be made at a frequency not to exceed 1600 square feet of roadway or parking zones or as directed by the Construction Manager.
3. Sitework Concrete at Pavement: Sitework concrete at pavement consists of curbs, gutters, monolithic curb/sidewalk, inlet structures, catch basins, and other concrete construction in contact with paving or necessary for a complete paving job but not associated with buildings or structural work controlled by the IBC. Testing Laboratory shall conduct sampling and testing the same as specified for cast-in-place concrete, except strength cylinder testing shall occur at one-half the frequency (placing rate) as for structural concrete.

E. CONCRETE REINFORCING:

1. Provide Special Inspection for all structural reinforcing in concrete per IBC Section 1704.4.

2. Provide Special Inspection for mechanical reinforcing connectors and splicing systems as required by that product's ICBO Evaluation Report, or equivalent.

F. CAST-IN-PLACE CONCRETE:

1. Sample the first daily truckload of ready mixed concrete and every 50 cubic yards thereafter, complying with ASTM C172.
2. Perform one slump test for each truck load of ready mixed concrete, complying with ASTM C143.
3. Perform one air content test for each set of compressive strength specimens, complying with ASTM C31.
4. Fabricate compressive strength specimens, complying with ASTM C39.
5. Make one set of 6 of compressive strength specimens for each day of structural concrete placing or each 50 cubic yards or fraction thereof for each class of concrete.
6. Test two specimens after curing 7 days, two specimens after curing 28 days, and retain two specimens for later testing if required.
7. Comply with ACI 214 for evaluation and acceptance of concrete.
8. Certified reports of the test results shall be provided directly to the Construction Manager. Test reports shall include sufficient information to identify the mix used, the stationing or location of the concrete placement, and the quantity placed. Slump, air content, temperature of concrete, and ambient temperature shall be noted. Quality control charts showing field test results shall be included with the test results for each class of concrete in each major structure. Charts shall be prepared in accordance with ACI 214. Quality control charts shall be maintained throughout the entire job and shall be available for the Construction Manager's inspection at any time.
9. If the 28-day test results fall below the specified compressive strength for the class of concrete required for any portion of the work, adjustment in the proportions, water content, or both, shall be made as necessary at the Contractor's expense. Changes and adjustments shall be reported in writing to the Construction Manager.
10. If compressive test results indicate concrete in place may not meet structural requirements, tests shall be made to determine if the structure or portion thereof is structurally sound. Tests may include, but not be limited to, cores in accordance with ASTM C42/C42M and any other analyses or load tests acceptable to the Construction Manager. Costs of such tests shall be borne by the Contractor.

G. ANCHOR BOLTS AND ANCHORS:

1. Provide Special Inspection for wedge anchors, undercut anchors, adhesive anchors, epoxy anchors, and all other anchoring systems installed in hardened concrete as required by that product's ICBO Evaluation Report, or equivalent.
2. Site Inspection of Structural Anchor Bolts: Visually inspect all structural anchor bolts for grade, diameter, embedment, geometry, or type ("J" bolt or hex-head), quantity, and general location. Contractor shall assume all responsibility for detailed dimensions locating each individual bolt, each bolt group in total, and locations of bolts within each group (template).

H. GROUT:

1. Cementitious Grout for Structural Bearing: Visually inspect all column baseplates, and grouted zone between structural struts/beams and their supporting wall elements. Determine complete fill beneath baseplate by tapping with hammer and noting hollow reports. Verify grout conforms to specification by observing empty bags. The Contractor shall leave empty bags visible adjacent to area used until inspection complete.
2. Epoxy Grout for Equipment Bases: Provide inspection conforming to applicable specification Sections and their reference standards, details on the Drawings, and the requirements of the epoxy grout manufacturer.

I. STRUCTURAL STEEL:

1. Site Weld Inspection for Structural Steel and Steel Fabrications: Visually inspect 100 percent of structural welds. Inspect 25 percent of fillet welds greater than 5/16 inch, 100 percent of butt welds, moment connection welds, and complete penetration groove welds by ultra-sonic or magnetic particle inspection.
2. Acceptance Criteria: AWS D 1.1. Paragraph 8.15.1 for visual inspection and paragraphs 8.15.2.1 and 8.15.2.2 for ultra-sonic or magnetic particle inspection.
3. Field Inspection of High-Strength Bolted Connections: Inspect 100 percent of high-strength bolted connections according to AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts." All such bolts shall be fully tensioned unless otherwise noted on the drawings.
4. Bend Tests: Perform bend test on 10 percent of welded shear connectors. Modify test method and frequency if alternate (non-welded) shear connectors utilized by Contractor.

J. MISCELLANEOUS METALWORK AND GUARDRAILING:

1. Miscellaneous Metalwork: Provide field inspections and testing if requested by Construction Manager for the work specified. Sampling and testing shall conform to the applicable Reference Standard or Code.

2. Guardrailing: Provide field inspections and testing if requested by Construction Manager for the work specified. Sampling and testing shall conform to the applicable Reference Standard or Code.

K. COATING SYSTEMS:

1. Coating Systems: Provide inspection as requested by Construction Manager, and additional inspections as requested by Contractor.

3.02 EVALUATION AND CORRECTION

A. EVALUATION:

Satisfactory completion of work will be judged on results of laboratory, shop, and site tests and inspections.

B. CORRECTIONS:

If results of tests and inspections indicate work is below requirements of Contract Documents, that portion of work is defective and shall be repaired or replaced by the Contractor at no additional expense to the Owner by methods specified in each material or system's Section. Corrective action shall continue until such work meets the requirements of the Contract Documents.

3.03 SCHEDULE OF INSPECTIONS AND TESTS

Form A below is an example and a similar form shall be used to coordinate sampling and testing provided by Testing Laboratory, Construction Manager, Contractor, and other parties, if any. Testing Laboratory shall fill out Form A with anticipated inspections, sampling, and testing, submit for review by Construction Manager and for information to Contractor, and revise as directed. After receipt of Testing Laboratory's Form A submittal, Contractor shall submit Form A to identify sampling and testing requested for submittal preparation, and with an allowance for additional inspections. Such allowance shall not be less than five percent (5 percent) of the anticipated Field Quality Control budget for the Testing Laboratory, but shall not contractually commit Contractor to such expenditure, unless additional inspections requested and then only to their extent.

Form A: Anticipated sampling, testing, and inspections by Testing Laboratory and Contractor. Prepared by: ___ Testing Laboratory ___ Contractor (check one). An electronic version is available upon request. Expand each cell as necessary to provide a complete scope description.

Specification Section	Source Quality Control	Field Quality Control
31 20 00 Earth Moving		
32 12 00 Flexible Paving		
03 20 00 Concrete Reinforcement		
03 30 00 Cast-in-Place Concrete		
03 60 00 Grout		

05 12 00 Structural Steel		
05 50 10 Anchor Bolts		
05 50 50 Miscellaneous Metalwork		
05 52 00 Guard railing		
09 90 00 Coating Systems		

3.04 FINAL LABORATORY REPORT:

A final report, prepared by the testing laboratory, shall be provided at the completion of all concreting. This report shall summarize the findings concerning concrete used in the project and provide totals of concrete used by class and structure. Final quality control charts for compressive strength tests for classes of concrete specified in each major structure shall be included. The report shall also include the concrete batch plant's coefficient of variation and standard deviation results for each class of concrete as determined in accordance with ACI 214.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers the work necessary to move in personnel and equipment, set up offices, and related facilities necessary to prepare the work area for construction. Temporary facilities and controls required for this work include, but are not necessarily limited to:

1. Temporary utilities such as water, electricity, and telephone
2. Sanitary facilities
3. Contractor's field office
4. Trash and debris disposal

1.02 PRODUCT HANDLING

Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the work.

PART 2 – PRODUCTS

2.01 UTILITIES

A. GENERAL

Provide and pay all costs for temporary water, electricity, and telephone required for the performance of the work.

B. TEMPORARY WATER

1. Arrangements for the use of water from fire hydrants must be made with the City of Crescent City prior to obtaining water from the hydrants. The Contractor shall make his or her own arrangements and pay all costs for obtaining and transporting water to the area of usage.
2. Use only special hydrant operating wrenches to open hydrants and also make certain that the hydrant valve is open "full," since "cracking" the valve causes damage to the hydrant. If any hydrants are damaged as a result of the Contractor's operation, Contractor will be held responsible and shall notify the City so that all damage can be repaired as quickly as possible. Maintain fire hydrants used for temporary water in a completely accessible condition available to the fire department at all times.
3. All costs for water, both temporary and permanent, used during construction, testing, and up to the time of final acceptance by the Owner, shall be paid for by the Contractor.

C. TEMPORARY ELECTRICITY

1. Make all arrangements with the electrical utility and with the Owner for power takeoff points, voltage and phasing requirements, transformers and metering and pay all operating costs for electrical power, both temporary and permanent, used during construction, testing, and up to the time of final acceptance by the Owner.
2. Pay for all services associated with the temporary power, including connections.
3. The limits of work for permanent power lines are shown on the Drawings. Any Pacific Power costs attributable to the installation of permanent power service will be paid for directly by the Owner.

D. TEMPORARY TELEPHONE SERVICE

1. Make all arrangements and pay all operating costs for telephone service, both temporary and permanent, used during construction, testing, and up to the time of final acceptance by the Owner.
2. Pay for all services associated with temporary telephone service including connections.
3. The limits of work for permanent telephone service are shown on the Drawings. Any Frontier costs attributable to the installation of permanent telephone service will be paid for directly by the Owner.

2.02 SANITARY FACILITIES

Furnish and install all required temporary toilet buildings with sanitary toilets for use of all workers; comply with all minimum requirements of the Health Department or other public agency having jurisdiction; maintain a sanitary condition at all times. Existing facility use is not permitted. Provide facilities at time of project mobilization.

2.03 CONTRACTOR'S FIELD OFFICE

The Contractor shall provide at their own expense, their own field office, of sufficient size and with all amenities needed to support Contractor and their staff for the duration of the work.

2.04 EXISTING WATER AND WASTEWATER SYSTEMS

- A. The Contractor shall maintain fire suppression and potable water supply, and wastewater management service throughout the course of construction.
- B. The Owner shall be notified at least 48 hours in advance of any and all disruptions of fire suppression and potable water delivery, and wastewater facility operation.

2.05 TRASH AND DEBRIS DISPOSAL

The Contractor shall provide at their own expense, their own trash storage bin, of sufficient size needed to support Contractor and their staff for the duration of the work. Under no circumstances shall the Contractor use the Owner's trash receptacles or dumpsters located at the work site for any purpose.

PART 3 – EXECUTION

3.01 REMOVAL

Maintain temporary facilities and controls as long as needed for the safe and proper completion of the work; remove all such temporary facilities and controls as rapidly as progress of the work will permit or as directed by the Construction Manager.

END OF SECTION

SECTION 01 55 26

TEMPORARY TRAFFIC CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

Work covered in this section consists of all labor, materials, and equipment required to provide adequate traffic control and regulation through construction areas and street affected by the work.

1.02 QUALITY ASSURANCE

A. QUALIFICATIONS OF WORKERS:

Provide Sufficient Skilled workers and supervisors who shall be present at all times during execution of this portion of the work and shall be thoroughly familiar with traffic regulations, permits, etc., and the materials and techniques specified.

B. CODES AND STANDARDS:

1. Where reference is made to the State Standard Specifications, reference shall mean State of California, Department of Transportation, Standard Specifications, latest edition.
2. Lights, flags, and other warning and safety devices for street and highway work shall conform to the requirements set forth in the current "Manual of Traffic Controls for Construction and Maintenance Work Zones," issued by the California State Department of Transportation.

1.03 TRAFFIC CONTROL PLAN AND PERMITS

The Contractor shall submit a complete traffic control plan indicating how construction will be sequenced and traffic will be handled during construction. The Construction Manager will review this plan for conformance to the Specifications and to ensure adequate thought has gone into the handling of traffic. The plan shall clearly identify work which will interfere with traffic on public roadways, and the estimated duration of work. This plan shall be in conformance with the Contractor's schedule.

Contractor shall obtain encroachment permits at his own expense for any work or traffic control to be performed in public roads. Permit is not required when road is owned and controlled by this project's Owner.

1.04 PRODUCT HANDLING

No material or equipment shall be stored where it will interfere with the free and safe passage of public traffic. At the end of each day's work and at other times when construction operations are suspended for any reason, Contractor shall remove all equipment and other obstructions from that portion of the roadway open for use by the public traffic.

PART 2 – PRODUCTS

2.01 EQUIPMENT

Contractor shall furnish, erect, and maintain, at his or her expense and without cost to the Owner, such fences, barricades, lights and signs, and other devices as are necessary to prevent accidents or damage or injury to the public. Contractor shall also furnish such flagpersons and guards as are necessary to give adequate warning to traffic of any dangerous condition to be encountered. Equipment shall be furnished and kept clean and in good repair by the Contractor at his own expense.

PART 3 – EXECUTION

3.01 TRAFFIC CONTROL

A. MAINTAINING TRAFFIC:

Contractor shall expedite the passage of public traffic through and around the work. The Contractor shall furnish and install signs, detours, lights, flares, barricades, and shall furnish flagpersons and other facilities for the convenience and direction of public traffic. The cost of maintaining traffic, including conforming with the requirements stated herein, furnishing such signs, detours, lights, flares, barricades, flagpersons and other facilities shall be considered as part of the contract price and no extra payment will be made therefore.

B. PUBLIC CONVENIENCE:

1. Contractor's operation shall be conducted so that they offer the least possible obstruction and inconvenience to the public. Contractor shall have under construction no greater amount of work than can be executed properly with due respect to the rights of the public. Contractor shall provide personal advance notice to each affected resident informing them of impending work and provide ample time to remove vehicles and estimated time of driveway closure.
2. Spillage resulting from hauling or ditching operations along or across any public traveled way shall be removed daily.
3. Construction operation shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners and tenants. Convenient access to driveways, houses, and buildings along the line of the work shall be maintained and temporary approaches to crossing or intersecting streets shall be provided and kept in good condition.

C. PUBLIC SAFETY:

1. Whenever the Contractor's operations create a condition hazardous to the public, Contractor shall furnish, erect, and maintain such fences, barricades, lights, signs, and other devices as are necessary to prevent accidents or damage or injury to the public.
2. Should the Contractor appear to be neglectful or negligent in furnishing warning and protective measures as above specified, the Construction Manager may direct attention to the existence of hazard, and the necessary warning and protective measures shall be furnished and installed by the Contractor at Contractor's expense, without cost to the Owner. Should the Construction Manager point out any inadequacy or warning and protective measures, such action on the part of the Construction Manager shall not relieve the Contractor from responsibility for public safety or abrogate Contractor's obligation to furnish and pay for these devices.

D. DETOURS:

Comply with conditions issued with the Encroachment Permit.

E. TRAFFIC CONTROL PLAN SUBMITTAL:

The Contractor shall submit a traffic control plan indicating the preferred method of construction and traffic control plan which complies with these Specifications. Before closing any street to through traffic, the Contractor shall obtain prior approval from the Construction Manager 14 days in advance of closure. Street closures and detours shall allow for access to public facilities and shall allow for passage of emergency vehicles.

F. NOTICES:

Contractor shall expedite the passage of public traffic through and around the work. The Contractor shall furnish and install signs, detours, lights, flares, barricades, and shall furnish flagpersons and other facilities for the convenience and direction of public traffic. The costs of maintaining traffic, including conforming with the requirements stated herein; public notification; and furnishing such signs, detours, lights, flares, barricades, flagpersons and other facilities shall be considered in the total bid.

END OF SECTION

SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS

1.0 SITE MAINTENANCE

The Construction Superintendent shall keep the work site clean and free from rubbish and debris. Materials and equipment shall be removed from the site when they are no longer necessary. Upon completion of the work and before final acceptance, the work site shall be cleared of equipment, unused materials, and rubbish to present a clean and neat appearance.

2.0 POLLUTION CONTROL

1. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.
2. Comply with pollution and environmental control requirements of regulatory agencies.

3.0 EROSION AND SEDIMENT CONTROL

1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
2. Minimize surface area of bare soil exposed at one time.
3. Provide temporary measures including berms, dikes, and drains, and other devices to prevent water flow.
4. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.
5. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

5.0 AIR POLLUTION CONTROL

Del Norte County is a non-attainment area for State standards for particulate matter of less than 10 micrometers in diameter (PM-10). For other point source pollutants, the air basin is an attainment area. The Contractor shall not discharge smoke, dust, and other contaminants into the atmosphere that violate the regulations of any legally constituted authority. He shall also abate dust nuisance by cleaning, sweeping, and sprinkling with water, or other means as necessary. The use of water, in amounts which result in mud on public streets, is not acceptable as a substitute for sweeping or other methods.

6.0 NOISE CONTROL

The Crescent City Harbor is located near residential properties, recreational parks, and commercial hotels. The Construction Superintendent shall employ noise control measures that minimize construction related noise such that it does not exceed 62 dB (7 a.m. to 10 p.m.) and 57 dB (10 p.m. to 7 a.m.) at a distance of 100 feet from the noise source.

END OF SECTION

SECTION 01 71 23
FIELD ENGINEERING

The Owner will establish reference benchmarks and baselines as shown on the plans. From the information provided, the Contractor shall develop and make such additional surveys as are needed for construction, such as control lines, slope stakes, batter boards, stakes for pipe locations and other working points, lines, and elevations. Survey work shall be performed under the supervision of a CA licensed land surveyor or CA registered civil engineer. Contractor shall reestablish reference benchmarks and survey control monuments destroyed by his operations at no cost to the Owner. There is no measurement or payment for this work as a bid item. All costs associated for this work shall be included in the related bid items in the contract.

END OF SECTION

SECTION 01 74 23

FINAL CLEANING

1.0 GENERAL

At the completion of work and immediately prior to final inspection, cleaning of the entire project shall be accomplished according to the following provisions:

1. The Contractor shall thoroughly clean, sweep, wash, and polish all work and equipment provided under the contract, including finishes. The cleaning shall leave the structures and site in a complete and finished condition to the satisfaction of the Construction Manager.
2. All subcontractors shall similarly perform, at the same time, an equivalent thorough cleaning of all work and equipment provided under their contracts.
3. The Contractor shall remove all temporary structures and all debris, including all nails, dirt, sand, gravel, rubbish and waste material.
4. Should the Contractor not remove rubbish or debris or not clean the facilities and site as specified, the Owner reserves the right to have the cleaning done at the expense of the Contractor.
5. Only experienced workers, or professional cleaners, shall be employed for final cleaning.
6. Only cleaning materials recommended by the manufacturer of surface to be cleaned shall be used.
7. Cleaning materials shall be used only on surfaces recommended by the cleaning material manufacturers.
8. In preparation for substantial completion or occupancy, a final inspection of sight-exposed surfaces, and of concealed spaces, shall be conducted.
9. Grease, dust, dirt, stains, labels, fingerprints, and other foreign materials shall be removed from sight-exposed finished surfaces. Polish surfaces so designated to shine finish.
10. Marred surfaces shall be repaired, patched, and touched up to specified finish, to match adjacent surfaces.
11. Materials shall be handled in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.

2.0 OWNER OCCUPANCY

As a condition precedent to final acceptance or release of a portion of the facility for use by the Owner, the Contractor and all subcontractors shall thoroughly clean all surfaces to leave same in first-class condition.

3.0 POST-CONSTRUCTION REPAIRS

The Contractor shall make such minor repairs and alterations as may be necessary to make any structure or component ready for occupancy. This section shall not apply after or to the extent that the Owner has taken possession of a portion of the facilities on which the Contractor has performed work.

4.0 SITE CLEANUP

For all roadway work, the Contractor shall conform the work to acceptable line and grade, as determined by the Engineer. In addition, the Contractor shall have the sidewalks and streets affected by the work swept by a street or sidewalk cleaner as determined by the Construction Manager. Other surfaces of the grounds shall be rake cleaned. The Owner will not authorize final payment until the Contractor has removed all rubble and debris from the street and adjoining work areas, including all temporary storage and parking areas used by the Contractor.

For pipelines, storm sewers, catch basins and manholes, prior to their activation or at the conclusion of the project, the Contractor shall thoroughly clean all of the new pipes by flushing with water for fluid lines. Debris cleaned from the lines shall be removed from the lowest access point.

All temporary utility drops, fencing, and water supply outlets shall be removed.

All plant gate identification signs, barricades, tools, rubbish collection receptacles and other such items shall be removed by the Contractor.

END OF SECTION

SECTION 01 76 00

PROTECTING INSTALLED CONSTRUCTION

1.0 STRUCTURES

The Contractor shall take all precautions necessary to protect the integrity and usefulness of all existing and newly constructed facilities. If necessary, the Contractor may, with the approval of the Owner, remove such existing structures, including but not limited to curbs, gutters, pipelines and utility poles as may be necessary for the performance of the work, and shall rebuild the structures thus removed in as good a condition as found with the requirements specified. He shall also repair existing structures which may be damaged as a result of the work under this contract.

2.0 ROADS AND STREETS

Unless otherwise specified, roads and streets in which the surface is removed, broken, or damaged, or in which the ground has caved or settled during the work under this contract, shall be resurfaced and brought to the original grade and section. Roadways used by the Contractor shall be cleaned and repaired. Before resurfacing material is placed, edges of pavements shall be trimmed back far enough to provide clean, solid, vertical faces, and shall be free of loose material. All paved surfaces shall be cut with a pavement saw. Rough cuts are not allowed. Repair work shall conform to the paving specifications.

3.0 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS

Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored as nearly as possible to their original condition. Restoration shall take place within 1 week or sooner as directed by the Construction Manager.

Existing guard posts, barricades, and fences shall be protected and replaced if damaged.

4.0 PROTECTION OF EXISTING INSTALLATIONS

The Contractor shall protect all existing facilities and structures from damages. However, if damage occurs, the Contractor shall immediately correct or replace existing equipment, structures, or facilities which are damaged in any way as a result of his operations.

END OF SECTION

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. WORK INCLUDED:

1. Throughout progress of the work, Contractor shall maintain an accurate record of changes in the Contract Documents.
2. Upon completion of the work, transfer the record changes to a set of Record Documents.

1.02 QUALITY ASSURANCE

A. Delegate the responsibility for maintenance of Record Documents to one person on the Contractor's staff.

B. ACCURACY OF RECORDS:

1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.
2. Accuracy of records shall be such that a future search for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.

C. Make entries within 24 hours after receipt of information that the change has occurred or been approved.

1.03 SUBMITTALS

A. The Construction Manager's approval of the current status of Project Record Documents may be a prerequisite to approval of requests for progress payments or a request for final payment under the contract.

B. Prior to submitting a request for final payment, submit the Final Project Record Documents to the Construction Manager and secure Construction Manager's approval.

1.04 PRODUCT HANDLING

A. Maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the work and transfer of all recorded data to the final Project Record Documents.

B. In the event of loss of recorded data, use means approved by the Construction Manager to again secure the data.

1. Such means shall include, if necessary, removal and replacement of concealing materials.
2. In such case, provide and install replacements to the standards originally required by the Contract Documents.

PART 2 – PRODUCTS

2.01 RECORD DOCUMENTS

- A. Promptly following receipt of the Owner's Notice to Proceed, secure from the Owner at no charge to the Contractor one complete set of all documents comprising the Contract and add to this clean copies of all shop drawings, catalog cuts and any other descriptive data concerning materials incorporated in the work and methods used to accomplish the work. This will be the job set of Record Documents (Job Set).
- B. At a time nearing the completion of the work, secure from the Owner at no charge to the Contractor one complete set of all documents comprising the Contract and add to this clean set, copies of all shop drawings, catalog cuts and any other descriptive data concerning materials incorporated in the work and methods used to accomplish the work. Transfer the comments recorded on the Job Set of Record Documents to this clean office copy to facilitate preparation of the Final Project Record Documents.

This requirement may be waived if the Construction Manager determines that the Job Set is sufficiently legible for use in preparation of the Final Project Record Documents.

PART 3 – EXECUTION

3.01 MAINTENANCE AT JOB SITE

- A. Immediately upon assembly of the job set, identify each of the Documents with the title, "RECORD DOCUMENTS--JOB SET".
- B. PRESERVATION:
 1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set.
 2. Do not use the job set for any purpose except entry of new data and for review by the Construction Manager, until start of transfer of data to Final Project Record Documents.
 3. Maintain the job set at the site of work.
 4. Record Documents shall be available for review by the Construction Manager during normal working hours at the Contractor's field office.
- C. MAKING ENTRIES ON DRAWINGS:

1. Annotations to the Record Documents shall be made with an erasable colored pencil conforming to the following color code:

Additions – Red

Deletions – Green

Comments – Blue

Dimensions – Graphite*

*Legibly mark to record actual depths, horizontal and vertical location of underground raceways, cables, and appurtenances referenced to permanent surface improvements.

2. Date all entries.
3. Call attention to the entry by a “cloud” drawn around the area or areas affected.
4. In the event of overlapping changes, use different colors for the overlapping changes.

D. Make entries in the pertinent other Documents as required.

3.02 FINAL PROJECT RECORD DOCUMENTS

A. The purpose of the Final Project Record Documents is to provide factual information regarding all aspects of the work, both concealed and visible and to permit future modification of the work to proceed without reference to other documents, lengthy and expensive site measurement, investigation, and examination.

B. APPROVAL OF RECORDED DATA PRIOR TO TRANSFER:

1. Following assembly of the Final Record Documents described in the Article titled Final Record Documents, of this Section, and prior to start of transfer of recorded data thereto, secure the Construction Manager’s approval of all data recorded on the job set.
2. Make required revisions.

C. TRANSFER OF DATA TO DRAWINGS:

1. Carefully transfer change data shown on the job set of Record Drawings to the Final Record Documents, coordinating the changes as required.
2. Clearly indicate on each Drawing sheet and affected detail a full description of changes made during construction, and the actual location of items.
3. Call attention to each entry by drawing a “cloud” around the area or areas affected.

4. Make changes neatly, consistently, and with the proper media to assure clear reproduction.
- D. TRANSFER OF DATA TO OTHER DOCUMENTS:
1. If the documents other than Drawings have been kept clean during progress of the work, and if entries thereon have been orderly, the job set of those Documents other than Drawings may be accepted as Final Record Documents.
- E. REVIEW AND SUBMITTAL:
1. Prior to requesting final payment:
 - a. Submit the completed set of Project Record Documents to the Construction Manager.
 - b. Participate in review meetings as required.
 - c. Make required changes and promptly deliver the Final Project Record Documents to the Construction Manager.

END OF SECTION

SECTION 02 00 00
EXISTING CONDITIONS

PART 1 – GENERAL

1.01 RELATED INFORMATION

Related information and requirements are included in the individual Sections of the Specifications and the project Permits.

1.02 INFORMATION ON SITE CONDITIONS

Information obtained by the Engineer regarding site conditions, existing facilities, and similar data are shown on the Plans.

1.03 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall satisfy himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, work in sensitive environment and uncertainties of weather, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this contract.
- B. The Contractor further shall satisfy himself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site, any exploratory work done by the District, as well as from information presented by the Plans and Specifications made a part of this contract. Any failure by the Contractor to acquaint himself with all the available information will not relieve him from responsibility for properly estimating the difficulty or cost of successfully performing the work.
- C. The Contractor shall anticipate underground obstructions such as utility lines, concrete, water table, soil conditions and debris. No extra payment will be allowed for the removal, replacement, repair or possible increased cost caused by underground obstructions. Any such lines or obstructions indicated on the map show only the approximate location and must be verified in the field by the Contractor. The District and Engineer will endeavor to familiarize the Contractor with all known underground obstructions, but this will not relieve the Contractor from full responsibility in anticipating and locating all underground obstructions.
- D. The Contractor shall note that heavy truck and equipment operations may cause roadway and parking lot damage in excess of normal usage. Damage caused to the streets by Contractor's operations shall be repaired by the contractor at no additional cost to the District. A series of photographs shall be logged by the Contractor for approval by the Engineer to establish existing conditions prior to construction.

END OF SECTION

SECTION 02 01 00
MAINTENANCE OF EXISTING CONDITIONS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Related requirements specified elsewhere:

See Division 1 regarding general conditions specific to the Contract. See also Section 02 00 00 regarding site conditions.

See also Plans for location of utilities.

1.02 CALIFORNIA ADMINISTRATIVE CODE

A. Section 1540(a)1 of Construction Safety Orders (Title 8) California Administrative Code, Section 1540 states:

1. "Prior to opening an excavation, effort shall be made to determine whether underground installations; i.e., sewer, water, fuel, electric lines, etc., will be encountered and, if so, where such underground installations are located. When the excavation approaches the approximate location of such an installation, the exact location shall be determined by careful probing or hand digging; and, when it is uncovered, adequate protection shall be provided for the existing installation. All known owners of underground facilities in the area concerned shall be advised of proposed work at least 48 hours prior to the start of actual excavation."

B. In line with California's Administrative Code, Section 1540, Contractor shall make the effort to determine the exact location of underground installations.

PART 2 – PRODUCTION – OWNERS

2.01 UTILITIES AFFECTED

A. GENERAL:

The Underground Service Alert (USA), (800) 227-2600, shall be contacted at least 72 hours before any work commences.

B. ELECTRICAL

Pacific Power, (707) 465-7411. In this area, Pacific Power has control of overhead and underground power. It should be noted that where overhead service to a structure known requiring it does not exist, then underground power service shall be assumed to exist.

C. WATER SERVICE

City of Crescent City Water Department. They can be contacted at (707) 464-7483.

D. SEWER SERVICE

City of Crescent City Water Department. They can be contacted at (707) 464-7483.

E. ROADS / STREETS / DRAINAGE

The City of Crescent City has jurisdiction over roads, streets, and drainage in the City. They may be contacted by phoning (707) 464-9506.

F. TELEPHONE

Frontier Communications. (541) 269-3375.

G. CABLE TELEVISION

Charter Communications. (707) 832-8957

PART 3 – EXECUTION

3.01 CONTRACTOR RESPONSIBILITY

- A. It may be expected that there will be some variation in location of existing utilities from that as shown on the Plans. Contractor is also hereby notified that there are likely additional irrigation lines in the project area that are not shown on the plans. Actual location can best be determined in the field after pre-marking by the various utilities affected. Contractor is required to contact Underground Services Alert (USA) before beginning any excavations.
- B. The Contractor shall be responsible for determining the location of existing service laterals, irrigation lines or appurtenances whenever the presence of such utilities on the site of the construction can be inferred from the presence of other visible facilities, such as building, meter and junction boxes, located on or adjacent to the site.
- C. The Contractor shall promptly notify the Engineer in writing in the event that the Contractor discovers utility facilities not identified by the Engineer in the Contract Plans or Specifications.
- D. It should be understood that the various utilities are indicated on the Plans to show only the approximate location and must be verified in the field by the Contractor. It may be expected that there will be variation in location from that as shown on the Plans to the actual location. Actual location can best be determined in the field after pre-marking by the various utilities affected. The various utilities will cooperate with the Contractor to endeavor to familiarize the Contractor with all known underground utilities obstructions, but this will not relieve the Contractor from assuming full responsibility in anticipating and locating their actual location with respect to utilities which the Contractor must locate and identify under the provisions hereof.

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 – GENERAL

1.01 DESCRIPTION:

- A. Demolition consists of furnishing transportation, labor, material, equipment and incidentals necessary to demolish items as described in this Specification as well as items noted on the Drawings.
- B. All materials resulting from the demolition work unless specified otherwise shall become the property and responsibility of the Contractor for both demolition and disposal.
- C. The work includes, but is not strictly limited to:
 - 1. Existing asphalt paving where shown on plans or otherwise required for project completion.
 - 2. Existing concrete slab where shown on plans or otherwise required for project completion.
 - 3. Existing precast concrete split rail fence where shown on plans or otherwise required for project completion.
 - 4. Existing underground utilities where shown on plans or otherwise required for project completion.
 - 5. Locating existing underground utilities not located by USA or others.

1.02 QUALITY ASSURANCE:

A. GENERAL:

All work shall be performed in accordance with local codes and regulations, applicable state industrial safety provisions, and the requirements of the Occupational Safety and Health act.

The Contractor shall alter, or rework existing concrete structures as shown and specified. Generally, when items of equipment and piping are removed, the areas and surfaces from which items were removed shall be left with a neat appearance and finish compatible with surrounding areas, colors, and surfaces. The Contractor shall do all painting, sanding, grouting, sacking, resurfacing, and other work as necessary to comply with the above requirements. Prior to structural modifications, all surfaces shall be subject to inspection by the Owner.

Miscellaneous cutting, patching and painting necessitated as a result of visual conditions, and the reworking of abutting surfaces as required to make new work join and match existing surfaces to remain shall be part of the work under this contract. Prospective Contractors shall visit the job site to ascertain the work required to meet the requirements shown and specified.

B. OPERATING REQUIREMENTS:

Demolition shall be performed in such a manner as to not harm adjacent structures, existing landscaping or natural vegetation. The Contractor shall assume full responsibility for such disturbance. All costs of any such repair, rehabilitation, or modifications shall be borne by the Contractor.

When removing materials or portions of existing structures, the Contractor shall take all precautions and use all necessary barriers and other protective devices so as not to damage the structures beyond the limits necessary for the new work, nor to damage the structures or contents by falling or flying debris.

1.03 SUBMITTALS:

Submittals shall be provided in accordance with Section 01 33 00 and shall include the following information:

1. A copy of this specification section, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.
2. Equipment to be used.
3. Methods of removal and staging.
4. Environmental measures planned to prevent contamination of groundwater, or the owners property during the course of work.
5. Maintenance, fueling, trucking, barging and disposal routes.
6. Anticipated governmental agency coordination and permits.

PART 2 – PRODUCTS

No products are included in this section.

PART 3 – EXECUTION

3.01 GENERAL:

All work of altering existing structures shall be done at such time and in such manner as will comply with the approved time schedule. So far as possible before any part of the work is started, all tools, equipment, and materials shall be assembled and made ready so that the work can be completed without delay.

The Contractor shall cut, repair, reuse, excavate, demolish or otherwise revise parts of the existing structures, piping or appurtenances, as indicated on the drawings, herein specified, or necessary to permit completion of the work under this contract.

Where necessary or required for the purpose of making connections, the Contractor shall cut existing pipelines in a manner to provide an approved joint. Where required, weld beads, flanges or couplings shall be provided, as required. The Contractor shall provide suitable plugs, bulkheads or other means to hold back the flow of water or other liquids, all as required in the performance of the work under this contract.

3.02 DUST AND DEBRIS CONTROL:

Dust resulting from demolition and removal work shall be controlled to prevent the spread of dust and to avoid creation of a nuisance or hazard in the surrounding area. Refer to Section 01 41 00 for regulatory requirements.

3.03 PROTECTION

- A. The Contractor shall protect all electrical and fire protection facilities and utilities where removal of existing materials is necessary to accomplish the work. The Contractor shall provide all necessary labor and material to build barricades and temporary services or connections for electrical, mechanical, and plumbing utilities.
- B. The Contractor shall protect from damage existing utility lines that are made known to the Contractor prior to demolition work. The Contractor shall initiate a "USA Alert" survey to identify all existing utilities. The Contractor shall repair damaged utility lines caused by the Contractor as directed by the Construction Manager at no additional cost to the Owner.
- C. Where the public safety is endangered in the area of removal work, barricades for traffic shall be used and advance notice shall be given to the Construction Manager prior to beginning any such work.

3.04 USE OF EXPLOSIVES:

The use of explosives of any kind is strictly prohibited.

3.05 SAW CUTTING

When portions of asphalt pavements and concrete pads are to be removed and later construction is to be connected, edges shall be saw cut, on a neat line at right angles to the curb face.

3.06 EXISTING MATERIALS TO BE REMOVED

- A. No on-site sale of salvage will be allowed. No removals shall be made from the site by any person other than the Contractor or employees of the Contractor.
- B. The Contractor shall not interfere with the use of or access to adjacent facilities.
- C. The Contractor shall provide and place bracing and shoring to prevent movement or damage to structures and improvements which are to remain. Contractor shall locate lines shown on plans that are not marked by "USA". The Contractor shall cease operation and notify the Construction Manager immediately if the safety of any facility appears to be endangered. The Contractor shall not resume operations until safe conditions have been restored.
- D. Removal work shall be performed in accordance with applicable requirements of authorities having jurisdiction and under the Engineer's inspection. The Contractor shall have, at the work site, copies of applicable extracts of: Construction Safety Orders and General Industrial Safety Orders issued by the State Division of Industrial Safety. The Contractor shall comply with provisions of these and other applicable laws, ordinances and regulations.
- E. Burning of material on site shall not be permitted.

3.07 SALVAGED ITEMS

The Owner has the right to salvage any items scheduled for removal. The Contractor shall notify the Construction Manager 5 days prior to any salvage or demolition work to determine the disposition of items to be removed. Items the Owner wishes to keep shall be placed at a location specified by the Owner.

3.08 DISPOSITION OF MATERIAL

- A. Unless otherwise noted, all materials and equipment to be removed, except for equipment or material listed for salvage, shall become the property of the Contractor and shall be promptly removed from the property. Under no circumstances shall the Contractor use the Owner's or adjacent property's trash receptacles or dumpsters located at the work site for any purpose.
- B. If required, materials to be reused or relocated shall be carefully removed and stored to prevent damage and reinstalled as the work progresses.

3.09 CLEAN-UP

- A. Debris and rubbish shall be removed and transported in a manner that will prevent spillage onto existing streets or adjacent areas. All debris shall be removed off site at the Contractor's expense.
- B. All applicable federal, state and local regulations regarding handling and disposal shall be strictly complied with.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 WORK INCLUDED:

Concrete required for this work is indicated on the Drawings and includes, but is not limited to: Minor concrete work including curb ramps, sidewalks, curbs, valley gutters, bollard footings, and miscellaneous structures.

1.02 REFERENCE SPECIFICATIONS

- A. All concrete in this section shall conform to the requirements of Section 90-2 "Minor Concrete", Standard Specifications, 2010 by the State of California, Department of Transportation except as modified by the supplemental requirements herein, excluding measurement and payment items.
- B. Design, detailing and fabrication of reinforcing steel shall conform to ACI 315-74 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" and ACI 318-71 "Building Code Requirements for Reinforced Concrete."
- C. Form work and finishing as well as construction methods and miscellaneous materials shall conform to Section 51 "Concrete Structures" of Standard Specification, 2010, excluding measurement and payment items.

1.03 SUBMITTALS

Refer to Section 01 30 00 – Shop Drawings and Submittals: Requirements for submittals.

PART 2 – PRODUCTS

2.01 CONCRETE

- A. Concrete shall conform to the following minimum requirements and shall be air entrained (6% +/-1%).

<u>Location</u>	<u>Minimum psi @ 28 days</u>	<u>Maximum Size Aggregate</u>	<u>Minimum Sacks of Cement/C.Y.</u>	<u>Minimum Slump Range</u>
Minor Concrete Work, Curb, Gutter	2,800	3/4	5.00	2-4

- B. Select aggregate size to prevent honeycombing in thin sections.

- C. **ADMIXTURES:**

The use of admixtures shall be confined to those admixtures listed below. Admixtures shall be batched in strict accord with manufacturer's recommendations.

1. Air Entrainment: ASTM C260.
2. High Range Water Reducing Admixture (Superplasticizer): Euclid Chemical Co. "Eucon 37" or Sika Chemical Corp. "Sikament". Admixture shall conform to ASTM C494-86, Type F or G.

2.02 CEMENT

Cement shall be Portland, conforming to ASTM C-150, Type II.

2.03 AGGREGATES

Aggregates shall conform to ASTM C-33-74a.

2.04 REINFORCING STEEL

Reinforcing steel shall conform to ASTM A615, Grade 40.

2.05 CHEMICAL BONDING AGENT

Chemical bonding agent shall be of aqueous phase, film forming, non-oxidizing composition.

2.06 GROUTS

A. Non-shrink type (handrails, equipment bases, etc.):

1. Compatible with handrail metal.
2. Premixed, one of the following or an approved equal:
 - a. "Quick Rok", Preco Chemical Corp., Plainview, N.Y.
 - b. "Masterflow 713", Master Builders Co., Cleveland, Ohio.

B. Ordinary "Dry Pack":

1. Ratio 1 part Portland cement, 2 parts sand (by weight).
2. Water to produce damp, formable consistency.

PART 3 – EXECUTION

3.01 GENERAL

Conform to State Standard Specification, Section 51. Measurement and Payment sections are not applicable.

3.02 REINFORCING STEEL

A. Detail in accordance with ACI 315-74 and ACI 318-71.

3.03 FORM WORK

- A. Design and engineering of form work, as well as construction of same is the responsibility of the Contractor.
- B. Use 3/4-inch x 3/4-inch chamfers at all sharp edges.

3.04 FINISHES

- A. Provide "ordinary surface finish" as defined in Section 51 of Caltrans Standard Specifications for all formed surfaces.
- B. All exterior concrete shall be sloped so as to drain without puddling, minimum 1/8 inch/foot where not shown. Slab finishes shall be defined as indicated in ACI 301 except that power floating or troweling versus hand finishing will be at the Contractor's option. Flat and sloped surfaces shall be a broomed finish. All slab finishes shall be a fine broom finish.

3.05 BONDING AGENT

Prior to application, surfaces shall be cleaned of all dirt, dust, oil, grease, wax, effervescence and loose base material.

After uniform application is allowed to dry until no longer tacky, then pour required concrete material.

3.06 PLACING

Placing of concrete shall be done immediately after mixing. No concrete shall be placed or used after it has begun to set and no re-tempering will be allowed. The method used in placing shall be such that concrete is conveyed to place and deposited without separation of the ingredients. No concrete shall be placed with a free unconfined fall in excess to ten (10) feet for concrete containing a high-range water-reducing admixture (superplasticizer) and five (5) feet for other concrete. Concrete shall not be allowed to cascade through reinforcing steel in such manner as to promote segregation. Do not support runways on reinforcing steel.

END OF SECTION

SECTION 03 48 00
PRE-CAST CONCRETE SPECIALTIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Prestressed Concrete Institute MNL 117 "Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products" - 3rd Edition, primarily Appendix J.
- C. Prestressed Concrete Institute's "Architectural Precast Concrete Design Manual, 2nd Edition".
- D. ASTM standards as stated herein.

1.02 SUMMARY

- A. This Section includes site pre-cast concrete, complete, as shown and as specified for fence posts and rails.

1.03 REFERENCES

- A. ASTM - American Society for Testing and Materials.
- B. ACI - American Concrete Institute, Manual of Concrete Practice.
- C. STANDARD SPECIFICATIONS:
Standard Specifications of the State of California, Department of Transportation.

1.04 PROJECT/SITE CONDITIONS

- A. FIELD MEASUREMENTS:
Verify field measurements and dimensions where required and show on shop drawings.

1.05 QUALITY ASSURANCE

- A. QUALIFICATIONS:
Show successful experience in precast concrete work, including not less than 5 years of experience in design, engineering, fabrication and installation of precast concrete systems similar to the work required for this project.

1.06 SUBMITTALS

- A. PRODUCT DATA:
Manufacturer's current catalog cuts and specifications for the following:

B. SHOP DRAWINGS:

Shop and erection drawings, including profiles, finish, edges, color, dimensions, joints, details of inserts, reinforcing and connections to all adjoining work. Drawings requiring licensed civil or structural engineers shall include registered stamp in the State where the project is located.

C. SAMPLES:

One each full-sized piece of each type of pre-cast concrete material including finishes, colors and joints. Verify desired colors by owner prior to submitting samples.

D. CERTIFICATES:

Three (3) certified copies of concrete mix design for each batch used.

1.07 DELIVERY, STORAGE, AND HANDLING

A. DELIVERY:

Transport and deliver all pre-cast concrete units on pallets, packaged in such a manner so that no damage occurs to the product. Catalog items shall be delivered in their original containers, with seals unbroken and labels intact until their installation. Wrapped or bundled materials shall clearly show their manufacturer's name and trademark.

B. STORAGE:

Cover with non-staining, waterproof paper when necessary to protect them from weather.

C. DAMAGED MATERIALS:

Be responsible for all damage or disfiguration of pre-cast work until Final Acceptance. Remove off site and replace at no additional cost to Owner all damaged or rejected pre-cast materials.

1.08 SEQUENCING AND SCHEDULING

A. COORDINATION:

Coordinate with the work of all other sections to insure the following:

1. All such portions of work as are all or in part imbedded, built-in, attached to, supported by or covered over by the pre-cast concrete work are executed in ample time that progress of work is not delayed.
2. Sequence work to avoid cutting or patching pre-cast concrete.
3. Coordinate proper installation of all accessories imbedded in the pre-cast concrete for the provision of holes, openings, etc., necessary to the execution of the work of other trades.

- B. Scheduling: Insure that accepted precast concrete units are delivered to the site in ample time so as not to delay the progress of the work.

1.09 WARRANTY

Manufacturer to warrant fabrications to be free from defects due to materials and workmanship for a minimum of five years.

PART 2 – PRODUCTS

2.01 MATERIALS

A. PORTLAND CEMENT:

1. Type: ASTM C150, Type I or II. Use only one brand and type for entire job.
2. Minimum Compressive Strength at 28 Days: 5000 psi.
3. Maximum Absorption Rate:
 - a. Regular Weight Concrete: Five (5) percent.
 - b. Lightweight Concrete: Twelve (12) percent.

B. AGGREGATES:

1. Regular Weight Concrete:

ASTM C33, with maximum 3/4 in. size or to maximum 1/5 width of minimum precast section.
2. Lightweight Concrete:

ASTM C330, with maximum 5/8 in. size or to maximum 1/5 width of minimum precast section.

2.02 ACCESSORIES

A. REINFORCEMENTS:

1. Reinforcing Bars: ASTM A615 Grade 40 deformed billet-steel bars, clean and free from rust, scale, or coating that will reduce bond.
2. Welded Wire Fabric: ASTM A185. Leave tags designating wire size and spacing on each roll until ready for use.

B. WATER:

Clean, potable, free from injurious amounts of oils, alkalis, organic materials and other deleterious materials. As available from Owner. Transport as required.

C. AIR ENTRAINMENT:

ASTM C260

- D. MORTAR:
1:6 Portland Cement/sand
- E. GROUT:
Portland Cement Grout Mix: 1,800 psi min. compressive strength at 28 days.
Joints up to 1/2 in.: 1:2:1/4 Portland Cement/sand/lime
Joints 1/2 in. or more: 1:3:1/4 Portland Cement/sand/lime

2.03 MIXES

- A. PORTLAND CEMENT:
Riverside white cement.
- B. AGGREGATE:
Olympia #1 sand, 200 lbs. per sack of cement.
- C. COLORING AGENT:
L.M. Scofield Co., No. 1266 Cool Grey, 6 oz. per sack of cement. Confirm colors with owner in submittal.
- D. SHOP ASSEMBLY:
Tolerances:
 - 1. Dimensions: + 1/16 in. per 10 ft. or + 1/8 in. per unit, whichever is greater.
 - 2. Thickness: 1/8 in.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. EXISTING CONDITIONS:
Examine surfaces to receive pre-cast concrete work. Report to Owners Representative conditions found to be in conflict or detrimental to installation of pre-cast concrete work.

3.02 PREPARATION

- A. FIELD MEASUREMENT:
Verify field measurements prior to installation precast work. Do not install precast work where conditions differ from those shown on Drawings or in Specifications.
- B. CLEANING:
Remove dirt and setting materials on finish surfaces prior to application of mortar, pre-cast concrete materials or signs.

3.03 INSTALLATION

- A. Do not install any precast units that have any defects that exceed the acceptable PCI MNL-117 tolerances for dimensions and color if installation would result in unsatisfactory performance or appearance in the opinion of the Owners Representative.
- B. Install precast concrete members plumb, level, and in alignment in accordance with PCI MNL- 117 erection tolerances and the contract documents. Provide temporary supports and bracing as required to maintain position, stability, and alignment as members are being permanently connected.
- C. Protect the precast units from discoloration and staining when washing down the surrounding masonry by covering the precast units with plastic sheeting and/or by thoroughly soaking them with clear water to prevent dirty washdown water from being absorbed into them. If dirty washdown water gets on the precast, hose it off immediately with clear water.
- D. Patching or repair of damaged precast units is not allowed. Damaged units shall be replaced with new units. when viewed with the unaided eye under good typical day lighting at a 20 foot distance.
- E. Sealing: Only exterior stair treads and other units that may come in contact with salt or other deicing compounds must be sealed with a penetrating sealer approved by the Owners representative. The sealer is to be applied in accordance with the sealer manufacturer's instructions after the units have been installed, cured, patched, and cleaned. Do not apply sealer before installation since it may prevent mortar, joint sealant and patches from adhering. After application of the sealer the finish must be free of air pockets, pock marks, chipped edges or honeycomb effects.

3.04 CLEANING

- A. After completion of pre-cast concrete installation, clean surfaces of excess or spilled mortar or concrete materials. No acids or prepared cleaners shall be used without the approval of the precast Fabricator.
- B. Use mild soap, fiber brushes and clean water. Avoid contamination of adjacent work.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SCOPE

Provide and install complete all metal work as shown and specified. This work includes, but is not limited to, metal signs, fasteners, piling, and site concrete.

Related work specified elsewhere:

03 48 00 Site Precast Concrete Specialties

10 45 00 Exterior Aluminum Signs

16 50 00 Lighting

1.03 STANDARDS

The following standards are hereby made a part of this section and miscellaneous metal work shall conform to the applicable requirements therein except as otherwise specified herein or shown on the drawings. Nothing contained herein shall be construed as permitting work that is contrary to code requirements or governing rules and regulations.

Section 75 of the Department of Transportation Standard Specifications, latest edition.

Steel Structures Painting Council Surface Preparation Specifications, Vol. 2, Painting Manual.

1.04 SHOP DRAWINGS

Provide shop drawings per Section 01 33 00 Submittal Procedures.

PART 2 – PRODUCTS

2.01 FASTENINGS

- A. Intent of Drawings: The drawings are intended to show the number, size and spacing of nails, bolts and screws, etc., required for structural strength. If any particular joint is not shown on the drawings, it shall be provided with bolts, screws, and/or nails, as required to be consistent with the fully detailed joints, and shall be subject to the approval of the Owners Representative.
- B. Furnish all hardware required for fastenings, as shown on the drawings, and as specified herein, and as required to complete the work. All fasteners shall be stainless steel unless otherwise indicated. Fasteners shall include, but not be limited to, the following:

1. Nails: Unless otherwise noted, nails shall common wire of adequate size for type of fastening, ASTM-153.
2. Nuts and Bolts: Shall be machine nuts and bolts, lag bolts, or carriage bolts of structural grade stainless steel conforming to ASTM A-153, of sizes indicated on the drawings. Anchor bolts shall have cut threads.
3. Washers: Shall be of stainless steel, ASTM 153.
4. Lag Screws: Shall be of structural grade stainless steel, and shall be hex-headed wherever possible, ASTM 153.

2.02 MATERIALS

A. Steel Fabrications

1. Steel tube: Cold-formed, conforming to ASTM A 500, Grade B.
2. Steel plates, shapes, bars: Conforming to ASTM A 36.
3. Concrete inserts: Malleable iron, ASTM A 47, or cast steel, ASTM A 27, inserts, with steel bolts, washers and shims; hot-dip galvanized.
4. Anchors and inserts: Furnish inserts and anchoring devices to be built into other work for installation of miscellaneous metal items. Coordinate delivery to job-site to avoid delay. Use non-ferrous metal or hot-dip galvanized anchors and inserts for exterior resistance. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts, as required, to be set into concrete or masonry work.
5. Fasteners: Use fasteners made of the same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined. Provide exposed fasteners, if any, which match finish of fastened metal, unless otherwise indicated.

B. Aluminum fabrications shall include, but not be limited to, the following:

1. Aluminum piles
2. Aluminum bolt clips
3. Bolts and nuts for clips
4. Crossbrace bolts and nuts
5. End caps
6. Rivets for end caps
7. Aluminum Signs
8. All other necessary miscellaneous parts and materials.
9. The above-mentioned items shall be either:

- a. Dant Alum-A-Stand, available through Ross Recreation Equipment, P.O. Box 785, Novato, CA 94947 (415) 892-0717.
- b. Aluminum planking, available through Playground Products, Inc., 1761 Smith Avenue, San Jose, CA 95112 (408) 998-4090.
- c. Approved equal.

All aluminum shall be marine grade and corrosion resistant.

PART 3 – EXECUTION

3.01 GENERAL

- A. Verify all measurements at site prior to ordering materials.
- B. Coordinate all metal work with adjoining work for details of attachment, fitting, etc. Do all cutting, shearing, drilling, punching, threading, tapping, etc., required for miscellaneous metal or for attachment of adjacent work. Drill or punch holes; do not use cutting torch. Shearing and punching shall leave true lines and surfaces.
- C. Conceal all fastenings where practicable. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Form joints exposed to weather to exclude water.
- D. Provide all lugs, clips, anchors and miscellaneous fastenings necessary for the complete assembly and installation.
- E. Set all work plumb, true, rigid, and neatly trimmed out.
- F. Where items must be incorporated or built into adjacent work, deliver to trade responsible for proper location of such items.

3.03 BOLTED, SCREWED AND RIVETED CONNECTIONS

- A. In general, use bolts for field connections only as detailed. Provide washers under all heads and nuts. Draw all nuts tight and nick threads of permanent connections to prevent loosening. Use beveled washers where bearing is on sloped surfaces.
- B. Each bolt hole shall be drilled 1/16 inch larger than the bolt diameter.
- C. Where screws must be used for permanent connections in ferrous metal, use flat head type, countersunk, with screw slots filled and finished smooth and flush.

3.04 CLEAN UP

- A. Protection and Cleaning: Remove all soiled and foreign matter from finished surfaces and apply such protective measures as required to prevent damage or discoloration of any kind until acceptance of project.

- B. During construction, keep premises as clear as possible of materials and debris, and at the completion of work remove all tools, appliances, materials, and debris from the premises.

END OF SECTION

SECTION 10 14 53
TRAFFIC SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Furnishing and installing roadside traffic signage.
- B. Install new signs on metal poles, unless otherwise indicated.
- C. Preservative treatment for wood posts and bracing.

1.02 RELATED SECTIONS

- A. Section 01 33 00 Submittal Procedures

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM A36 – Carbon Structural Steel
 - 2. ASTM A53 – Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless
 - 3. ASTM A123 – Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
 - 4. ASTM A153 – Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 5. ASTM A167 – Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - 6. ASTM A325 – Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
 - 7. ASTM A653 – Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - 8. ASTM A1011 – Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
- B. State of California, Department of Transportation (Caltrans)
 - 1. Caltrans – California Manual on Uniform Traffic Control Devices (MUTCD), and Uniform Sign Chart
 - 2. Caltrans – Standard Specifications and Uniform Sign Chart
- C. California Redwood Association:
 - 1. Redwood Inspection Service (RIS) - Grades of California Redwood Lumber

- D. Western Wood Products Association (WWPA):
 - 1. Western Lumber Grading Rules
- E. West Coast Lumber Inspection Bureau (WCLIB):
 - 1. Standard No. 17 – Grading Rules for West Coast Lumber
- F. American Wood Protection Association (AWPA):
 - 1. AWPA Book of Standards
 - a. AWPA U1 – Use Category System
 - b. AWPA M4 – Care of Preservative-treated Wood Products

1.04 QUALITY ASSURANCE

- A. Comply with Project Quality Program Requirements (see 1.02 above).
- B. Manufacturer and Applicator/Installer Qualifications:
 - 1. Manufacturer's Qualifications: Minimum of 5 years' experience in manufacturing of specified materials/products, with record of successful in-service performance.
 - 2. Applicator/Installer Qualifications: Engage applicator/installer with minimum 5 years' experience in installation of materials/products similar in material, design, and to extent indicated for this Project.
 - a. Installer Certification: Obtain written certification from manufacturer, certifying that installer is approved by, licensed, or certified by manufacturer for installation of specified materials/products or systems.
 - b. Provide list of minimum 5 projects similar in nature and size to that of this Project, where specified materials/products have been successfully installed/used.
- C. Marker Panels: Type N, Type P, and Type R mounted on post with traffic sign are considered to be sign panels.
- D. Sign Panels Furnished and Installed by Contractor: Reflectorized on aluminum sheeting material.
 - 1. Conform to Caltrans Uniform Sign Chart for size, shape, color, and legend of each sign.

1.05 SUBMITTALS

- A. Refer to Section 01 33 00 Submittal Procedures, for submittal requirements and procedures.
- B. Material Safety Data Sheets (MSDS): Manufacturer's Material Safety Data Sheets for each type of material used in Work.

1.06 DEFINITIONS

- A. VOC: Volatile Organic Compound, as defined in NCAQMD Rule 101 – Definitions:
 - 1. Any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.
- B. NCAQMD: North Coast Air Quality Management District

1.07 DELIVERY, STORAGE AND HANDLING

- A. Refer to Section 01 66 00 – Product Storage and Handling Requirements, for general requirements for delivery, storage, and handling procedures

1.08 REGULATORY REQUIREMENTS

- A. Conform to requirements of Federal, State, and local authorities having jurisdiction.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. Metal Posts:
 - 1. Mountings for Traffic Signs: Installed on barriers or railings.
 - a. Fabricate from minimum 14 gage welded or seamless steel pipe conforming to ASTM A53 Grade B, and structural steel conforming to ASTM A36 or ASTM 1011, Grade 33.
 - b. Bolted Connections and Anchorages: Conform to provisions in Section 55-1.02D(6) and Caltrans 2018 Standard Specifications, Section 75-1.02.
 - c. Concrete Anchorage Devices: Conform to requirements in Caltrans 2018 Standard Specifications, Section 75-3.92C.
 - 2. Mounting for Ground-Mounted Traffic Signs: Wide flange metal posts fabricated from structural steel conforming to ASTM A36 or ASTM 1011, Grade 33.
 - a. Provide bolts, nuts, and washers for breakaway connections at wide flange steel posts conforming to ASTM A325.
 - 3. Galvanize metal parts of traffic sign mountings after fabrication.
 - a. Apply galvanizing conforming to Caltrans Standard Specifications, Section 75-1.02B.
- B. Wood Posts and Braces: Posts of nominal four inches by four inches in size, and braces, constructed from one of the following:
 - 1. Construction Heart Grade Redwood, Highway Post Grade Redwood, or Heart Structural Grade Redwood, conforming to RIS - Grades of California Redwood

Lumber

2. Light Framing Construction Grade Douglas Fir, free of heart center; or Structural Light Framing No. 2 Grade Hem-Fir, free of heart center conforming to WCLIB Standard No. 17, or WWPA - Western Lumber Grading Rules

C. Sign Panel Fastening Hardware:

1. Frame Assemblies for Multiple Sign Installations: Fabricate of structural steel conforming to ASTM A36, or of aluminum alloy, where indicated.
 - a. Hot-dip galvanized frames fabricated of structural steel after fabrication.
2. Back Braces for Signs: Commercial quality, mild steel, hot-dip galvanized after fabrication.
3. Straps and Saddle Brackets: For mounting Sign Panels on electroliers, sign structure posts, and traffic signal standards.
 - a. Corrosion-resistant chromium nickel steel conforming to ASTM A167, Type 302.
 - b. Theft-proof bolts indicated to be stainless steel with chromium content of not less than 17 percent and nickel content of not less than eight percent.
4. Lag Screws, Bolts (except theft-proof bolts), Metal Washers, and Nuts: Commercial quality steel, hot-dip galvanized after fabrication.
 - a. Fiber Washers: Commercial quality.
5. Galvanizing: Conform to provisions in Caltrans Standard Specifications, Section 75-1.02B for iron and steel hardware.
6. Use stainless steel fastenings for wood preservative treated wood; do not use galvanized fastenings.

D. Wood Preservative Treated Materials:

1. Where lumber is indicated or specified to be preservative treated, comply with applicable requirements of AWPA U1 - Use Category System:
 - a. Pressure treat wood members in contact with ground or fresh water with waterborne preservative to minimum retention of 0.40 lbs./cu. ft.
 - b. Pressure treat above ground wood members with waterborne preservative to minimum retention of 0.25 lbs./cu. ft.
 - c. After treatment, kiln-dry lumber to maximum moisture content of 19 percent.
2. Complete fabrication of treated items prior to treatment where possible.
 - a. If cut after treatment, coat cut surfaces to comply with AWPA M4.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. Excavate holes to required depth for bottom of posts, as indicated
- B. Place posts in holes excavated in ground.
- C. Line between center of top of post and center of post at ground line to be plumb within tolerance not to exceed 0.02 foot in ten feet.
- D. Backfill space around wooden posts to finished ground surface with selected earth or sand, free of rocks or other deleterious material.
 - 1. Place backfill material in layers approximately 0.33 foot thick; moisten each layer and thoroughly compact.
- E. Backfill metal posts with Class C Portland cement concrete conforming to provisions in Caltrans Standard Specifications, Section 90 or, at Contractor's option.
 - 1. Backfill material may consist of Portland cement concrete produced from commercial quality aggregates and cement, containing not less than 470 pounds of cement per cubic yard.
- F. Dispose of surplus excavated material as directed by City or its designee.
- G. Carefully drill holes for bolts, threaded rods, or expansion anchorage devices in existing concrete by employing methods that will not cause spalling of concrete adjacent to holes.
- H. Install traffic signs at locations indicated or where directed by City or its designee conforming to provisions in Section 56 – Signs, of Caltrans Standard Specifications and where indicated.

3.02 SIGN PANEL INSTALLATION

- A. Sign Panels: Install in accordance with details shown or as directed by City or its designee.
 - 1. Chipping or bending of sign panels is considered cause to require replacement.
- B. Closure Inserts: Install into openings at edges of adjacent sign panel sections.
 - 1. Adjacent edges of sign panels are to be in contact for their full length.
 - 2. Mount overlapping letters and borders at sign panel joints on face of sign with blind, self-plugging type rivets.
- C. Sign Panels: Attach to metal and wood posts, electroliers, sign structure posts, and traffic signal standards and mast arms with fastening hardware of types and sizes indicated.
- D. Bore pilot holes with bit size equal to base of lag screw thread

1. Install lag screws by turning lag screw into pilot holes by use of wrench.
- E. Furnish sign panels and fastening hardware.
- F. Do not remove existing traffic signs until replacement signs have been installed or until existing signs are no longer required for direction of public traffic, unless otherwise directed by City or its designee.

END OF SECTION

SECTION 26 00 00

ELECTRICAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. WORK INCLUDED:

1. Provide all required labor, project equipment and materials, tools, construction equipment, safety equipment, transportation, and test equipment, and satisfactorily complete all electrical work shown on the Drawings, included in these Specifications, or required for a complete and fully operating facility. In addition, provide wiring for the equipment that will be provided under other Divisions of these Specifications.

2. Provide conduit and wire for trail lighting bollards. Contractor shall be responsible for conduit and wire to these devices even if not specifically shown on the Drawings or specified herein.

3. Provide metered service equipment and service disconnect switches. All enclosures for this project shall be NEMA 3R or 4X depending on actual locations.

B. SAFETY:

Conduct operations in accordance with NFPA 70E, Standard for Electrical Safety Requirements for Employee Workspaces.

1.02 SUBMITTALS

A. SHOP DRAWINGS:

1. GENERAL: Submit Product Review or Product information shop drawings for materials and equipment as required under each Specification Section.

2. For Product Review submittals, submit a single, complete submittal package for all items specified in a particular Specification Section. Submittal packages shall be organized by equipment type. Include separators and tabs or other means of identifying each Specification paragraph (e.g., 2.01, 2.02, etc.) of the submittals or other means of identifying each section of the submittal.

B. AS-BUILT SHOP DRAWINGS:

The Contractor shall submit redlined drawings that provide current factual information including deviations from, and amendments to the drawings and changes in the work, concealed and visible, shall be provided as instructed. The as-built drawings shall show installations with respect to fixed installations not associated with the systems specified herein. Cable and wire shall be accurately identified and shall locate the connection and routing to and away from bases, housings, and boxes. Prior to Final Acceptance, deliver one complete set to

the Engineer for review. After such review, provide copies of all CAD produced drawings on magnetic media satisfactory to the Engineer in AutoCAD DWG format.

C. MANUALS:

1. Furnish manual for equipment where Manuals are specified in the equipment Specifications. Electrical manual shall be consolidated and submitted as a single manual.

2. Include equipment descriptions, record shop drawings, operation and maintenance instructions, parts ordering data, and ratings for the equipment furnished for this project.

D. SPARE PARTS:

For each piece of equipment, submit a list of recommended spare parts. Include part numbers and the name, address, and telephone number of the supplier.

E. The following shall be submitted in accordance with Section 01 30 00, Submittal Procedures:

1. SHOP DRAWINGS

- a. Metered service equipment
- b. Wiring and circuit diagrams

2. PRODUCT DATA

- a. Enclosed circuit breakers
- b. Disconnect switches
- c. All dry utility products based on respective Utility Designs

1.03 QUALITY ASSURANCE

A. CODES:

All electrical equipment and materials, including installation and testing, shall conform to the following applicable codes:

- 1. National Electrical Code (NEC), current edition in force at the Project site
- 2. National Electrical Safety Code (NESC), current edition
- 3. Occupational Safety and Health Act (OSHA) standards
- 4. Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems, International Electrical Testing Association (NETA).

B. STANDARDS:

Equipment shall conform to applicable standards of American National Standards Institute (ANSI), Electronics Industries Association (EIA), Institute of Electrical and Electronics Engineers (IEEE), and National Electrical Manufacturers Association (NEMA). The revisions of these standards in effect on the date of issuance of the Contract Documents shall apply.

C. Underwriters Laboratories (UL) listing is required for all equipment and materials where such listing is offered by the Underwriters Laboratories. Safety labeling and listing by other organizations, such as ETL Testing Laboratories, may be substituted for UL labeling and listing if acceptable to the authority having code enforcement jurisdiction. Provide service entrance labels for all equipment required by the NEC to have such labels.

D. CONTRACTOR'S EXPENSE:

Obtain and pay for all required bonds, insurance, licenses, permits and inspections, and pay all taxes, fees, and utility charges that will be required for the electrical construction work.

1.04 DRAWINGS

A. DRAWINGS:

The Electrical Drawings are diagrammatic; exact locations of electrical products shall be verified in the field with the Engineer. Except where special details are used to illustrate the method of installation of a particular piece or type of equipment or material, the requirements or descriptions in this Specification shall take precedence in the event of conflict.

1. Locations of equipment, panelboards, pull boxes, conduits, stub-ups, power pedestals, and lighting fixtures are approximate unless dimensioned; verify locations with the Engineer prior to installation.

2. Field verify scaled dimensions on Drawings.

3. Review the Drawings and Specification Divisions of other trades and perform the electrical work that will be required for the installations.

4. Should there be a need to deviate from the Electrical Drawings and Specifications, submit written details and reasons for all changes to the Engineer for review.

5. Seismic Certification: Design Calculations and attachment drawings as required by elsewhere.

B. AS-BUILT DRAWINGS:

1. Maintain a complete and accurate record set of Drawings for the electrical construction work.

2. Record all work that is installed differently than shown on the Drawings.

3. Upon completion of the work, transfer all marked changes to a clean set of full-size Drawings with red ink. Mark the Drawings "RECORD DRAWINGS" and submit them to the Engineer when the electrical work is completed.

4. Locate all underground conduits using an Engineer or Surveyor qualified to perform topographic surveying.

1.05 FACTORY TESTS

A. Submit reports of factory tests and adjustments performed by equipment manufacturers to the Engineer prior to field testing and adjustment of the equipment. These reports shall identify the equipment and show dates, results of tests, measured values, and final adjustment settings. Provide factory tests and adjustments for equipment where factory tests are specified in the equipment Specifications.

1.06 INSPECTIONS

A. The Engineer may inspect the fabricated equipment at the factory before shipment to job site. Provide the Engineer with sufficient prior notice so that an inspection can be arranged at the factory.

B. Inspection of the equipment at the factory by the Engineer will be made after the manufacturer has performed satisfactory checks, adjustments, tests and operations.

C. Review of the equipment at the factory shall not relieve the Contractor of responsibility for the proper installation and satisfactory startup operation of the equipment to the satisfaction of the manufacturer and the Engineer.

1.07 COORDINATION

A. Coordinate the electrical work with the other trades, code authorities, utilities, and the Owner.

B. Where connections must be made to existing installations, properly schedule all the required work, including the power and control system shutdown periods. Schedule and carry out shutdowns so as to cause the least disruption to operation of the Owner's facilities and privately owned facilities.

C. When two trades join together in an area, make certain that no electrical work is omitted.

1.08 JOB CONDITIONS

A. OPERATIONS:

1. Keep all power shutdown periods to a minimum.

2. Carry out shutdowns only after the schedule has been reviewed and accepted by the Engineer.

B. CONSTRUCTION POWER:

1. Make all arrangements for the required construction power.
2. When required, provide all equipment, materials, and wiring in accordance with the applicable codes and regulations.
3. Upon completion of the project, remove all temporary construction power equipment, material, and wiring from the site as the property of the Contractor.

C. STORAGE:

Provide adequate storage for all equipment and materials which will become part of the completed facility so that it is protected from weather, dust, water, or construction operations. All equipment shall be stored in accordance with manufacturer's recommendations. Provide this information upon request by Engineer.

1.09 DAMAGED PRODUCTS

- A. Notify the Engineer in writing in the event that any equipment or material is damaged.
- B. Obtain prior review by the Engineer before making repairs to damaged products.

1.10 OPTIONAL EQUIPMENT

- A. For optional or substituted equipment, refer to Division 1.

1.11 LOCATIONS

A. GENERAL: Use equipment, materials, and wiring methods suitable for the types of locations in which they are located, as defined in Paragraph B. herein.

B. DEFINITIONS OF TYPES OF LOCATIONS:

1. Dry Locations: All those indoor areas which do not fall within the definition below for Wet Locations and which are not otherwise designated on the Drawings.
2. Wet Locations: All locations exposed to the weather, whether under a roof or not, unless otherwise designated on the Drawings.

PART 2 - PRODUCTS

2.01 STANDARD OF QUALITY

A. Products that are specified by manufacturer, trade name, or catalog number establish a standard of quality and do not prohibit the use of equal products of other manufacturers provided they are approved by the Engineer prior to installation.

B. It is the intent of these Specifications and Drawings to secure high quality materials and equipment in order to facilitate operation and maintenance of the facility. All equipment and materials shall be new and the products of reputable suppliers having adequate experience in the manufacture of these particular items. For uniformity, only one manufacturer will be accepted for each type of product. All equipment shall be designed for the service intended and shall be of rugged construction, of ample strength for all stresses that may occur during fabrication, transportation, erection, and continuous or intermittent operation. All equipment shall be adequately stayed, braced, and anchored and shall be installed in a neat and workmanlike manner. Appearance and safety, as well as utility, shall be given consideration in the design of details.

C. All components and devices installed shall be standard items of industrial grade, unless otherwise noted, and shall be of sturdy and durable construction suitable for long, trouble-free service.

2.02 NAMEPLATES

A. For each piece of electrical equipment, provide a manufacturer's nameplate showing manufacturer's name, location, the pertinent ratings, and the model designation.

B. Identify each piece of equipment and related controls with a rigid laminated engraved phenolic nameplate. Engrave nameplates with the inscriptions indicated on the Drawings and, if not so indicated, with the equipment name. Securely fasten nameplates in place using two stainless steel screws or, where approved by the Engineer, with epoxy cement. Where no inscription is indicated on the Drawings, furnish nameplates with an appropriate inscription furnished by the Engineer upon prior request by the Contractor.

2.03 FASTENERS

A. Fasteners for securing equipment to walls, floors, and the like shall be stainless steel. When fastening to existing walls, floors, and the like, provide wedge anchors. Provide capsule anchors for bolts 3/8-inch and larger. Size anchors to meet load requirements.

2.04 PAINTING

A. Equipment: Repair any final paint finish that has been damaged or is otherwise unsatisfactory, to the satisfaction of the Engineer.

2.05 ENCLOSURES

A. Unless otherwise noted, provide enclosures as follows:

1. Dry Locations: NEMA Type 1.
2. Wet Locations: NEMA Type 3R or 4X, as noted on the Drawings.

2.06 PRE-CAST CONCRETE BOXES AND COVERS

A. Pre-cast concrete boxes and covers shall conform to California Standard Specifications. Lids shall be traffic rated. Provide submittals in accordance of Section 01 33 00 "Submittal Procedures."

PART 3 - EXECUTION

3.01 REQUIREMENTS

A. All electrical installations shall conform to the codes and standards outlined in this Section.

3.02 WORKMANSHIP

A. Assign a qualified representative who shall supervise the electrical construction work from beginning to completion and final acceptance.

B. Perform all labor using qualified craftsmen, who have had experience on similar projects. Provide first-class workmanship for all installations.

C. Ensure that all equipment and materials fit properly in their installations. The installation shall comply with the requirements and recommendations of NFPA 70 and IEEE C2, and local codes where required.

1. Metallic Materials: Metallic materials shall be protected against corrosion as specified. Aluminum shall not be used in contact with concrete. Where aluminum conductors are connected to dissimilar metal, suitable dielectric fittings shall be used.

2. Ferrous Metal Hardware: Ferrous metal hardware shall be hot-dip galvanized in accordance with ASTM A 123/A 123M and ASTM A 153/A 153M.

D. Perform any required work to correct improperly fit installations at no additional expense to the Owner. The Contractor shall become familiar with details of the work, verify dimensions in the field, and advise the Owner of any discrepancy before performing any work.

3.03 EXCAVATION AND BACKFILL

A. Provide the excavations for electrical equipment foundations and trenches for conduits as shown on the Drawings.

B. Exercise caution during all excavation work and avoid damage to existing underground pipes. Exercise extreme caution when working near existing electrical conduits and facilities. Field verify the location of all electrical facilities before proceeding with any nearby work.

C. Refer to Division 31, Earthwork, of these Specifications for all excavation and backfilling work.

3.04 CONCRETE

A. Where shown on the Drawings or specified, provide the required concrete installations for conduit encasement and equipment foundations.

B. Refer to Division 3, Concrete of these Specifications for all concrete work.

3.05 CONDUCTOR IDENTIFICATION

A. Identify all wires and cables in conformance with the requirements of Sections 16120. This requirement applies to all equipment provided under this contract, regardless of Division, as well as to all conductors provided or worked on during this contract.

3.06 INSTALLING EQUIPMENT

A. Provide the required inserts, bolts, and anchors, and securely attach all equipment and materials to their supports.

B. Install all floor-mounted equipment on 3-inch-high reinforced concrete pads. The Contractor, suppliers, and fabricators shall take this requirement into consideration when designing, fabricating, and installing panels and other enclosures so that height above the floor of the operating handles of electrical devices meets the requirements of these Specifications and applicable codes.

3.07 CUTTING, DRILLING, AND WELDING

A. Provide any cutting, drilling, and welding that is required for the electrical construction work.

B. Structural members shall not be cut or drilled, except when favorably reviewed by the Engineer. Use a core drill wherever it is necessary to drill through concrete or masonry.

C. Provide the required welding for equipment supports. Conduits and fittings shall not be welded to structural steel.

D. Perform patch work with the same materials as the surrounding area and finish to match, as specified in Division 3 of these Specifications.

3.08 PROTECTIVE DEVICE COORDINATION

A. Provide the services of a coordination analysis consultant for the proper system coordination of the protective devices furnished on this project. Submit the name and the qualifications of the consultant for review by the Engineer; qualifications must include professional registration of proposed personnel as electrical engineers.

B. The protective device on the line side closest to the fault or abnormal conditions shall isolate the problem portion of the system and minimize damage in that portion. The rest of the system shall be maintained in normal service. The coordination shall be in conformance with the recommendations of latest IEEE Standard 242.

C. Submit the analysis that shall include impedance and short circuit calculations, list of any assumptions made in the analysis, the recommended settings of the protective devices, and the system time/current characteristic curves. The submittal shall be made so as to allow time for review and resubmittal, if necessary, before the implementation of final settings and adjustments by the testing laboratory.

D. This section may be waved at the discretion of the Engineer.

3.09 FIELD TESTS

A. Perform tests in accordance with applicable procedures as described in NETA Acceptance Testing Specifications.

B. Give at least 7 working days notice to the Engineer prior to any test to permit witnessing the test.

C. Provide all materials, equipment, labor, and technical supervision required to perform such tests and inspections. It is the intent of these tests to ensure that all electrical equipment is operational within industry and manufacturer's tolerances and is installed in accordance with the Contract Documents and manufacturer's instructions. The tests and inspections shall determine the suitability for energization.

D. The Contractor shall have a calibration program which maintains all applicable test instrumentation within rated accuracy.

1. The accuracy shall be traceable to the National Bureau of Standards in an unbroken chain. Instruments shall be calibrated in accordance with the following frequency schedule:

- a. Field instruments: 6 months maximum
- b. Laboratory instruments: 12 months
- c. Leased specialty equipment: 12 months

2. Date calibration labels shall be visible on all test equipment.

E. Where testing pursuant to NETA requirements is required in these specifications, submit a test report that includes the following:

1. Name of project, name of person performing test, and date of test
2. Description of equipment tested
3. Description of test
4. List of test equipment used and calibration date
5. Test results
6. Conclusions and recommendations
7. Appendix, including appropriate test forms
8. The test report shall be bound and its contents certified. Submit the completed report directly to the Engineer no later than thirty (30) days after completion of the

test unless directed otherwise. Number of reports to be submitted for review shall be the same as the number required for shop drawing submittals.

F. Safety practices shall include, but are not limited to, the following requirements:

1. Occupational Safety and Health Act of 1970, OSHA.
2. Accident Prevention Manual for Industrial Operations, Seventh Edition, National Safety Council, Chapter 4.
3. Applicable state and local safety operating procedures.

G. All field tests shall be performed with apparatus de-energized except where otherwise specifically required by the latest Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems published by NETA. The Contractor shall have a designated safety representative who shall be present on the project and supervise operations with respect to safety. In all cases, work shall not proceed until the safety representative has determined that it is safe to do so. The Contractor shall have available sufficient protective barriers and warning signs to conduct the specified test safely.

H. Electrical equipment and materials furnished and installed by the Contractor, and the testing equipment listed below, shall be tested in accordance with the "Inspection and Test Procedures" and "System Function Tests" (Section 8) of the latest Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems published by NETA. Tests shall not include any tests listed as optional in the aforementioned NETA Specifications unless specifically noted in respective equipment specifications for this project.

I. Retesting will be required for all unsatisfactory tests after the equipment or system has been repaired. Retest all related equipment and systems if required by the Engineer. Repair and retest equipment and systems that have been satisfactorily tested but later fail, until satisfactory performance is obtained.

J. Putting Equipment and Cables into Service: Submittal and favorable review of the specified factory and field tests shall occur before the Contractor is permitted to place the respective equipment or cable into service.

K. MISCELLANEOUS TESTS

1. Insulation Resistance, Continuity: Perform routine insulation resistance, continuity, and rotation tests for all distribution and utilization equipment. Supply a suitable and stable source of test power at each test site. Notify the Engineer when equipment becomes available for acceptance tests. Work shall be coordinated to expedite project scheduling. All testing shall be performed in the presence of the Engineer. The Contractor shall be responsible for implementing all final settings and adjustments on protective devices and tap changes. Any system material or workmanship that is found defective on the basis of acceptance tests shall be reported directly to the Engineer. The Contractor shall maintain a written record of all tests and upon completion of project, assemble and certify a final test report.

2. Operational Tests: Operationally test all circuits to demonstrate that the circuits and equipment have been properly installed, adjusted, and are ready for full-time

service. Demonstrate the proper functioning of circuits in all modes of operation, including alarm conditions, and demonstrate satisfactory interfacing with the data acquisition and alarm systems.

3.10 EQUIPMENT PROTECTION

A. Exercise care at all times after installation of equipment, motor control centers, etc., to keep out foreign matter, dust, dirt, debris, or moisture. Use protective sheetmetal covers, canvas, heat lamps, etc., as needed to ensure equipment protection.

3.11 CLEANING EQUIPMENT

A. Thoroughly clean all soiled surfaces of installed equipment and materials.

B. Clean out and vacuum all construction debris from all areas of all equipment.

C. Provide and touch-up to original condition any factory painting that has been marred or scratched during shipment or installation, using paint furnished by the equipment manufacturer.

3.12 CLEANUP

A. Upon completion of the electrical work, remove all surplus materials, rubbish, and debris that accumulated during the construction work. Leave the entire area neat, clean, and acceptable to the Engineer.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Section includes: Provisions for clearing and grubbing as herein defined.
- B. Volume 1 - Contracting Requirements, and Division - 01 General Requirements apply to the Work of this Section.

1.02 DEFINITIONS

- A. "Clearing" means the picking up, removal, and disposal of above ground rubbish and debris, vegetation, trees, pavement markings, and structures not otherwise designated for demolition or preservation.
- B. "Grubbing" means the dislodging, removal, and disposal of below ground rubbish and debris, vegetation, tree root balls, rocks or similar elements, pre-existing facilities and structures not otherwise designated for preservation.

1.03 SUBMITTALS

- A. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.04 INFORMATIONAL SUBMITTALS

- A. Submit under the provisions of Section 01 33 00 Submittal Procedures.
- B. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Use sufficiently detailed photographs or videotape.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
- C. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.05 REFERENCES

- A. 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:
 - 1. California Building Code (CBC), latest edition.

1.06 PRESERVATION OF PROPERTY

Where construction is to be performed in the vicinity of trees and shrubbery, the work shall be carried on in a manner which will cause minimum damage. Trees which are to be removed will be designated by the Engineer. Under no circumstances are additional trees to be removed without written permission from the Engineer. Trees removed are the property of the property owner. Contractor shall follow the direction of the Engineer for stockpiling of cut trees or removal from the site. Trees and shrubbery that are not to be removed shall be protected from injury or damage resulting from the Contractor's operations. It shall be the responsibility of the Contractor to alert his men, his suppliers, and all sub-contractors of the intent of these Specifications pertaining to the protection of vegetation. During the execution of his work, the Contractor shall use the same care and protection of all vegetation within his work area.

- A. In areas where trees or shrubs may be damaged by construction equipment, the Contractor shall provide protective fencing, padding on tree trunks, tie-back branches or take other necessary actions to prevent damage to the trees, shrubs, or other vegetation. Damage to trees and shrubs shall include, but will not be limited to:
1. Bark damage to trees
 2. Breakage of branches on trees or shrubs
 3. Breaking or tearing of roots
 4. Spilling toxic materials near the root zones
 5. Spraying toxic materials on foliage
 6. Fire damage to foliage and branches
 7. Compaction of root areas under the drip line or damage by fill or storage of materials over the root zone
 8. Foot or vehicular damage on low shrubs and groundcover
- B. All damage shall be immediately reported to the Engineer who will file a report so that penalties may be determined.

A sum of \$50.00 per inch of diameter will be deducted from the monies due the Contractor for all trees that are removed which are not designated to be removed, or which do not have the written authorization of the Engineer for removal. The penalty is also applicable to trees damaged to the extent that such damage will, in the Engineer's opinion, cause the tree to die.

Contractor shall exercise caution when working near trees not designated to be removed, so that the trees will not be damaged. No root greater than 1 inch in diameter shall be cut unless it is necessary to do so during construction to reach the specified subgrade elevation.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Areas within limits of work shall be cleared of all materials listed in the definition of "clearing" hereinafter.
- B. Retain existing topsoil for backfilling and landscaping upon completion, when determined to be acceptable.

2.02 CLEARING

- A. Perform clearing operations in advance of excavating, filling, and grading, unless otherwise directed.
 - 1. Remove above ground organic matter such as trees, brush, logs, stumps, rubbish, and debris and dispose of as specified hereinafter.

2.03 GRUBBING

- A. Remove piping, foundations, and other underground objects.
- B. Protect underground facilities encountered during grubbing operations, until it has been determined whether they are active or inactive. Repair damage occurring to active facilities which are to remain.
 - 1. Remove inactive or abandoned underground utility pipes or ducts with tops located within 2 feet of the natural grade elevation.
 - 2. Inactive or abandoned underground utility pipes or ducts with tops located more than 2 feet from the natural grade elevation may be abandoned in place, when agreed by the CM following verification and location in coordination with the new structures and facilities. Plug open pipe ends in manholes, valve pits, drainage structures, and similar items with 6 inches of concrete. Fill pits with excess local fill or as otherwise directed. Those that may be abandoned in place shall be shown as abandoned on "Record Drawings".
- C. Grub to 2 feet below natural or finish grade elevation, whichever is lower, or as otherwise specified.
 - 1. Remove roots, wood, buried logs, and other unwanted organic material 1-1/2 inches in diameter, or greater.
 - 2. Remove natural rock material 6 inches in diameter, or greater.
 - 3. Remove root masses (balls) of trees and stumps to a depth of 4 feet below the natural or finish grade elevation, whichever is lower.
- D. Remove bituminous pavement, concrete pavement, concrete slabs, curbs, columns, foundations, and walls within the designated limits and as specified hereinafter; neatly trim remaining portions. Saw cut pavement to provide a uniform, straight edge when retained.

- E. Prior to grading operation, the site should be cleared of any debris and disposed of off-site. Stripping should extend laterally a minimum of 5 feet beyond the limits of structures and a minimum of 2 feet beyond paving.

2.04 DISPOSAL

- A. Items cleared, grubbed, or removed that are not to be salvaged or reused in the work shall be legally disposed of off the site.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to CM.

3.02 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion and sedimentation control Drawings and requirements of authorities having jurisdiction. Refer to Division 1 specifications for permit requirements.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion and sedimentation control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.03 EXISTING UTILITIES

- A. Arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing.
 - 1. Verify that utilities have been disconnected and capped before proceeding with site clearing.
- B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed.
 - 1. Arrange with utility companies to shut off indicated utilities.
- C. Interrupting Existing Utilities: Do not interrupt utilities serving occupied facilities unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

- D. Excavate for and remove underground utilities indicated to be removed.

3.04 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation not designated for protection to permit installation of new construction.
 - 1. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches and compact each layer to a density equal to adjacent original ground.

3.05 TOPSOIL STRIPPING

- A. Review GEO Tech Report prior to performing work.
- B. Remove sod and grass before stripping topsoil.
- C. Strip topsoil to in a manner to prevent intermingling with underlying sub-soil or other waste materials.
 - 1. Remove sub-soil and non-soil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
- D. Stockpile topsoil away from edge of excavations without intermixing with sub-soil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 - 1. Limit height of topsoil stockpiles to 72 inches.
 - 2. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity required for reuse.
 - 3. Stockpile surplus topsoil to allow for re-spreading.

3.06 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along the line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

2. Paint cut ends of steel reinforcement in concrete to remain with two coats of anti-rust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.07 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off property.
- B. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

3.08 RESEEDING

- A. All disturbed areas as shall be fertilized, seeded, and mulched back to that area where undisturbed material exists. Fertilizing and seeding shall be as follows:
 1. Fertilizer, seed mix and mulch shall be subject to the approval of the Engineer and as noted on the plan set.

END OF SECTION

SECTION 31 20 00

EARTH MOVING

PART 1 - GENERAL

1.01 SUMMARY

- A. Volume 1 - Contracting Requirements, and Division - 01 General Requirements apply to the Work of this Section.

1.02 SECTION REQUIREMENTS

- A. Geotechnical Report: There is no Geotechnical Report for this project. When necessary, consult with the Engineer for approval of materials and methods related to earth moving.
- B. The Contractor shall consult with the Engineer to confirm existing soil conditions on the project site, make final recommendations for earthwork related to the project design and to make recommendations regarding imported materials, unforeseen conditions, backfilling and compaction. The Contractor shall also employ a qualified, independent testing agency to classify proposed on-site and borrow soils to verify that soils comply with specified requirements and to perform required field and laboratory testing.
- C. Before commencing off-site earthwork, meet with representatives of the City, the State, appropriate Contractor team members, the Engineer, independent testing agency, and other concerned entities. Before commencing on-site earthwork, meet with appropriate Contractor team members, the Engineer, independent testing agency, and other concerned entities. In both cases, review earthwork procedures and responsibilities including testing and inspection procedures and requirements.
- D. The Contractor shall locate all underground features, which are required to remain, sufficiently in advance of the demolition or earthwork operations to preclude damage to same. The Contractor shall contact Underground Service Alert 48 hours before work is to begin.

1.03 REFERENCES

- A. California Department of Transportation
 - 1. CTM 111, Method of Tests for Developing Density and Moisture Calibration Tables for Nuclear Gages
 - 2. CTM 202, Method of Test for Sieve Analysis of Fine and Coarse Aggregates
 - 3. CTM 216, Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates

4. CTM 231, Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates Using Nuclear Gages
5. Section 19 of the Caltrans 2018 Standard Specifications (or latest edition)

1.04 ACTION SUBMITTALS

- A. No action submittals are necessary.

1.05 INFORMATIONAL SUBMITTALS

- A. Submit under provisions for Section 01 33 00 Submittal Procedures.
- B. Product Data for Geotextiles.
- C. Qualification Data: For qualified testing agency.
- D. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
 1. Laboratory compaction curve according to CTM 216.
- E. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth moving operations. Submit before earth moving begins.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Backfill and Fill: Satisfactory soil materials as determined by the Engineer.
- B. Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; CTM 202; with at least 90% passing a 1-1/2 inch sieve and not more than 12% passing a No. 200 sieve.
- C. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; CTM 202; with 100% passing a 1-1/2 inch sieve and 0 to 5% passing a No. 8 sieve, or as specified by manufacturer.

PART 3 - EXECUTION

3.01 EARTHWORK

- A. Protect and maintain erosion and sedimentation controls during earthwork operations.

- B. Protect sub-grades and foundation soils from softening and damage by water, freezing temperatures, or frost.
- C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- D. Excavation (General): Shall be to the contours and dimensions required. Keep excavations free from water and debris while construction is in progress. Unless otherwise required, concrete placed below grade will be formed, and excavations shall allow for placement and removal of forms. Side cuts shall be cribbed and shored as required to protect the stability of adjacent streets to the recommendations of the Engineer, the City Engineering Manual, and the California Department of Transportation Standard Specifications.
- E. Excavation for Structures: Shall be to a tolerance of plus or minus 0.10 foot and shall extend at least five feet laterally beyond the building limits at the excavation level. The excavation side slopes shall not exceed a slope ratio of 1 to 1, horizontal to vertical, unless they are positively retained by shoring or other approved methods.
- F. Excavate for structures, building slabs, pavements, and walkways. Trim sub-grades to required lines and grades.
- G. Utility Trenches: Excavate trenches to indicate slopes, lines, depths, and invert elevations. Maintain 12 inches of working clearance on each side of pipe or conduit unless otherwise noted on the Plans.
- H. Under pavements and walkways, place sub-base course material on prepared sub-grades and compact at optimum moisture content to required grades, lines, cross sections, and thicknesses.
- I. Under slabs on grade, place drainage course on prepared sub-grade and compact to required cross section and thickness per Structural Engineer recommendation(s).

3.02 EXCAVATION FOR PAVEMENTS

- A. Cutting Pavement, Curbs, and Gutters: Saw cut with neat, parallel, straight lines one foot wider than trench width on each side of trenches and one foot beyond each edge of pits. If an existing pavement joint or cracked area is within two feet outside of a designated saw cut line shown on the drawings, removal and resurfacing shall be to that joint, and/or shall include the crack or cracked area, unless otherwise approved by the State.

3.03 SUBGRADE INSPECTIONS

- A. Notify the Engineer, the State, and the City's Inspection Representative when excavations have reached required sub-grade.
- B. If the Engineer determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or material as directed.

3.04 BACKFILL

- A. Place and compact backfill in excavations promptly.
- B. Place backfill on sub-grades free of mud, frost, snow or ice.

3.05 COMPACTION

- A. Relative compaction specifications apply to material whether in an excavation or an embankment. The moisture content of material to be compacted to at least 95 percent must be such that the specified relative compaction is attained and the embankment is in a firm and stable condition. Do not compact material that contains excessive moisture until the material is dry enough.
- B. Compact earthwork to a relative compaction of at least 95 percent for at least a depth of:
 - 1. 0.5 foot below the grading plane for the width between the outer edges of shoulders
 - 2. 2.5 feet below the finished grade for the width of the traveled way plus 3 feet on each side

Except for the outer 5 feet measured horizontally from the embankment side slope, compact the full width and depth of the embankment within 150 feet of each bridge abutment to at least 95 percent relative compaction. The 150-foot limit is measured horizontally from the bridge abutment and either parallel or concentric with the roadway centerline.

- C. Compact earthwork to a relative compaction of at least 95 percent for embankments under retaining wall footings without pile foundations:
 - 1. For the full depth of the embankment
 - 2. Within the limits established by inclined planes sloping 1.5:1 (horizontal: vertical) out and down from lines 1 foot outside the bottom edges of the footing
- D. Compact earthwork to a relative compaction of at least 90 percent in embankment areas not required to be compacted to 95 percent.
- E. Compacted layers shall be no greater than 6 inches per lift nor less than 3 inches per lift.

3.06 FIELD QUALITY CONTROL

- A. Testing Agency Services: Contractor's testing agency shall inspect and test each sub-grade and each fill or backfill layer. Earthwork shall not proceed until test results for previously completed work verify compliance with requirements.
- B. Perform field in-place density tests according to CTM 216.
 - a. Field in-place density tests may also be performed by the nuclear method according to CTM 231, provided that calibration curves are periodically checked

and adjusted to correlate to tests performed using CTM 216. Calibration tests using CTM 216 should be performed at a ratio of one for every 6 nuclear method tests. With each density calibration check, check the calibration curves furnished with the moisture gages according to CTM 111.

- b. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.
2. Footing Sub-grade: At footing sub-grades, perform at least one test of each soil stratum to verify design bearing capacities. Subsequent verification and approval of other footing sub-grades may be based on a visual comparison of each sub-grade with related tested strata when acceptable to the Engineer.
3. Paved and Building Slab Areas: At sub-grade and at each compacted fill and backfill layer, perform at least one field in-place density test for every 2,000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests. Contractor will proof roll sub-grade with 50-ton pneumatic tired roller to detect soft spots at the direction of the State.
4. Trench Backfill: In each compacted initial and final backfill layer, perform at least one field in-place density test for each 150 feet or less of trench, but no fewer than two tests.

END OF SECTION

SECTION 31 23 19

DEWATERING

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes construction dewatering.

1.2 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control ground-water flow into excavations and permit construction to proceed on dry, stable sub-grades.

1.3 SUBMITTALS

- A. Shop Drawings for Information: Show arrangement, locations, and details of wells and well points; locations of headers and discharge lines; and means of discharge and disposal of water.
 - 1. Include shop drawings signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with water disposal requirements of authorities having jurisdiction.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
 - 1. Include shop drawings signed and sealed by the qualified professional engineer responsible for their preparation.
 - 2. Protect sub-grades and foundation soils from softening and damage by rain or water accumulation.

3.2 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
- B. Before excavating below groundwater level, place system into operation to lower water to specified levels. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed, or until dewatering is no longer required.
- C. Provide an adequate system to lower and control groundwater to permit excavation, construction of structures, and placement of fill materials on dry sub-grades. Install sufficient dewatering equipment to drain water-bearing strata above and below bottom of the foundations, drains, sewers, and other excavations.
 - 1. Do not permit open sump pumping that leads to loss of fines, soil piping, sub-grade softening, or slope instability.
- D. Reduce hydrostatic head in water –bearing strata below sub-grade elevations of foundations, drains, sewers, and other excavations.
 - 1. Maintain piezometric water level a minimum of twenty-four (24) inches below surface of excavation.
- E. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water in a manner that avoids inconvenience to others. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.
- F. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, restore damaged structures and foundation soils at no additional expense to owner.
 - 1. Remove dewatering system from project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of thirty-six (36) inches below overlying construction.
- G. Damages: Promptly repair damages to adjacent facilities caused by dewatering.

END OF SECTION

SECTION 31 23 33

TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.01 SUMMARY

- A. The work encompassed by this Section shall consist of performing all operations and furnishing all labor, materials, tools, equipment, and incidentals as necessary to:
 - 1. Trench for underground utilities including all stripping, excavation and trench shoring.
- B. This specification provides the requirements and standards for bedding of pipes and conduits, and for trench backfill materials and construction procedures, including testing and inspection.
- C. Volume 1 - Contracting Requirements, and Division - 01 General Requirements apply to the Work of this Section.

1.02 QUALITY ASSURANCE

- A. Standard Test Methods:
 - 1. The following standard test methods of the American Society for Testing and Materials (ASTM) form a part of this specification and are referred to herein by alphanumeric designation:
 - a. C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - b. D423 Method of Test for Liquid Limit of Soils.
 - c. D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils..
 - d. D1556 Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method.
 - e. D1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - f. D2419 Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
 - g. D2844 Standard Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils.

- h. D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

B. Substitute Test Method:

- 1. Where local practice prescribes revised test methods for the ASTM tests listed above, those test may be substituted for the ASTM designated test method listed upon prior approval from CM.

C. Material Sources:

- 1. New Sources – The Contractor shall provide all bedding and backfill materials from sources previously undeveloped, tested, and certified by an approved, independent materials testing laboratory, per these specifications.
- 2. Existing Sources – Bedding and backfill materials from sources previously developed may be accepted without testing and certification upon written request by the Contractor. The existing sources shall be validated by the geotechnical engineer and deemed appropriate. CM and Engineer reserves the right to determine the acceptability of all materials proposed for use.

1.03 SUBMITTALS

A. Submit under provisions of Section 01 33 00 Submittal Procedures

- 1. Backfill material specifications.

PART 2 - PART 2 - PRODUCTS

2.01 MATERIALS

A. Sand:

- 1. Material shall be free of clay, organic matter or other objectionable material, and shall conform to the following standards:
 - a. Gradation per ASTM C136

Sieve Size	Percent by Weight Passing Sieve
3/8"	100
#4	90-100
#50	10-40
#100	3-15
#200	0-7

B. Type II Class B Aggregate Base, Roadbase

1. Type II shall be a crusher run, mineral aggregate free clay, organic matter, or other objectionable material, and shall conform to the following standards:

a. Gradation per ASTM C136

Sieve Size	Percent by Weight Passing Sieve
1"	100
3/4"	90-100
#4	35-65
#16	15-40
#200	2-10

b. Liquid Limit per ASTM D423

1) 35 maximum.

c. Plasticity Index per ASTM D4318

1) Maximum Allowable Plasticity Index (P) shall be determined by the formula $PI = 15 - (S \times 100)$ where "S" is the percent by weight passing the #200 sieve.

d. Resistance R-Value per ASTM D2844

1) 70 minimum.

C. Class C Backfill, 3/4" minus crushed drain rock:

1. Class C backfill need not be washed but shall be free of any organic impurities, clay lumps, or unstable substances. The material shall be graded from 3/4" to 3/8" conforming to the following gradation:

a. Gradation per ASTM C136

Sieve Size	Percent by Weight Passing Sieve
1"	100
3/4"	90-100
3/8"	10-55
#4**	0-10

b. **5% of pan material will be allowed.

c. Liquid Limit per ASTM D423

1) 35 maximum.

d. Plasticity Index per ASTM D4318

- 1) Maximum Allowable Plasticity Index (PI) shall be determined by the formula:
 $PI = 15 - (S \times 100)$ where "S" is the percent by weight passing the #200 sieve.

e. Resistance R-Value per ASTM D2844

- 1) 70 minimum.

D. Native Backfill:

1. Native backfill shall be excavated native granular material free drainage of clay, debris, organic matter, and rocks larger than 4" across their greatest dimension.

E. Substitute Material:

1. Substitute bedding and backfill materials may only be used if prior written approval is provided from the Geotechnical Engineer and the State. In requesting the use of a substitute material, the Contractor must submit adequate evidence that the materials have been successfully used in similar applications for other utilities or local governmental agencies.

F. Buried Warning Tape:

G. Polyethylene plastic warning tape manufactured specifically for warning and identification of buried utility lines. Color shall be:

- a. Yellow: Electric
- b. Yellow: Gas
- c. Orange: Telephone and Other Communications
- d. Blue: Water Systems
- e. Green: Sewer Systems

H. Detection Wire:

1. Detection wire shall be insulated single strand, solid copper with a minimum of 12 AWG.

PART 3 - EXECUTION

3.01 EXCAVATIONS FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths and elevations.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of the pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

- C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape sub-grade to provide continuous support for bells, joints and barrels of pipes and for joints, fittings and bodies of conduits. Remove projecting stones and sharp objects along trench sub-grade.
- D. Where unidentified existing utilities are encountered, determine whether these are active or abandoned. Remove interfering portions of abandoned utilities and cap or plug open ends of pipe to remain. Damage to utilities or other improvements due to Contractor's negligence in regard to this paragraph shall be repaired at the Contractor's expense.
- E. Contractor shall pothole at all identifiable crossings of existing utilities prior to any trenching operations and provide the CM with a survey of the top elevations (and bottom elevations, if applicable), of possible interferences so that an evaluation of necessary adjustments to the current profile or alignment may be made. Additionally, the CM shall be given the opportunity to view possible conflicts in the field prior to the Contractor providing revised designs.

3.02 TRENCH CONFIGURATION

- A. Material Installation/Repair
- B. Conduits, pipes, and all apparatus shall be handled, installed, and joined in accordance with the manufacturer's specifications or recommendations. The Contractor, at his/her own expense, shall repair or replace any conduits, pipes or appurtenances damaged during bedding and backfill operations.
- C. Sand Bedding
 - 1. Sand bedding material, conforming to Article 2.1, A shall be placed in 12" maximum loose lifts and compacted to 90% maximum density per ASTM D1557.
- D. Backfill
 - 1. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below sub-grade under pavements and slabs.
 - 2. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
 - 3. Place and compact initial backfill of satisfactory soil (per Specification 31 20 00), free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.
 - 4. Place and compact final backfill of satisfactory soil (per Specification 31 20 00) to final sub-grade elevation.
 - 5. Place backfill on sub-grades free of mud, frost, snow or ice.
 - 6. Public Rights-of-Way

- a. Trenches in established streets, highways, or private paved areas subject to vehicular traffic, shall be backfilled per the requirements of the local utility agency.

E. Compaction

1. All compaction shall be per Specification 31 20 00.

F. Trench Dewatering

1. Where groundwater is encountered, the Contractor shall dewater the trench sufficiently to meet the bedding and backfill requirements of Article 3.1, B and C.
2. Dewatering shall continue until backfill has progressed to a minimum of two feet above the groundwater level. CM may require drain rock (3/4" minus) in addition to the sand bedding depending on condition of trench bed.

G. Finish Operations

1. Fine Grading:

- a. After backfilling, all trenches except those in existing paved areas shall be graded flush with adjacent finish or subgrade elevations. In landscaped areas, coordinate with topsoil requirements.

2. Temporary Patching

- a. Unless otherwise specified, all pavement cuts shall be temporarily patched with asphaltic concrete to a minimum depth of 2", with the finish grade 1/2" above the grade of the existing asphalt.

3. Disposition of Excess Materials

- a. Surplus excavated soils, asphalt pavement, concrete and other debris shall be promptly removed from the jobsite and properly disposed of.

3.03 FIELD SAMPLING AND TESTING

- A. Testing shall be per Specification 31 20 00.

END OF SECTION

SECTION 31 40 00

SHORING AND UNDERPINNING

PART 1 – GENERAL

1.01 DESCRIPTION

A. SCOPE:

This section specifies requirements for sheeting, shoring, and bracing of trenches greater than 5 feet in depth. Nothing in this section shall be deemed to allow the use of a shoring, sloping, or protective system less effective than that required by the Construction Safety Orders. Nothing in this section shall be construed to impose tort liability on the Owner, Owner's employees, or the Construction Manager.

B. DESIGN REQUIREMENTS:

The Contractor shall design sheeting, shoring, and bracing in accordance with Article 6 of CAL/OSHA and the California State Labor Code. The standards of design referred to in the Labor Code shall be those of CAL/OSHA. Horizontal strutting below the barrel of a pipe and the use of pipe as support are not acceptable.

1.02 REFERENCES

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
CAL/OSHA	State of California Construction Safety Orders
--	California State Labor Code

1.03 SUBMITTALS

Submittals shall be provided in accordance with Section 01 33 00 and shall include the following information:

1. A copy of this specification section, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark (✓) shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. *Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.*
2. The Contractor shall submit information required by Section 6705 of the California State Labor Code.
3. A detailed plan shall be submitted before excavation showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from shoring system standards, the plan shall be prepared by a registered civil or structural engineer registered in the State of California.

1.04 CONTRACTOR'S RESPONSIBILITIES FOR SAFETY

A. The Contractor shall be solely and completely responsible for conditions of the job site, including safety of all persons (including employees), and property during performance of the work. These requirements shall apply continuously and not be limited to normal working hours.

B. Safety provisions shall conform to U.S. Department of Labor (OSHA), the California Occupational Safety and Health Act, and all other applicable federal, state and county, laws, ordinances, codes, the requirements set forth below, and any regulations that may be detailed in other parts of these Specifications.

C. Where any of these are in conflict, the more stringent requirement shall be followed.

1.03 PERMIT

For trenches or excavations of depths of 5 feet or more, the Contractor shall obtain from the State Division of Industrial Safety a permit for such excavation and submit a copy of the permit to the Construction Manager, prior to initiating any work requiring said permit.

1.04 SAFETY ORDERS

A. The Contractor shall have copies or suitable extracts of the Construction Safety Orders of Cal-OSHA at the work site.

B. All work shall comply with the provisions of these and all other applicable laws, ordinances, and regulations.

1.05 SHORING AND TRENCH SAFETY PLAN

A. For trenches and excavations 5 feet or more in depth, the Contractor shall submit to the Construction Manager a detailed plan design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazards of caving ground.

B. Such the work shall be submitted at least 10 days before the Contractor intends to begin trenching or excavation work.

C. If such the work vary from the shoring system standards established by the Construction Safety Orders, the work shall be prepared, sealed, and signed by a Civil or Structural Engineer currently registered in California and experienced in shoring design. Signed and sealed copies of calculations necessary to qualify the system shall be submitted also.

D. Nothing herein shall be deemed to allow the use of shoring, sloping, or protective systems less effective than that required by the Construction Safety Orders of the Division of Industrial Safety.

1.06 ENGINEER'S REVIEW

A. The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

B. The Engineer will review the submittal of the Contractor's proposed shoring system to verify the general scope of the work, to determine that qualified professional engineering services are used, and to determine that appropriate construction techniques are proposed for use. This review shall not in any way be construed to relieve the Contractor from sole responsibility for the design and safety of such shoring.

1.07 CONTRACTOR'S SUPERVISOR

A. The Contractor shall appoint a qualified supervisor, who shall be responsible for determining the shoring system which shall be used depending on local soil type, water table, etc.

B. This supervisor shall have experience in the direction of such excavation and shoring work.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 GENERAL

The construction of sheeting, shoring, and bracing shall not disturb the state of soil adjacent to the trench and below the excavation bottom. Trench sheeting below the top of a pipe shall be left in place.

3.02 SEQUENCE

Trench engineer shall not be started until the design for trench support has been accepted by the Owner.

END OF SECTION

SECTION 32 00 00

EXTERIOR IMPROVEMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

This section specifies new and replacement paving consisting of aggregate base course, hot mixed asphalt, and associated materials, gravel roadways consisting of aggregate base course and aggregate top course, and concrete walkways. Other sections in Division 32 may further refine the specifications in this section.

1.02 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM D1557-78	Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb. (4.5-kg) Rammer and 18-in. (457-mm) Drop
ASTM D2922	Test Method for Density of Soil in Place by the Nuclear Methods
ASTM D994	Preformed Expansion Joint Filler for Concrete (Bituminous Type)
CTM 216	Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates
CTM 231	Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates Using Nuclear Gage
Caltrans 2018 Standard Specifications	State of California, Department of Transportation, Standard Specifications, latest edition (2018)

B. TESTING:

Testing will be conducted by an independent laboratory acceptable to the Engineer and paid for by the Contractor to determine compliance with the specified degree of compaction and moisture content prior to placement of aggregate base course.

1.03 The following Submittals are required in accordance with Section 01 33 00:

1. Mix
2. Gradation of road used
3. Method of placement

PART 2 – PRODUCTS

2.01 MATERIALS

A. AGGREGATE BASE:

Aggregate base course for pavement shall be Class 2, ¾-inch maximum grading conforming to Section 26 of the Caltrans 2018 Standard Specification .

B. LIQUID ASPHALT:

Liquid asphalt for tack coats and treatment of aggregate base shall be Grade MC 250 and shall comply with Section 92 of the Caltrans 2018 Standard Specifications.

C. HOT MIX ASPHALT:

Hot Mix Asphalt shall be Type A and shall conform to Section 39, "Hot Mix Asphalt," of the Caltrans 2018 Standard Specifications.

The aggregate for Type "A" Hot Mix Asphalt shall conform to gradation table for 3/4-in HMA Type A and B, as specified in Section 39-2.02A(4)(b)(ii), "Aggregates," of the Caltrans 2018 Standard Specifications.

D. CONCRETE AND REINFORCING STEEL:

Concrete and reinforcing steel for concrete curbs and sidewalks shall be as specified in Section 73, "Concrete Curbs and Sidewalks," of the Caltrans 2018 Standard Specifications.

E. EXPANSION JOINT FILLER:

Expansion joint filler shall be premolded, composed of asphalt fiber and mineral filler with asphalt impregnated liners on both sides, and shall conform to ASTM D994.

PART 3 – EXECUTION

3.01 GENERAL

Construction shall conform to the details, dimensions, and grades specified. Maximum variations in finished grade of paving shall be plus or minus 0.05 feet.

3.02 AGGREGATE BASE PLACEMENT

A. SUBGRADE:

The subgrades of areas to be paved or graveled shall be graded and compacted in accordance with paragraph 31 20 00-3.05.

B. AGGREGATE BASE:

Placing of aggregate base shall comply with Section 26 of the Caltrans 2018 Standard Specifications. Relative compaction shall be a minimum of 95 percent as determined using methods set forth in CTM 216 and CTM 231.

3.03 HOT MIX ASPHALT PAVEMENT

Placement of hot mix asphalt pavement shall comply with Section 39 of the Caltrans 2018 Standard Specifications.

3.04 CONCRETE CURBS AND SIDEWALKS

A. GENERAL:

Concrete work shall be performed in accordance with Section 73, "Concrete Curbs and Sidewalks," of the Caltrans 2018 Standard Specifications.

B. EXPANSION JOINT INSTALLATION:

Unless otherwise specified, expansion joints shall be provided in concrete work at intervals not to exceed 20 feet and against structures abutting sidewalks.

3.05 ADJUST

Adjust frames, covers, gratings, and manholes conforming to Section 71-5 ADJUST DRAINAGE STRUCTURES of the Caltrans Standard Specifications and the details shown on the plans.

END OF SECTION

SECTION 32 11 00

BASE COURSES

PART 1 - GENERAL

1.01 SUMMARY

- A. The work encompassed by this section shall consist of performing all operations and furnishing all labor, material, tools, equipment, and incidentals as necessary to:
 - 1. Place and compact base courses for concrete paving, asphalt paving, sidewalks, and curbs;
 - 2. Place and compact rock courses and sand beds under slabs on grade.
- B. Volume 1 - Contracting Requirements, and Division - 01 General Requirements apply to the Work of this Section.

1.02 REFERENCES

- A. Section 26 of the Caltrans 2018 Standard Specifications.
- B. Geotechnical Investigation: Project Geotechnical Investigation.
- C. American Society of Testing and Materials:
 - 1. ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
- D. California Department of Transportation
 - 1. CTM 202, Method of Test for Sieve Analysis of Fine and Coarse Aggregates
 - 2. CTM 204, Method of Tests for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
 - 3. CTM 216, Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates
 - 4. CTM 231, Method of Test for Relative Compaction of Untreated and Treated Soils and Aggregates Using Nuclear Gages

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00 Submittal Procedures.
 - 1. Material test data for aggregate base, rock course, and sand.

1.04 QUALITY ASSURANCE

- A. Obtain materials from same source throughout.
- B. Perform Sieve Analysis test in accordance with CTM 202.
- C. Determine Liquid Limit and Plasticity Index in accordance with CTM 204.
- D. Maximum Wet Density in accordance with CTM 216.
- E. CTM 231, nuclear gage, may be used.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. When unfavorable weather conditions necessitate interrupting placement operations, prepare areas by compaction of surface and grading to avoid collection of water. Provide adequate temporary drainage to prevent erosion. After interruption, re-establish compaction specified in last layer before resuming work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Class 2 Aggregate Base: Aggregate for Class 2 aggregate base shall be free from organic matter and other deleterious substances and shall be of such nature that it can be compacted readily under watering and rolling to form a firm, stable base. Aggregate must consist of any combination of broken stone, crushed gravel, natural rough surfaced gravel, sand, and up to 100% of any combination of processed asphalt concrete, Portland cement concrete, lean concrete base, cement treated base.
- B. Aggregate base shall conform to the grading and quality requirements shown in the following tables. Either the 1-1/2 inch maximum or 3/4 inch maximum shall be used; except that once a grading is selected the grading shall not be changed.

1. Aggregate Grading Requirements:

Sieve Sizes	Percentage Passing			
	1-1/2" Maximum		3/4" Maximum	
	Range	Compliance	Range	Compliance
2"	100	100	--	--

Sieve Sizes	Percentage Passing			
	1-1/2" Maximum		3/4" Maximum	
	Range	Compliance	Range	Compliance
1-1/2"	90-100	87-100	--	--
1"	--	--	100	100
3/4"	50-85	45-90	90-100	87-100
No. 4	25-45	20-50	35-60	30-65
No. 30	10-25	6-29	10-30	5-35
No. 200	2-9	0-12	2-9	0-12

2. Quality Requirements:

Tests	Operating Range	Contract Compliance
Resistance (R-Value)	--	78 min
Sand Equivalent	25 min	22 min
Durability Index	--	35 min

C. The aggregate shall not be treated with lime, cement or other chemical material before the Durability Index test is performed. Untreated reclaimed asphalt concrete and Portland cement concrete will not be considered to be treated with lime, cement or other chemical material for purposes of performing the Durability Index test.

D. Rock Course under Building Slab:

1. Clean mineral aggregate (broken stone, crushed gravel, clean quarry waste, or combination thereof).
2. Free of adobe, organic matter, loam, volcanic tuff, or other deleterious material.
3. Absorption of water in saturated surface dry condition shall not exceed 3% of oven dry weight of sample.
4. Graded (Laboratory sieves, U.S. Series) to following: 100% passing 1 inch sieve and 0 to 10% passing No. 4 sieve.
5. Class 2 aggregate base is acceptable, however reclaimed aggregate shall not be used.

E. Sand: Clean dry concrete sand of no special grading or compaction.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to placing Aggregate Base on subgrade for drives and parking lots, the stability of the subgrade shall be checked by proof rolling with a roller or laded water truck. Areas which are not stable shall be allowed to air dry until stable or shall be over excavated and backfilled with Aggregate Sub-base.

3.02 AGGREGATE BASE

- A. All work shall be performed in compliance with Section 26 of the Caltrans 2018 Standard Specifications.
- B. The subgrade to receive aggregate base, immediately prior to spreading shall conform to the compaction and elevation tolerance specified for the material involved and shall be free of loose or extraneous material.
- C. At the time aggregate base is spread it shall have a moisture content sufficient to obtain the required compaction. The moisture shall be uniformly distributed throughout the material.
- D. The aggregate base shall be spread and compacted as specified herein.
- E. Compact upper 12 inches of subgrade to 95% relative compaction, moisture conditioned to at least optimum. Compact base course to a minimum of 95% compaction with densities in accordance with CTM 216 and CTM 231. Compacted layers shall be no greater than 6 inches per lift nor less than 3 inches per lift.
- F. Measure thickness of base course material once per every 2,000 square feet. All measurements shall be within 1/2 inch of the specified thickness; where measurements exceed 1/2 inch of specified thickness the section shall be considered as conforming.

END OF SECTION

SECTION 32 12 00

FLEXIBLE PAVING

PART 1 - GENERAL

1.01 SUMMARY

- A. The work encompassed by this section shall consist of performing all operations and furnishing all labor, material, tools, equipment, and incidentals as necessary to place asphalt concrete paving including prime coat, tack coat, and seal coat.
- B. Volume 1 - Contracting Requirements, and Division - 01 General Requirements apply to the Work of this Section.

1.02 REFERENCES

- A. Section 37 and 39 of the Caltrans 2018 Standard Specifications.
- B. Section 92, 93 and 94 of the Caltrans 2018 Standard Specifications.
- C. California Department of Transportation:
 - 1. CTM 304, Preparation of Bituminous Mixtures for Testing.
 - 2. CTM 308, Method of Test for Determining Bulk Specific Gravity and Density of Compacted Hot Mix Asphalt.
 - 3. CTM 375, Determining the In-Place Density and Relative Compaction of Hot Mix Asphalt Paving Using Nuclear Gages
- D. American Society of Testing and Materials:
 - 1. ASTM D946, Penetration Graded Asphalt Cement for use in Pavement Construction.
 - 2. ASTM D2950, Test Method for Density of Bituminous Concrete in Place by Nuclear Methods.
 - 3. ASTM D2041, Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.

1.03 ACTION SUBMITTALS

- A. Submit under provisions of Section 01 33 00 Submittal Procedures.
- B. Mix design for each class of mix.

1.04 QUALITY ASSURANCE

- A. Perform work in accordance with the Caltrans 2018 Standard Specifications.
- B. Mixing Plant: Conform to the requirements of the Caltrans 2018 Standard Specifications.
- C. Obtain materials from same source throughout.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Asphalt Binder: The grade of the asphalt binder to be mixed with aggregate for asphalt concrete shall be Grade PG 64-16 conforming to the provisions in Section 92 of the Caltrans 2018 Standard Specifications. The minimum asphalt binder must be 6.0 percent for 1/2" gradation.
- B. Aggregate: Aggregate shall meet the full requirements of Section 39-2.02 of the Standard Specifications for Type B (1/2 inch maximum medium grading). The amount of asphalt binder to be mixed with aggregate shall be such that the air void content of the resulting asphalt concrete shall be not less than 4% +/- 2%. Stabilometer value as determined by CTM 304 shall be 35 minimum.
- C. Prime Coat: Primer shall be MC-70 or SC-70 grade liquid asphalt conforming to the provisions of Section 93 of the Caltrans 2018 Standard Specifications applied at a rate of 0.25 gallons per square yard.
- D. Tack Coat: Tack coat shall be RS-1 type asphalt emulsion conforming to the provisions of Section 94 of the Caltrans 2018 Standard Specifications.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that compacted aggregate base is dry and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

3.02 SPREADING and COMPACTING EQUIPMENT

- A. Spreading and Compacting Equipment shall conform to Section 39 of the Caltrans 2018 Standard Specifications.
- B. Furnish a minimum of one steel tired roller weighing not less than 12 tons, and one vibratory steel tired roller weighing not less than 8 tons. Vibratory rollers shall be double

steel drum, have adjustable frequency and amplitude settings directly available to the operator during operation. Each roller shall have a separate operator.

3.03 PREPARATION: PRIMER

- A. Apply primer in accordance with the Caltrans 2018 Standard Specifications.
- B. Use clean sand to blot excess primer.

3.04 PREPARATION – TACK COAT

- A. Apply tack coat in accordance with the Caltrans 2018 Standard Specifications.
- B. Apply tack coat to vertical contact surfaces of curbs and gutters.
- C. Coat manhole and catch basin frame surfaces.

3.05 PLACING ASPHALT PAVEMENT

- A. Install work in accordance with the Section 39 of the Caltrans 2018 Standard Specifications.
- B. Place asphalt within 24 hours of applying primer or tack coat.
- C. Place to compacted thickness per Section 39-6.01 of the Caltrans 2018 Standard Specifications.
- D. Install gutter drainage grilles and frames, manhole frames, etc., in correct position and elevation.
- E. Compact pavement in accordance to Section 39-6.03 of the Caltrans 2018 Standard Specifications. Do not displace or extrude pavement from position. Hand compact any areas inaccessible to rolling equipment.
- F. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.
- G. Spread all mixtures at a temperature of not less than 260 degrees F, and not greater than 300 degrees F. Perform initial rolling immediately after placement. No asphalt concrete is to be placed when the atmospheric temperature is below 50 degrees F.
- H. Compact asphalt concrete to a minimum relative density of 95% of the maximum theoretical density (CTM 308 prior to mat cooling below 250 degrees F).

3.06 TOLERANCES

- A. Flatness: The finish surface shall be uniform to a degree such that no depressions greater than 0.02 feet are present when tested with a straightedge 12 feet long.

- B. Scheduled Compacted Thickness: Within 0.01 feet.
- C. Variation from True Elevation: Within 0.02 feet.
- D. Density shall be tested in conformance with CTM 375 and shall average 95% of the laboratory compacted unit weight (CTM 304).

END OF SECTION

SECTION 32 17 00

PAVING SPECIALTIES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Traffic Stripes and Pavement markings
 - 2. Detectable warning surface

1.2 SUBMITTALS

- A. Product Data: Manufacturer's printed product data for each product specified.
- B. Detectible Warning Surface Warranty per Caltrans 2018 Standard Specifications Section 73-3.01C.

1.3 QUALITY ASSURANCE

- A. Americans with Disabilities Act (ADA): Title III Regulations, 28 CFR Part 36 ADA Standards For Accessible Design, Appendix A, Section 4.29.2 Detectable Warnings On Walking Surfaces, supplemented by Caltrans Standard Plans and Specifications.

1.4 CALTRANS REFERENCE SPECIFICATIONS

- A. Section 84 Markings.
- B. Section 73 Concrete Curbs and Sidewalks.

PART 2 – PRODUCTS

2.1 PAVEMENT MARKING PAINT

- A. Products for Traffic Stripes and Pavement Markings to comply with Caltrans 2018 Standard Specifications Section 84-2.02 Materials.
 - 1. Thermoplastic Traffic Stripes and Pavement Markings: Thermoplastic traffic stripes and pavement markings shall conform to the provisions of Section 84-2, "Thermoplastic Traffic Stripes and Pavement Markings," of the Caltrans Standard Specifications.
 - 2. Thermoplastic Material: Thermoplastic material shall conform to either Caltrans Standard Specification PTH-02ALKYD, PTH-02SPRAY or PTH-02HYDRO. Glass beads to be applied to the surface of molten thermoplastic material shall conform to the requirements of State Specification 8010-004.

2.2 DETECTABLE WARNING SURFACE

- A. Refer to Caltrans 2018 Standard Specifications Section 73-1.02B.

PART 3 – EXECUTION

3.1 PAVEMENT MARKING

- A. Conform to Construction Requirements in Caltrans 2018 Standard Specifications Sections 84 and 73.

END OF SECTION

SECTION 33 30 00
SANITARY SEWERAGE

PART 1 - GENERAL

1.01 GENERAL

- A. The work encompassed by this section shall consist of performing all operations and furnishing all labor, materials, tools, equipment, and incidentals as necessary for the installation of sanitary sewer piping, fittings, and accessories for the following:
 - 1. Sanitary sewer piping, fittings, and accessories for adjustment of covers.
- B. Volume 1 - Contracting Requirements, and Division - 01 General Requirements apply to the Work of this Section.

1.02 REFERENCES

- A. American Society for Testing Materials:
 - 1. ASTM D-1784, Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
 - 2. ASTM D-1785, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - 3. ASTM D-2464, Standard Specification for Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
 - 4. ASTM D-2467, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
 - 5. ASTM D-3034, Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - 6. ASTM F-477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00.
 - 1. Product data for pipe fittings, and all products listed below.
 - 2. Field quality control reports.

PART 2 - PRODUCTS

2.01 PIPE MATERIALS

- A. Gravity Sewer: Poly Vinyl Chloride (PVC) material with integral wall, bell and spigot joints. Pipe and fittings shall meet wall and strength minimum of SDR 35, and the requirements of ASTM D3034. Joints shall be equipped with rubber rings. The bell shall consist of an integral wall section with a solid cross section rubber ring factory assembled, securely locked in place to prevent displacement. Rubber rings shall meet the requirements of ASTM F477. All fittings and accessories shall be manufactured and furnished by the pipe supplier and have bell and/or space configurations identical to that of the pipe.

2.02 MANHOLES

- A. Precast Concrete Manholes: Conforming to ASTM C478. Base and first riser shall be monolithic. Gaskets for joints between manhole sections shall conform to ASTM C443. Resilient connectors for making joints between manhole and pipes entering manhole shall conform to ASTM C923 or ASTM C990. Traffic rated structures required as noted on drawings.
- B. Manhole Frames and Covers: Frame and cover must be cast gray iron, ASTM A48, Class 35B, cast ductile iron, ASTM A536, Grade 65-45-12, or meeting local requirements. Frames and covers must be circular. Include indented top design with lettering cast into cover. Traffic rated frames and covers required as noted on drawings.

2.03 PIPE ACCESSORIES

- A. Fittings: All fittings and accessories shall be manufactured and furnished by pipe supplier of same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.

2.04 EXCAVATION AND BACKFILL

- A. Excavation and backfill for all sewers shall conform to the provisions of Division 31, Section 31 23 33 of these specifications.

PART 3 - EXECUTION

3.01 GENERAL

- A. Verify existing elevations prior to extensive excavating and notify the State of any discrepancies. Contractor shall be liable for any premature construction, which must be modified due to unforeseen existing conditions. Verify location of point of connection (POC).

- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream.
- C. Provide all necessary fittings, fixtures, hardware, plates, fasteners, etc. to provide complete installation.
- D. Use manholes or cleanouts for changes in direction or pipe size.
- E. For sewer main location, alignment, cover, and size: Conform to local requirements.
- F. All installations shall be secure and watertight.

3.02 INSTALLATION

- A. Excavate pipe trench and place pipe zone bedding material in accordance with Section 31 23 33 of these specifications.
- B. Pipe Bedding and Backfill: Per the requirements of the local jurisdiction or per Section 31 23 33 of these specifications.
- C. The bottom of the trench shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the pipe barrel.
- D. Install pipe, fittings, and accessories in accordance with manufacturer's instructions. Seal joints watertight.
- E. The pipe shall be laid without break upgrade from structure to structure, with bell end upgrade for bell and spigot pipe.
- F. The horizontal alignment of the pipe shall be laid such that any point shall not vary more than 0.10 feet from the design alignment.
- G. Install pipe zone bedding material at sides and over top of pipe in accordance with Section 31 23 33 of these specifications.
- H. Place trench zone backfill in accordance with Section 31 23 33 of these specifications. Do not displace or damage pipe when compacting.

3.03 CONNECTIONS TO EXISTING

- A. No new sewer line shall be connected to an existing sewer system until the new sewer lines are installed, flushed, and satisfactorily tested.

3.04 BRACING AND SHORING

- A. As required by the Trench Construction Safety Orders of the California Construction Safety Orders of the Division of Occupational Safety and Health, bracing and shoring shall be installed in trenches of five feet or greater depth to insure the safety of workers and to protect and facilitate the work.

3.05 TESTING SEWERS

- A. All sewers, sewer services, and manholes shall be tested and observed for obstructions and leakage in accordance with the provisions of the local jurisdiction and per ASTM D3212.
- B. Final acceptance and testing requirements shall conform to the requirements of this section or local requirements, which ever are more stringent.
- C. Mandrel test of PVC pipe.
 - 1. Following the placement and densification of backfill and prior to the placing of permanent pavement, all main line pipe shall be cleaned and then mandrelled to measure for obstructions (deflections, joint offsets and lateral pipe intrusions). A rigid mandrel, approved by the Engineer, with a circular cross section having a diameter of at least 95% of the specified average inside diameter, shall be pulled through the pipe by hand. Mandrel testing shall be performed 30 days or longer after installation and backfill compaction. In the event permanent pavement is placed prior to that time, mandrel-testing shall be required prior to pavement placement and a second mandrel test 30 days or longer after compaction of backfill. The backfill shall be removed and re-compacted for any section of pipe that fails the mandrel test. Re-rounders shall not be used to correct excessive pipe deformation.
- D. Leakage Test.
 - 1. Test lines for leakage by either infiltration tests or exfiltration tests, or by low-pressure air tests. Prior to testing for leakage, backfill trench up to at least lower half of pipe. When necessary to prevent pipeline movement during testing, place additional backfill around pipe sufficient to prevent movement, but leaving joints uncovered to permit inspection. When leakage or pressure drop exceeds the allowable amount specified, make satisfactory correction and retest pipeline section in the same manner. Correct visible leaks regardless of leakage test results.
 - 2. Perform these tests for sewer lines made of the specified materials, not only concrete, in accordance with ASTM C969. Make calculations in accordance with the Appendix to ASTM C969.
 - 3. Test in accordance with UBPPA UNI-B-6. Allowable pressure drop shall be as given in UBPPA UNI-B-6. Make calculations in accordance with the Appendix to UBPPA UNI-B-6.

END OF SECTION

SECTION 33 40 00
STORMWATER UTILITIES

PART 1 - GENERAL

1.01 SECTION REQUIREMENTS

- A. Perform site survey, research public utility records and/or pothole as necessary to verify existing wet and dry utility locations. Contact utility locating service for area where project is located.
- B. Drainage design shall conform to local requirements.
- C. Volume 1 - Contracting Requirements, and Division - 01 General Requirements apply to the Work of this Section.

1.02 ACTION SUBMITTALS

- A. No action submittals are necessary.

1.03 INFORMATIONAL SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings:
 - 1. Manholes: Include plans, elevations, sections, details, frames, and covers.
 - 2. Catch basins and stormwater inlets. Include plans, elevations, sections, details, frames, covers, and grates.
 - 3. Trench drains: include plans, elevations, sections, details, frames, covers, and grates.
- C. Field quality-control reports.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

- A. Conduits shall be designed to have a minimum useful life of 50 years.

- B. Cast-in-Place concrete pipe, Non-reinforced Concrete Pipe, and Reinforced Concrete Pipe conforming to the California Department of Transportation Standard Specifications will be acceptable.
- C. Polyethylene (PE) large diameter profile wall pipe conforming to ASTM F894, ASTM F2306, or Polyvinylchloride (PVC) large diameter profile wall pipe conforming to ASTM F794 will be acceptable.
- D. The minimum allowable pipe size for privately maintained systems is 12 inches.

2.02 MANHOLES, DRAIN INLETS, AND TRENCH DRAINS

- A. Precast Concrete Manholes and Drain Inlets: Meeting local requirements and conform to ASTM C478. Joints between precast concrete risers and tops shall be full-bedded in cement mortar and shall be smoothed to a uniform surface on both interior and exterior of the structure. Traffic rated structures required as noted on drawings.
- B. Manhole Frames and Covers: Cast gray iron, ASTM A48, Class 35B; cast ductile iron, ASTM A536, Grade 65-45-12; or cast aluminum, ASTM B26, Alloy 356.OT6. Include indented top design with lettering cast into cover. Traffic rated frames and covers required as noted on drawings.
- C. Trench drains may either be field formed and cast, with compatible grate, or utilize a manufactured trench drain system. Trench drain systems shall be pre-engineered, manufactured systems that conforms to the design loading requirements of AASHTO H-20.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Verify existing elevations prior to extensive excavating and notify the State of any discrepancies. Contractor shall be liable for any premature construction, which must be modified due to unforeseen existing conditions.
- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Variation from the prescribed grade and alignment shall not exceed one-tenth (0.10) foot, and the rate of departure from, or return to, the established grade or alignment shall be not more than one-tenth (1) inch in ten (10) feet, unless approved by the Engineer. No deviation from grade shall cause a depression in the invert that could retain fluids or solids.
- C. Installation of pipe bedding and backfill shall be in accordance with Section 31 23 33 of these specifications.
- D. Install piping with 24-inch minimum cover. Minimum cover required within the street Right-of-Way shall be 30 inches or per local standards, whichever is more stringent.
- E. Use manholes or drainage inlets for changes in direction or pipe size.

- F. Install PVC pipe and gasketed fittings with gaskets according to ASTM D2321.

3.02 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at beneficial occupancy of Project.
 - 1. Submit separate reports for each system inspection.
 - 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 - 3. Replace defective piping using new materials and repeat inspections until defects are within allowances specified.
 - 4. Reinspect and repeat procedure until results are satisfactory.
- B. Test piping systems for leaks and defects.
 - 1. Do not enclose, cover, or put into service before inspection and approval.
 - 2. Test completed piping systems according to requirements of authorities having jurisdiction.
 - 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 - 4. Submit separate report for each test.
 - 5. Gravity-Flow Storm Drainage Piping: Test according to requirements of authorities having jurisdiction and the following:
 - a. Exception: Piping with soil tight joints unless required by authorities having jurisdiction.
 - b. Option: Test plastic piping according to ASTM F 1417.
 - c. Option: Test concrete piping according to ASTM C 924 (ASTM C 924M).

6. Force-Main Storm Drainage Piping: Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test at pressure not less than 1-1/2 times the maximum system operating pressure, but not less than 150 psig.
 - a. PVC Piping: Test according to AWWA M23, "Testing and Maintenance" Chapter.
- C. Leaks and loss in test pressure constitute defects that must be repaired.
- D. Replace leaking piping using new materials and repeat testing until leakage is within allowances specified.

END OF SECTION